ANALYSES

IUCN/TRAFFIC Analyses of the proposals to amend the CITES Appendices at the 16th meeting of the Conference of the Parties

Bangkok, Thailand
3–14 March 2013

Prepared by IUCN Global Species Programme and Species Survival Commission and TRAFFIC

IUCN

SSC Species Survival Commission

TRAFFIC the wildlife trade monitoring network

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IUCN – The International Union for Conservation of Nature helps the world find pragmatic solutions to our most pressing environment and development challenges. IUCN's work focuses on valuing and conserving nature, ensuring effective and equitable governance of its use, and deploying nature-based solutions to global challenges in climate, food and development. IUCN supports scientific research, manages field projects all over the world, and brings governments, NGOs, the UN and companies together to develop policy, laws and best practice. IUCN is the world's oldest and largest global environmental organization, with more than 1,200 government and NGO members and almost 11,000 volunteer experts in some 160 countries. IUCN's work is supported by over 1,000 staff in 45 offices and hundreds of partners in public, NGO and private sectors around the world.

The IUCN Species Survival Commission (SSC) is the largest of IUCN's six volunteer commissions with a global membership of more than 7,500 experts. SSC advises IUCN and its members on the wide range of technical and scientific aspects of species conservation, and is dedicated to securing a future for biodiversity. SSC has significant input into the international agreements dealing with biodiversity conservation.

TRAFFIC the wildlife trade monitoring network, works to ensure that wildlife trade is not a threat to the conservation of nature. TRAFFIC is a strategic alliance of IUCN and WWF.

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INTRODUCTION

CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) celebrates its 40th anniversary this year, having been opened for signature in Washington DC on 3rd March 1973. If it is to remain a credible instrument for conserving species affected by trade, the decisions of the Parties need to be based on the best available scientific and technical information. Recognizing this, IUCN and TRAFFIC have provided technical reviews of the proposals to amend the CITES Appendices for each Conference of the Party since 1987. Information on the status and biology of species has been collected from IUCN's Species Survival Commission network of specialist groups and the broader scientific community, and used to evaluate the proposals and the information proponents provided against the CITES biological criteria. TRAFFIC has focussed on the analysis of the trade, using components of the proposals in addition to drawing on its own information sources and expert networks. The resulting document brings together a broad range of expertise, which we are confident will be of assistance in the discussions of the proposals.

The Analyses - as these technical reviews are known - aim to provide as objective an assessment as possible of each amendment proposal against the requirements of the Convention as laid out in the listing criteria elaborated in *Resolution Conf. 9.24 (Rev.CoP15)* and other Resolutions and Decisions. The review of each proposal consists of a summary section and more detailed supporting text. The summary section presents a synthesis of available information and, in a separate part, a specific analysis of whether or not the proposal may be considered to meet the pertinent criteria in *Resolution Conf. 9.24 (Rev.CoP15).* The more detailed supporting text is presented in table form. These tables are designed to focus attention on the biological and trade criteria and the precautionary measures of *Resolution Conf. 9.24 (Rev.CoP15*). Text in the left hand side includes selected information drawn from the supporting statement pertinent to a particular criterion. Text in the right hand side consists of comments, observations and additional information obtained in the review

The approach taken for preparation of the Analyses followed that used successfully in preparation of the Analyses for CoP15. Following the deadline for Parties' submission of amendment proposals (4th October 2012), the Analyses team compiled available information to prepare a first draft of the analyses. These drafts, together with a series of additional questions and clarifications, were then sent to a range of expert reviewers who were asked to comment, particularly on the accuracy and reliability of information presented. Reviewers' responses were then incorporated into the final document. The "Analysis" part for each proposal was only finalised at the end of the process and therefore excluded from the external review process. The assessments expressed in this publication do not necessarily reflect those of IUCN or TRAFFIC, nor the reviewers as a body.

To satisfy the needs of the Parties for information well before the CoP, the reviews were completed and made available online on 24th December 2012. Due to funding constraints, the Summary and Analysis paragraphs only will be translated into French and Spanish. Printed versions of the Summary and Analyses paragraphs in all three languages will be made available at CoP16 in Bangkok, Thailand. The background material is available separately online via the IUCN and TRAFFIC websites[1].

These analyses do not aim to be exhaustive, but rather highlight relevant information on which the Parties can base their decisions. Clearly there may be omissions and differences of interpretation in a document compiled on a wide range of proposals covering many different species in such a short time frame. We have nevertheless tried to ensure that the document is factual and objective.

[1] *www.iucn.org/about/work/programmes/species/our_work/species_and_policy/iucn_traffic_analyses_of_proposals_cites_cop16*
www.traffic.org/cop16

A summary of the CITES listing criteria and the IUCN Red List Categories and Criteria is provided as an annex to the document. It should be emphasized that the numerical guidelines for the listing criteria in *Resolution Conf 9.24 (Rev. CoP15)*, Annex 5 are not thresholds and may not be appropriate for all species. References to source material are provided in the right hand side of the tables (Additional Information) wherever possible; in some cases, these sources have been consulted directly while in others, they have been cited by reviewers to support their statements. Where information is not referenced, it should be assumed that the source is IUCN or TRAFFIC. For source information in the left hand side, the supporting statement within the proposal should be consulted. The term 'CITES trade data' refers to data from CITES Annual Reports as provided by the Parties available in the CITES trade database managed by UNEP-WCMC. Where information has been provided from a particular country's official trade statistics, this has been specified.

ACKNOWLEDGEMENTS AND CREDITS

Many individuals and institutions contributed to the review of the CITES amendment proposals and compilation of the present Analyses. Those to whom we would first like to extend our thanks are the reviewers of these proposals, many of them members of the IUCN Species Survival Commission (SSC) Specialist Groups, as well as the many other scientists and experts from other institutions who, although not formally linked with SSC, have volunteered their time and expertise to this process.

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We dedicate The Analyses for CoP16 to our former colleague and friend Sue Mainka whose input, insight, experience, tough encouragement and good humour were greatly missed this time.

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Transfer of *Rupicapra pyrenaica ornata* from Appendix I to Appendix II

Proponent: Denmark (on behalf of the European Union Member States acting in the interest of the European Union)

Summary: *Rupicapra pyrenaica ornata* is a subspecies of chamois, or goat antelope, endemic to Italy, where it occurs in four isolated populations, estimated at around 1500 individuals in total, having increased from around 250-300 in the early 1970s. Three of these populations are part of re-introduction programmes, with one of them numbering only a few animals, as the introduction process is still under way. The global population is stable or increasing though one relatively large sub-population peaked at 645 individuals in 2005, but has since stabilized at around 500. The main potential threats to the taxon include effects related to its small population size, low genetic variability, competition for space and food with livestock and the transmission of diseases from livestock to wild animals. The subspecies occurs in a number of protected areas and is protected nationally and internationally. In a 2008 assessment, *R. pyrenaica ornata* was classified as Vulnerable by IUCN. Other populations of the species *Rupicapra pyrenaica* occur in Andorra, France and Spain. One other member of the genus *Rupicapra* is currently recognised, *Rupicapra rupicapra,* which also occurs in Italy. Chamois in general are popular targets for trophy hunters, but are not known to be in significant demand in international trade.

Rupicapra pyrenaica ornata was included in CITES Appendix I in 1975. It is the only taxon in the genus *Rupicapra* to be listed in the CITES Appendices. There has been virtually no reported international trade in recent years (2001-2010).

At its 25th meeting (Geneva, 2011), the Animals Committee selected *R. pyrenaica ornata* for review in the Periodic Review of Appendices. The review was conducted by Italy, in collaboration with UNEP-WCMC.

Analysis: *Rupicapra pyernaica ornata* still has a small global population. The global population is stable or increasing and the taxon is not known to be highly vulnerable to either intrinsic or extrinsic factors. Similarly, its area of distribution is relatively restricted but is not declining or highly fragmented, and is within protected areas. The taxon itself is legally protected and is not known to be in demand for international trade. It would appear that the taxon does not meet the criteria for inclusion in Appendix I.

The current listing of *R. pyrenaica ornata* is inconsistent with recommendations for split-listing set out in Annex 3 of *Resolution Conf. 9.24. (Rev. CoP15*), which advise that split-listings that place some populations of a species in the Appendices, and the rest outside the Appendices, should normally not be permitted (although it should be noted that Article I of the Convention defines “species” as “any species, subspecies, or geographically separate population thereof”).

Following the precautionary measures set out in Annex 4, the taxon is proposed for transfer to Appendix II, rather than immediate deletion from the Appendices.

Supporting Statement (SS)	Additional information
Taxonomy	
While *Rupicapra rupicapra* and *R. pyrenaica* are commonly recognised as two species, some suggest that they are polyphyletic and that there is only one chamois species. *R. pyrenaica* was considered to include three subspecies, *parva*, *pyrenaica* and *ornata*, which are geographically isolated and occur in south-western Europe, including the Pyrenees, the Cantabrian Mountains, and the central Apennines. The chamois of the Apennines of Central Italy was however considered as a distinct species, *Rupicapra ornata*, by some authors, as were *parva* and *pyrenaica*. Some have recommended a revision of the status of *ornata* and its re-elevation to species rank.	
Range	
Italy.	
IUCN Global Category	
Vulnerable (assessed in 2008, criteria version 3.1).	

Biological criteria for inclusion in Appendix I

A) Small wild population

(i) Population or habitat decline; (ii) small sub-populations; (iii) concentrated geographically during one or more life-history phases; (iv) large population fluctuations; (v) high vulnerability

The habitat trend was considered to be stable.	
R. pyrenaica ornata was considered to be very rare and the population was estimated at fewer than 1500 animals, with the largest population occurring in the Abruzzo National Park (estimated at 530 animals in 2011). Its population was thought to have been very small for some centuries with numbers plummeting during World War I and II to fewer than 50 animals in one single population and later increasing again, as a result of increased conservation efforts, re-introductions and the establishment of two new populations.	*The website of a project funded by the European Commission (LIFE+ Nature), "LIFE Coornata: development of coordinated protection measures for Apennine Chamois LIFE09 NAT/IT/000183" reported that in the 1970s, the population of the Apennine Chamois in the Abruzzo, Latium and Molise National Park was estimated to be 250-300, remaining more or less constant to the early 1990s. From 1994, there was a new growth phase that, in 2005, resulted in a count of 650-700 animals. However, over 2006-2009, the data showed a steady diminishing in the numbers of animals observed – 645 counted in 2005, 518 in 2009 (Anon 2012a). From 2006 to present, the estimated population is about 500 chamois (Latini* et al., *2012).*
Overall, the population was reported to be increasing, as a result of strict protection and reintroductions. In the early 1970s, the population was estimated at 250-300 animals, in the late 1980s at 400 animals, with a growing population leading to estimates of 1100 in 2006 and almost 1500 animals a few years later.	

Supporting Statement (SS)	Additional information
An annual increase of seven per cent was observed for the population in the Abruzzo National Park.	
B) Restricted area of distribution **(i) Fragmented or localised population; (ii) large fluctuations in distribution or sub-populations; (iii) high vulnerability; (iv) decrease in distribution, population, area or quality of habitat, or recruitment**	
R. pyrenaica ornata is endemic to Italy, with three sub-populations in the Apennines, where it occurs in the National Parks of Gran Sasso-Monti della Laga, Majella and Abruzzo, Lazio and Molise. Animals have also been introduced to the Sibillini Mountains National Park. The Sirente-Velino National Park has been assessed as a potential site for introduction of the species and in the mid-2000s releases were reported to be planned "for the near future".	*In the Abruzzo National Park, the area of occupancy increased constantly from 101 km^2 (1931-1976) to 168 km^2 (2000-2010). Likewise, the extent of occurrence increased regularly from the "historical" range (316 km^2; 1931-1976) to the present range (513 km^2; 2000-2010) (Latini* et al., *2012).* *The LIFE+ Nature project (Sept 2010 – Sept 2014) aims to establish five geographically isolated colonies of Apennine Chamois in five parks, including in the Sirente Velino Regional Park (Anon, 2012a).*
C) Decline in number of wild individuals **(i) Ongoing or historic decline; (ii) inferred or projected decline due to decreasing area or quality of habitat, levels of exploitation, high vulnerability, or decreasing recruitment**	
The population was reported to be increasing, as a result of strict protection and reintroductions. In the early 1970s, the population was estimated at 250-300 animals, in the late 1980s at 400 animals, with a growing population leading to estimates of 1100 in 2006 and almost 1500 animals a few years later. An annual increase of seven per cent was observed for the population in the Abruzzo National Park. *R. pyrenaica ornata* was categorised as Vulnerable by the IUCN in 2008, due to its small population size and restricted distribution. Previous assessments in the 1990s had categorised the species as Endangered, but strict protection and reintroductions led to a population increase and consequent re-categorisation.	*In the period 2006-2012 the source population of the Abruzzo, Latium and Molise National Park showed a decrease of population size and a strong decrease of kid survival (Latini* et al., *2012).*
Trade criteria for inclusion in Appendix I **The species is or may be affected by trade**	
The meat of *Rupicapra* spp. was reported to be prized by some, its skin used as "shammy" leather for polishing and the hair from the back of the winter hide used for the brush on Tyrolean hats. However, this refers to legal trade in *R. rupicapra* and no such tradition is reported to be present in Central Italy. Reported global trade in *R. pyrenaica ornata* over the period 1975-2010 consisted	

Supporting Statement (SS)	Additional information
of 143 skins and 800 kg skins, 29 trophies, 10 live animals and four bodies, according to importers, with some hair, horn products and garments also traded. However, the majority of this trade was reported in the 1980s and may have actually involved other species/sub-species. Trade in the 1980s was reported primarily by the US as "*Rupicapra ornate"*; some of this trade had unknown origin or an unknown exporter and it is likely that imports originating in Austria, France and the former Yugoslavia may have been *R. rupicapra*, whereas imports from Spain may have been *R. pyrenaica pyrenaica* or *R. pyrenaica parva*. Furthermore, imports reported by the US from New Zealand may have been *R. rupicapra*, as New Zealand has an introduced population of this species. There has been virtually no reported trade in recent years (2001-2010), according to both importers and exporters. Italy has never reported any exports of *R. pyrenaica ornata* and the CITES Scientific Authority of Italy confirmed that they have no record of the single trophy reported as an import by South Africa in 2010. Trophies and skins were the main parts and derivatives reported in trade for this taxon, although there has been virtually no trade in recent years.	
Illegal trade in the species is not known. There is little evidence of trade or offers for sale of *R. pyrenaica ornata* over the internet and internet trade is not considered a concern.	*CITES trade data have one record reported by Italy, with source code 'I' involving one hunting trophy destined to the US.* *A search on French, German, Italian and UK eBay in November 2012 came up with no results for specimens of this species (also when searched using various common names).*

Precautionary Measures

Species not in demand for trade; transfer to Appendix II unlikely to stimulate trade in, or cause enforcement problems for, any other species included in Appendix I

The subspecies does not appear to be in demand in international trade.

Species likely to be in demand for trade, but its management is such that the CoP will be satisfied with:
i) implementation by the range States of the requirements of the Convention, in particular Article IV; and
ii) appropriate enforcement controls and compliance with the requirements of the Convention

The identification of hunting trophies of the species would not lead to enforcement problem as the subspecies is easily recognisable and it is not actually legally hunted.

As per the precautionary measures outlined in *Resolution Conf. 9.24 (Rev. CoP15)* Annex 4, its management is such that the Conference of the Parties would be satisfied with: i) implementation by the range States of the requirements of the

Supporting Statement (SS)	Additional information
Convention, in particular Article IV; and ii) appropriate enforcement controls and compliance with the requirements of the Convention (criterion A2b). As the subspecies occurs in a number of protected areas and is protected nationally and internationally, it meets the precautionary measures.	

Other information

Threats

The small population size and low genetic variability of the subspecies *ornata* render it vulnerable to many factors and was considered the main threat to the species. Competition with domestic caprins was noted as a main limiting factor for *R. pyrenaica ornata*, with competition with wild ungulates, potential transmission of disease, slow dispersal and colonisation of new areas, free-ranging dogs, poaching and disturbance by tourism also considered to be threats. The subspecies *ornata* was however reported not to be affected by disease. Poaching was not considered to impair the viability of the population in Abruzzo National Park. The CITES Scientific Authority of Italy confirmed that if any poaching does occur, it is at low level and not linked with trade activities.	*Two cases of poaching were reported in the past 25 years in the Abruzzo, Lazio and Molise National Park (Sulli and Latini* in litt., *2012).* *In the framework of the on-going LIFE+ project, threats that are affecting the population of the Abruzzo National Park are planned to be analysed in four sample areas by intensive surveillance, monitoring of 20 marked Apennine chamois, sanitary analyses and monitoring interactions with red deer (Anon., 2012b).* *Information gathered for the LIFE+ project suggests that disease is considered as a threat to the sub-species, which however, is to be addressed in the framework of the project. The project website explains that domestic animals can be carriers of transmittable diseases, dangerous for the chamois and, thus, with serious repercussions during the colonisation of new areas. Differently to livestock, these diseases, once transmitted, become very difficult to control in wild chamois populations. In the National Action Plan for Apennine Chamois, this threat is considered to be at a high impact level (Anon., 2012a). Therefore, the LIFE+ project plans the treatment of all livestock breeding in the Apennine Chamois home ranges and of domestic animals in expanding areas of the other relevant national parks with proper vaccine and anti-parasitic drugs at least once a year (Anon., 2012b).* *Competition with livestock for pasture has been reported as an emerging threat in the Abruzzo National Park (Rocco* in litt*., 2012).*

Conservation, management and legislation

Italian hunting law (157/1992) protects *R. pyrenaica* as an especially protected species (Italy, 1992). The subspecies is included in Annex B (requiring the designation of conservation zones), D (requiring strict protection) and E (requiring the establishment of management measures) of law No. 357/97 (Ministero dell'Ambiente, 1997). Law No 357/97 prohibits the killing, take and disturbing of specimens or their habitats of species included in Annex D, as well as their possession or commercial use (unless legally acquired prior to the law being in	

Supporting Statement (SS)	Additional information
force), with derogations for take or keeping only granted in the absence of satisfactory alternatives and on a selective basis only. *R. pyrenaica ornata* has been listed in CITES Appendix I since 1975. It was included in Annex A of Council Regulation (EC) No 338/97 and most recently, in Commission Regulation (EU) No 101/2012. It is also included in Annex II (species of community interest requiring the designation of special areas of conservation) and Annex IV (species of community interest requiring strict protection) of the EU Habitats Directive (92/43/EEC) and as strictly protected species in Appendix II of the Bern Convention. Any down-listing would not change the protection status of the subspecies at national and EU level. Specimens from the wild and from a captive breeding programme have been introduced and reintroduced into suitable habitat in the 1990s. All re-introductions and introductions, recent and planned, are into protected areas. ***Majella National Park (introduction)*** Between 1991 and 1997 a total of 27 animals were released in the Majella massif (13 wild specimens and 14 originating in park enclosures) and the population has since been observed to grow. In 2005, five more animals were released and the population was counted at 300 animals, while in 2008, the population was estimated at 450-500 animals. ***Gran Sasso-Monti della Laga National Park (re-introduction)*** *R. pyrenaica ornata* became extinct in 1892, making this site the only real re-introduction site. Following identification of a suitable area and assessment of limiting factors, about 30 chamois (14 wild and 16 animals from park enclosures) were released. A consequent steady growth rate led to 340 animals in ten herds occupying most of the suitable area in 2008, with the population being estimated at 460 animals in 2011. Overall the programme was considered to be highly successful. ***Sibillini Mountains National Park (introduction)*** Eight animals (wild, originating in Abruzzo, Latium and Molise National Park) were released in SMNP in September 2008, followed by further releases, with the last one planned for 2014, with an overall goal of establishing a minimum viable population of 30 animals. In 2011, the population numbered 25 animals and included offspring of released animals.	

Supporting Statement (SS)	Additional information
Sirente-Velino National Park (introduction) The Park was assessed as a potential site for introduction of the species and in the mid-2000s, releases were reported to be planned "for the near future". ***Pollino National Park (introduction)*** The Park was thought to potentially be able to maintain a small herd, however, as regular releases of animals was expected to be required, the value of the operation was questioned. A national action plan was established for *R. pyrenaica ornata* in the early 2000s, which recommended the further (re-)introduction of specimens into suitable habitats and to support the recently created populations with further releases. Some recommended conservation actions to include further introductions, with captive breeding encouraged to consider the alarming lack of genetic variability in the Abruzzo National Park population and associated development of a studbook. The species's distribution is concentrated in four protected areas, the Gran Sasso-Monti della Laga, Majella, Abruzzo, Lazio and Molise as well as in Sibillini Mountains National Park. Integrated grazing management plans are part of the habitat management and livestock grazing is being restricted in an increasing number of alpine meadows within the subspecies range in order to reduce competition. The impact of tourism is being managed in the Abruzzo, Lazio and Molise National Park, and after assessing the impact of various sources of disturbance, access to the release area in the Sibillini Mountains National Park was temporarily prohibited. Many population monitoring surveys were confirmed to be focussing on this species.	
<u>Similar species</u>	
R. pyrenaica ornata is similar to other chamois species, although it differs in colouration; it has a larger white throat patch and extensive white areas on the side and back of its neck that extend to the shoulder. *R. pyrenaica ornata* is the only member of the genus *Rupicapra* to be listed in the CITES Appendices. Other subspecies of *R. pyrenaica* are being hunted; however, they were assessed as Least Concern by the IUCN in 2008, with their numbers and range increasing. In Spain, *Rupicapra* spp. are major game species and are an important source of rural livelihoods, with hunting well managed through a quota system and considered sustainable. In France, hunting is of a more recreational nature, with annual quotas set at below 10% of the population and is considered sustainable overall, with few local exceptions noted.	*Populations of the Northern Chamois* Rupicapra rupicapra *also occur in Italy (Herrero* et al*., 2008).* *Range States of* Rupicapara pyrenaica *are Andorra, France, Italy and Spain (Herrero* et al*., 2008).*

Supporting Statement (SS)	Additional information
Artificial Propagation/Captive breeding	
A breeding population of the subspecies is kept in wildlife areas across four national parks, numbering 18 animals in 2006. However, a studbook has not been kept, which was considered a major shortcoming of the breeding programme.	
Other comments	
The current listing of *R. pyrenaica ornata* is inconsistent with measures for split-listing, which advise that this should be on the basis of national or regional populations rather than subspecies; split-listings that place some populations of a species in the Appendices, and the rest outside the Appendices, should normally not be permitted (Annex 3 of *Resolution Conf. 9.24. [Rev.CoP15]*).	

Reviewers: R. Latini, C. Sulli, M.Rocco, K. Kecse-nagy.

Transfer of the Ecuadorian population of Vicuña *Vicugna vicugna* from Appendix I to Appendix II

Proponent: Ecuador

Summary: The Vicuña *Vicugna vicugna* is a wild camelid, prized for its fine quality wool. It is native to the high Andes of Argentina, Chile, Plurinational States of Bolivia, and Peru. There is debate over whether the species was originally native to Ecuador or not; no archeological or paleontological evidence has been found to date that Vicuñas historically existed in Ecuador. The current population in Ecuador is derived from animals donated by Chile, Peru and Bolivia in 1988, 1993 and 1999. Three hundred animals were introduced into the Chimborazo Fauna Reserve (585.6 km^2) and another 57 into 20 km^2 of suitable habitat surrounding the village of San José de Tipín, 70 km south of the reserve. Periodic population surveys have been carried out between 2000 and 2012, with marked increases between each and an overall increase from around 1700 to almost 5000 animals, almost all of these within the Chimborazo Faunal Reserve. In addition to an increase in population size, habitat within the Chimborazo Fauna Reserve has reportedly improved.

The global Vicuña population decreased to a few thousand during the mid-1960s due to over-exploitation, leading to the establishment of the *Convenio para la Conservación y Manejo de la Vicuña* (The Vicuña Convention) in 1969. The species was included in Appendix I in 1975. With improving management, the population has increased and was estimated in 2008 at around 350 000 individuals. Several populations have been transferred to Appendix II—all Bolivian and Peruvian populations and select populations from Argentina and Chile. Each Appendix-II population of Vicuña has been accompanied by an annotation stating that it is for "the exclusive purpose of allowing international trade in wool sheared from live vicuñas", also stating the products that can be traded and the system with which products will be labelled and that "all other specimens shall be deemed to be specimens of species included in Appendix I and the trade in them shall be regulated accordingly". The products currently exported from those countries are fleece, fibre, wool, yarn and/or clothes and the main countries of destination are Australia, China, Germany, Italy, the USA and the United Kingdom, with Italy importing over 90% of all Vicuña fibre/products.

A five year FAO-funded project to protect the natural resources of Chimborazo (PROMAREN) began in 2012. Staff numbers in the reserve have increased to 16 park wardens (from only seven in 2011), an environmental education and capacity building programme has been started and meetings have been held with the local communities to discuss the management of the reserve.

Currently in Ecuador the only commercial use of the species is to attract tourists to the Chimborazo Fauna Reserve. The proponents have estimated that sustainable commercial trade of Vicuña fibre and other products derived from Ecuador's Vicuña population has an annual yearly potential production of 190 kg (from shearing 28% of the 2009 population, namely 886 animals), worth between USD20 000 and USD75 000. Products would be marked "VICUÑA-(Country of origin)-Artesania" as required by the Vicuña Convention. Local communities will be the beneficiaries of any commercialisation of Vicuña fibre/products.

Illegal killing of Vicuña is not currently considered to be a threat in Ecuador, however, conflicts of land use for grazing domestic animals are apparent and ongoing conservation of the introduced and increasing Vicuña population is likely to be reliant on local communities receiving economic benefits from these animals in the near future.

As required under the Vicuña Convention (ratified by Ecuador in 1982), prior to submitting a proposal for transfer of its Vicuña populations from Appendix I to Appendix I, Ecuador has prepared a management plan. This was published by the Environment Ministry in December 2010 and approved by the Ecuadorian Government in March 2011. However, details of the plan are not provided in the supporting statement to the proposal. The plan describes the communities

and organizations involved in the programme and methods used for capture and shearing. Planned actions focus on developing institutional and technical capacity (with the support of other Vicuña Convention member countries), carrying out social and ecological research (including annual population monitoring) and strengthening community organisation and participation.

The current proposal does not include any annotation.

Analysis: The Ecuadorian population of Vicuña could be considered to have a fairly restricted range and to have a small population, according to the guidelines in Annex 5 to Resolution Conf. 9.25 (Rev. CoP15). However, the population and range have been increasing since the founding animals were introduced in 1988 and the population appears to be neither excessively fragmented nor highly concentrated geographically, nor to show marked fluctuations or be highly vulnerable to extrinsic or intrinsic factors. The population therefore does not appear to meet the biological criteria for inclusion in Appendix I.

Ecuador has stated that its intention is to initiate international trade in products derived from its Vicuña population. The proposal notes specifically that precautionary measures in A 2c of Annex 4 to Resolution Conf. 9.24 (Rev. CoP15) will be met. These state that "an integral part of the amendment proposal is an export quota or other special measure approved by the Conference of the Parties, based on management measures described in the supporting statement of the amendment proposal, provided that effective enforcement controls are in place." However, no quota is stated in the proposal nor are any other special management measures detailed. A management plan has been prepared but has not been included as part of the proposal.

The addition of an annotation similar to those covering the Vicuña populations currently included in Appendix II would bring the proposed listing into line with that of these other populations.

Supporting Statement (SS)	Additional information
Range	
Range States of *Vicugna vicugna* are: Argentina, Plurinational States of Bolivia, Chile and Peru. Ecuador has a (re-)introduced population.	*Introduced into Ecuador (Lichtenstein* et al*., 2008).*
IUCN Global Category	
	Least Concern (Assessed 2008).
Biological criteria for inclusion in Appendix I	
A) Small wild population **(i) Population or habitat decline; (ii) small sub-populations; (iii) concentrated geographically during one or more life-history phases; (iv) large population fluctuations; (v) high vulnerability**	
In Ecuador, the re-introduction of *Vicugna vicugna mensalis* started in 1988 with 200 specimens donated from Chile and Peru and then in 1993 another 100 specimens were donated by Bolivia.	*According to the Ecuadorian report submitted to the Technical-Administrative Commission of the Vicuña Convention in 2011, Bolivia donated only 77 specimens to Ecuador in December 1993. An additional 96 Vicuñas were donated directly to the community of San José de Tipín by the Peruvian Government in 1999. Fifty-seven of*

Supporting Statement (SS)	Additional information
	the animals survived the quarantine period and were introduced into the surrounding area (Hermida Garcia, 2011). *There is no archaeological or paleontological evidence that Vicuñas ever existed in Ecuador and therefore this could be considered an introduced population (G. Lichtenstein,* in litt., 2012).
Population numbers for 2012 were derived from direct counts of animals over a 22-day consecutive period and individuals were divided into categories according to censuses carried out in Chile. Total sub-population size in Ecuador is currently 4824 individuals. There are 667 family groups composed of 667 males, 2728 females and 475 juveniles (3880 animals in total), 32 "singles" herds composed of 903 animals and 41 solitary animals. Population structure according to numbers of groups is 90% family groups, 4% "singles" herds and 41 solitary animals.	*Family groups are generally composed of 5–10 animals, with one dominant male and several females and juveniles. Family groups are closed, with immigration generally prevented by the dominant male. Juveniles of both sexes—young males at 4–9 months and females at 10–11 months of age—are evicted from the group by the dominant male.* *Eighty per cent of all individuals counted in the 2012 census were living in family groups, 19% in "singles" herds and 1% as solitary animals. Ninety-six per cent of the Ecuadorian sub-population is found within the Fauna Reserve and the largest proportion (44%) in the most isolated area of the reserve—the humid paramo of Razurku—Templo Machay. Only 183 animals (156 in family groups, 26 in "singles" herds and one solitary animal) were found outside the protected area, in the humid paramos of San Jose de Tipin.* *The methodology used for the surveys in previous years was not provided. Surveys between 2000 and 2004 were carried out in different months: in October (2000) in January (2004) and in February (2002) (Lasso, 2004). In its CoP10 proposal, Bolivia reported that birthing usually occurred between February and April and a census should be done at least one month after any perinatal deaths had occurred, in order not to over-estimate population numbers.* *Total population across all range States was estimated at 347 273 individuals by Lichtenstein* et al., *(2008). They noted, however, that it was difficult to assess the confidence of the estimate, as data from different countries were obtained using different methodologies.*
B) Restricted area of distribution **(i) Fragmented or localized population; (ii) large fluctuations in distribution or sub-populations; (iii) high vulnerability; (iv) decrease in distribution, population, area or quality of habitat, or recruitment**	
Vicuña were re-introduced into a 20 km^2 area of suitable habitat in San José de Tipín in Chimborazo province and into a protected area of 585.6 km^2, the "Fauna Reserve", bordering the provinces of Bolívar and Tungurahua.	*In Ecuador, the species's range is restricted to approximately 600 km^2, comprising two areas 70 km apart. Vicuñas additionally occur at altitudes of 3200 to 4800 m asl in an area of approximately 250 000 km^2 in the Puna and Altoandina biogeographic provinces of Peru, Bolivia, Argentina and Chile (Lichtenstein* et al.*, 2008).*

Supporting Statement (SS)	Additional information
	According to the 2011 Ecuadorian report to the Vicuña Convention, the animals donated to San José de Tipín in 2000 were released into an area of 48 ha (0.48 km^2). This population has extended its range to include Gusay, San José de Tipín, San Juan de Tipín, San Carlos de Tipín, San Vicente de Tipín and Galte Jatun Loma. However, the majority of the population is still found in San José y San Carlos de Tipin.
C) Decline in number of wild individuals **(i) Ongoing or historic decline; (ii) inferred or projected decline due to decreasing area or quality of habitat, levels of exploitation, high vulnerability, or decreasing recruitment.**	
Population surveys have been carried out in 2000, 2004, 2006, 2009 and 2012. A percentage increase in numbers ranging from 15 to 50% has been registered for each survey period and overall the sub-population has increased in size nearly three-fold (188%), from 1676 to 4824 individuals between 2000 and 2012. Re-introduction has been considered a success, and in addition to an increase in population size, habitat within the Chimborazo Fauna Reserve has improved, and migration of Vicuña to the altiplano wetlands in the dry season to feed further allows for the regeneration of its ecosystems.	*~200 animals were originally introduced into the Chimborazo Fauna Reserve in 1988, and another ~100 were introduced in 1993. According to the CoP9 Peruvian proposal, in 1994, 552 specimens were counted in Ecuador. Another 57 animals were introduced to San José de Tipín in 1999, and in 2000 a total Ecuadorian population of 1 676 was counted.* *In 2012, 183 animals were counted in San Carlos de Tipín, suggesting that despite being outside a reserve this sub-population has trebled in size over the last 12 years.*
Trade criteria for inclusion in Appendix I **The species is or may be affected by trade**	
The Ecuadorian population is currently listed in Appendix I and the only "commercial" use of the species is to attract tourists to the Chimborazo Fauna Reserve. After the down-listing of the Ecuadorian population, sustainable commercial trade of Vicuña fibre and other products derived from this population is envisaged. Products would be marked as required by the Vicuña Convention— "VICUÑA-(Country of origin)-Artesania". The products currently exported from Chile, Argentina, Bolivia and Peru are fleece, fibre, wool, yarn and/or clothes and the countries of import are Germany, Italy, Australia, the USA, China, UK, and Argentina.	*According to the CITES Trade Database, between 2007 and 2011, direct exports from the four range States with Vicuña populations in Appendix II (Argentina, Bolivia, Chile and Peru) amounted to 18 990 kg of hair, fibres, cloth and skins. In addition, 665/659 individual items and ~100 m/m^2 (garments, clothes etc.) were traded. Italy, Argentina, the UK and Germany were the principal importers, with Italy importing over 90% of all fibre/products. Fibre imported into Argentina from Chile and Bolivia is re-exported to Italy and Germany (G. Lichtenstein,* in litt., *2012).*
The proponents have estimated Ecuador's potential production from the 2009 census numbers (3197 animals) and current production in other countries. 66% of the animals are captured (2110) and 42% of these (886) are sheared. With an average 215 g of wool obtained from each Vicuña, this would produce 186 kg. Using average 2011 prices from Peru (USD139.35/kg), Bolivia (USD350.95/kg) and Chile (USD385/kilo), a financial gain of between USD19 779.43 and USD65 455.87 has been estimated.	*215 g obtained from each of the 886 animals would result in total production of 190 kg (presumably per year). Using this figure and minimum (from Peru) and maximum potential prices (from Chile), a larger financial gain between ~USD26 500 and USD73 150 is derived. However, this is gross income and excludes costs associated with management activities, such as investing in infrastructure and ongoing costs such as transport, salaries, capacity-building, etc. (Vila and Lichtenstein, 2006).*

Supporting Statement (SS)	Additional information
	Lasso (2004) reported that during a pilot project in Ecuador, 4.536 kg of wool was obtained from shearing 23 animals (197 g per animal) and estimated that 300 Vicuñas would produce 60 kg of fibre for commercial use. Shearing in the Chimborazo Fauna Reserve would take place once a year between July and October, with an aim of capturing 70% of the population. *Average production according to reports by other Vicuña range States to the CITES Secretariat (the last of these submitted at CoP13 (Doc. 20)) were: Argentina (340 g per animal), Bolivia (169 g–230 g) and Chile (238 g). The proposal does not mention there being any "stocks" of Vicuña wool in Ecuador, unlike those reportedly held in Bolivia and Chile.*
Ongoing work with communities in all member countries of the Vicuña Convention is leading to a reduction in illegal poaching with guns, and in Ecuador this problem is non-existent.	*In previous transfer proposals by Vicuña range States, illegal poaching was considered a serious problem and Appendix-II listings were deemed necessary to provide an economic incentive to local communities to preserve this species.*
Precautionary Measures	
The proposal notes that the transfer of the population would meet the precautionary measure A 2c of Annex 4.	*The species is known to be in demand for trade, with all other range States exporting products every year. Annex 4 A 2c requires that "an integral part of the proposal is an export quota or other special measures approved by the CoP, based on management measures described in the SS…, provided that effective enforcement controls are in place". General management measures are described in the proposal, and there is mention of the development of an action plan for the management of Vicuña in Ecuador as requested by the Vicuña Convention. However, the details of this plan are not provided and it is unclear whether the Vicuña Convention was provided with this at any point.* *Specific information on enforcement measures are not provided, apart from the fact that staff capacity to protect the Fauna Production Reserve was doubled in 2011, with there now being one guard per 36 km^2 of reserve area.*
Other information	
	<u>Threats</u>
In Ecuador there are no reports of poaching of Vicuña and the main threat to the species is road accidents. Since January 2012 there have been 12 registered Vicuña deaths from such collisions and the Government is taking measures to prevent such accidents in the future.	*Ash from the Tungurahua volcano, which has been erupting since 2000, has resulted in Vicuñas migrating to the south-east of the Chimborazo Fauna Production Reserve and competition between domestic animals grazing on the reserve land and predation by foxes and dogs has been reported (Hermida Garcia, 2011). Vicuñas in other range States reportedly suffer from other threats, including external parasites, such as scabies. The promotion of Pacovicuña (a hybrid resulting from crossing Alpaca and*

Supporting Statement (SS)	Additional information
	Vicuña), and commercialization of its fibre is also a potential threat (Lichtenstein et al. *2008).*

Conservation, management and legislation

All Bolivian and Peruvian populations and some of Argentina's and Chile's populations have been transferred to Appendix II of CITES at previous CoPs. The Ecuadorian population is currently listed in Appendix I of CITES.

Ecuador ratified the Vicuña Convention in 1982. In order to evaluate the potential transfer from CITES Appendix I to Appendix II, member countries of the Vicuña Convention required Ecuador to develop a management plan to be presented at the next meeting of the Convention (Resolution 292/06, 24th November 2006). A "National Action Plan for the Conservation and Management of Vicuña in Ecuador" was approved by the Ecuadorian government in March 2011 and published in the Official Register No. 434. The National Department of Biodiversity, together with the focal point from the Vicuña Convention and the Provincial Department of Chimborazo are in charge of implementing this action plan.

An agreement has been signed between the Provincial Department of Chimborazo and the Environmental Ministry in relation to the implementation of a five year FAO-funded project to protect the natural resources of Chimborazo (PROMAREN) commencing in 2012. This project will focus on protecting the paramo ecosystems and river basins of the region and support the management of the conservation of Vicuña in the Chimborazo Fauna Production Reserve.

Until May 2011 seven park wardens and one manager were in charge of patrolling and securing the Chimborazo Fauna Reserve. This was considered inadequate due to the large area that needs to be monitored and all protected areas in Ecuador were declared as being in a State of Emergency due to a lack of personnel in 2011. Since then staff numbers in the Chimborazo Fauna Reserve have increased to 16 park wardens, a technician and a manager.

An environmental education programme for school children living in the area was initiated in September 2011, and a second phase as part of the Vicuña National Action Plan will include the development of education materials commencing in November 2012. Public awareness raising and capacity building for all ages commenced in November 2011, in preparation for the 2012 population census. In preparation for establishing the role of the Management Committee of the Reserve in implementing the National Action Plan, a meeting with the local community was held in August 2012.

The Vicuña Convention is the fundamental instrument for the conservation of the species. From the proposal text, it is not clear whether the management plan requested by the Vicuña Convention was presented to the member countries at any point for their approval, or whether the action plan was approved at a national level only.

Details of the management plan that was published by the Environment Ministry in December 2010 are not provided in the proposal. The document describes the population status and habitats of the Vicuña in Ecuador, the communities and organizations that will be involved in the conservation and management programme and methods used for capture and shearing. This is followed by an action plan composed of four main components: 1) developing institutional and technical capacity (including sharing experiences with other Vicuña Convention member countries and creating infrastructure); 2) carrying out social and ecological research (including annual population monitoring, genetic and health studies), 3) strengthening community organisation and participation and 4) commercialisation of the fibre (Ministerio del Ambiente del Ecuador, 2010).

Animal welfare protocols are not clearly described - the IUCN SSC South American Camelid Specialist Group has developed a Protocol for Vicuña Management Practices (GECS, 2012).

*The plan proposes treatment of diseases. Lichtenstein (*in litt. *2012) noted it is important to stress that vicuñas should not receive vaccinations nor veterinary care (other than attending injuries during shearing).*

Supporting Statement (SS)	Additional information
The Regulation for Management and Conservation of the Vicuña in Ecuador falls under Legislative Decree No 2093, which was published in the Official Register No 430 of 28th September 2004. This will regulate the use of Vicuña products after the transfer of its population to CITES Appendix II. According to the proposal any use of Vicuña would be at a low level and under strict control of the State. As required by the Convention, any Vicuña cloth or products derived from Ecuador's population would be marked "VICUÑA-Ecuador-Artesania". Local communities living in the areas where Vicuña have been re-introduced will be the beneficiaries of any commercialisation.	
The Technical and Administrative Commission of the Vicuña Convention "expressed their agreement with regards the intention of Ecuador to ask for a change of Appendix at CITES" at their 29th Meeting in August 2012 in the form of Resolution 341/2012.	*The proposal, however, not the management plan, was presented to the Technical and Administrative Committee of the 29th Meeting of the Vicuña Convention (G. Lichtenstein,* in litt*., 2012).*
	Similar species
	Vicuñas are easily distinguished from the other three species of South American camelid. The fur of Guanacos and some Alpacas is similar to that of Vicuñas, but can be readily differentiated by measuring the hair.
	Artificial Propagation/Captive breeding
	There are no captive-breeding programmes for Vicuñas in Ecuador (GECS, 2012.)
	Other comments
	The existing annotations for the Appendix-II listed Vicuña populations are: ***Population of Argentina (listed in Appendix II):*** *For the exclusive purpose of allowing international trade in wool sheared from live Vicuñas, in cloth, and in derived manufactured products and other handicraft artefacts. The reverse side of the cloth must bear the logotype adopted by the range States of the species, which are signatories to the Convenio para la Conservación y Manejo de la Vicuña, and the selvages the words 'VICUÑA-ARGENTINA'. Other products must bear a label including the logotype and the designation 'VICUÑA-ARGENTINA-ARTESANÍA'.* *All other specimens shall be deemed to be specimens of species included in Appendix I and the trade in them shall be regulated accordingly.*

Supporting Statement (SS)	Additional information
	Population of the Plurinational State of Bolivia (listed in Appendix II): *For the exclusive purpose of allowing international trade in wool sheared from live Vicuñas, and in cloth and items made thereof, including luxury handicrafts and knitted articles.* *The reverse side of the cloth must bear the logotype adopted by the range States of the species, which are signatories to the Convenio para la Conservación y Manejo de la Vicuña, and the selvages the words 'VICUÑA-BOLIVIA'. Other products must bear a label including the logotype and the designation 'VICUÑA-BOLIVIA-ARTESANÍA'. All other specimens shall be deemed to be specimens of species included in Appendix I and the trade in them shall be regulated accordingly.* ***Population of Chile (listed in Appendix II)::*** *For the exclusive purpose of allowing international trade in wool sheared from live Vicuñas, and in cloth and items made thereof, including luxury handicrafts and knitted articles. The reverse side of the cloth must bear the logotype adopted by the range States of the species, which are signatories to the Convenio para la Conservación y Manejo de la Vicuña, and the selvages the words 'VICUÑA-CHILE'. Other products must bear a label including the logotype and the designation 'VICUÑA-CHILE-ARTESANÍA'.* *All other specimens shall be deemed to be specimens of species included in Appendix I and the trade in them shall be regulated accordingly.* ***Population of Peru (listed in Appendix II):*** *For the exclusive purpose of allowing international trade in wool sheared from live Vicuñas and in the stock extant at the time of the ninth meeting of the Conference of the Parties (November 1994) of 3249 kg of wool, and in cloth and items made thereof, including luxury handicrafts and knitted articles. The reverse side of the cloth must bear the logotype adopted by the range States of the species, which are signatories to the Convenio para la Conservación y Manejo de la Vicuña, and the selvages the words 'VICUÑA-PERÚ'. Other products must bear a label including the logotype and the designation 'VICUÑA-PERÚ-ARTESANÍA'.* *All other specimens shall be deemed to be specimens of species included in Appendix I and the trade in them shall be regulated accordingly.*

Reviewers: G. Lichtenstein, J. Wheeler, B. Gonzalez.

Transfer of Polar Bear *Ursus maritimus* from Appendix II to Appendix I

Proponent: United States of America

Summary: The Polar Bear *Ursus maritimus* is the largest living member of the bear family or Ursidae. It occurs at high latitudes in Canada, Greenland/Denmark, Norway (specifically Svalbard area), Russian Federation and the United States of America (Alaska), with vagrants recorded in Iceland. Polar Bears are strongly associated with marine environments where there is sea ice for all or part of the year, particularly in coastal regions but also in the central Arctic basin in regions of permanent pack ice. Preferred habitat is ice that is periodically active, where wind and sea currents cause movements and fracturing of the ice followed by refreezing. It is in such areas that Polar Bears can most successfully hunt. Polar Bears feed primarily on seals, particularly Ringed Seals *Pusa hispida*, Bearded Seals *Erignathus barbatus*, other seals, and walruses *Odobenus rosmarus,* and also scavenge on the carcasses of whales. They will infrequently take terrestrial mammals, birds and vegetation when other food is unavailable but such foods are thought to be energetically insignificant. Polar Bears that have continuous access to sea ice are able to hunt throughout the year. However, in those areas where the sea ice melts completely each summer, Polar Bears spend several months on land relying largely on stored fat reserves until freeze-up. Breeding occurs in March to May, implantation is delayed until autumn, and birth is generally thought to occur from late November to mid-January. The average litter size is somewhere between one and two. Cubs are dependent upon mothers until 2.5 years of age. Age of first reproduction is normally 5–6 years for females. Generation time is usually taken as 15 years, but may range from around 12 years to around 15 years, depending on conditions.

For the purposes of conservation and management, the Polar Bear population is generally divided into 19 subpopulations, or stocks, of very unequal size. However, genetic differences between different subpopulations are small and there is considerable overlap between them. The current overall estimate (2012), taken by summing estimates for different subpopulations, is of a global population of 20 000–25 000. Around 65% of the population either occurs entirely in Canada or is shared by Canada and adjacent territories (Alaska and Greenland).

Various attempts were made from the 1950s to the 1970s to produce global population estimates by extrapolating from surveys or den counts in limited parts of the range. These produced estimates ranging from 5000 to 20 000 bears, but are not considered reliable. Because of the lack of reliable historical data it is not possible to determine quantitative trends in overall population size from historical to present level. However, it is suspected that protective measures introduced in various parts of the range, notably in the then USSR in the 1950s and Norway, Canada and the USA in the 1970s, allowed the size of the global Polar Bear population to increase throughout portions of the range where human-caused removals had been occurring. Data are not available to quantify population trend for most of the currently defined subpopulations over this time period.

An assessment by the IUCN Polar Bear Specialist Group in 2009 concluded that the global population was slowly declining based on individual assessments of each of the subpopulations, of which 1 was increasing, 3 were stable and 8 were known or thought to be declining due to habitat loss, direct human-caused effects, or both. Data were insufficient to provide any assessment of current trend for the remaining 7 subpopulations. A similar exercise in 2005 concluded that 2 populations were increasing, 5 were stable, and 5 declining, with insufficient data to provide trends for the remaining subpopulations. On the basis of the 2005 assessment, the Polar Bear has been classified by IUCN as Vulnerable based on a projected population reduction of greater than 30% within the next three generations (taken as 45 years) as a result of reductions in sea ice habitat availability and quality.

The projected declines in extent and quality of habitat are based on observed and predicted changes in sea ice as a result of climate change. Recent modelling of the trends for sea ice extent, thickness and timing of coverage predicts dramatic reductions in coverage over the next 50–100 years. Satellite observations have shown decreases in the extent of summer sea ice coverage since 1979 with greatest losses compared to the 1979-2012 average occurring since 2000. Studies in the Southern Beaufort Sea, Southern Hudson Bay, and Baffin Bay have identified relationships between sea ice decline

and various declines in survival, reproduction, and body condition emphasizing the importance of sea ice to vital rates. Body condition similarly declined in Davis Strait during a period of sea ice loss, but population size was also increasing during this time. However, data are sufficient for only a few subpopulations to determine whether population size also has declined with declining sea ice, and such a decline has only been demonstrated in the Western Hudson Bay subpopulation. In other subpopulations, such as the Northern Beaufort Sea, data suggest that observed sea ice changes have not yet had a negative effect on polar bears. Data are not available for many areas where some of the most significant declines in sea ice have occurred, such as the Kara and Laptev Seas.

While in the short term, relationships between the various effects of climate change (e.g., sea ice loss, changes in biological productivity, changes in trophic structure) and polar bears are likely to vary, long-term subpopulation declines are projected throughout the species' range if sea ice loss continues as forecasted. A 2009 study using resource selection functions applied to general circulation climate models predicted Polar Bear habitat loss of 5% per decade in the polar basin, amounting to 15-22% habitat loss over three generations (based on a generation time of 12-15 years). A 2010 model using Bayesian probability approaches also based on general circulation climate models and combining limited observational data with expert opinion predicted a high likelihood under business-as-usual climate scenarios of Polar Bears becoming extirpated in the seasonal ice and divergent ice ecoregions, where the majority of the population is found, by the middle of the 21th century. If this outcome were realized, it could mean the loss of two thirds of the global population. The model also indicated that if global warming is mitigated, projected declines in polar bear distribution and numbers would be attenuated.

Other factors that may have an impact on recruitment or survival of Polar Bears include toxic contaminants, shipping, tourism, oil and gas exploration, development resource exploration and development and overharvest.

Polar Bears are subject to a range of management measures. At the international level, all range States (including Denmark on behalf of Greenland) are members of the Agreement on the Conservation of Polar Bears, which came into force in 1976. The Contracting Parties (or Range States) met in 1981 and then not again officially until 2009, when they agreed to hold meetings every two years (their third meeting was in 2011). There is also a series of bilateral agreements concerning shared Polar Bear populations. Polar Bears are legally hunted under various restrictions in Canada, Greenland and Alaska (USA). Numbers taken are regulated by quota in some areas and not in others. In Norway and western Russia no hunting is allowed except for that of problem animals and defence kills. Some hunting by native people in the Chukotka (Chukchi) region of the Russian Federation is theoretically allowed under the Agreement between the United States of America and the Russian Federation on the Conservation and Management of the Alaska-Chukotka Polar Bear Population, which came into force in 2007. A quota was established in 2010 and the US is currently working to implement the quota in a phased approach over the next several years. Implementation of the quota in Russia will require introduction of a legal harvest which is contingent on development of adequate monitoring and enforcement mechanisms.

Currently, global legal annual harvest is between 500 and 700 bears. The majority of polar bear harvest in the Arctic is conducted by indigenous peoples for subsistence, cultural, social, and economic purposes. The global legal harvest represents 3-4% of the global population and is generally agreed to be managed to not negatively affect the persistence of most subpopulations at the present. The effects of harvest will depend on the ability of managers to adjust harvest levels with population responses to sea ice loss. It is estimated that some 60-70% of the harvest consists of males. Harvests are managed in some areas to target a 2:1 male to female harvest ratio, but sex selective harvests can be difficult to manage. There have been concerns over harvest rates of two subpopulations shared by Canada and Greenland – Kane Basin and Baffin Bay, but a management agreement was recently established between these two countries and efforts are underway to obtain new scientific data to form the basis of updated management advice. Currently, because of a non-detrimental finding initiated by Greenland, international export of hides from Kane Basin and Baffin Bay is prohibited. There are current concerns regarding harvest levels in Western Hudson Bay and Southern Hudson Bay in Canada. Illegal hunting in the Chukotka region has also been identified as a potential problem, although there are significant challenges to quantifying the number of bears killed annually in this region. Some estimates suggest that

current levels exceed the recently identified quota under the US-Russia Agreement.

The Polar Bear was included in Appendix II in 1975. Polar Bear products are in trade. The range of different products and units of measure used in records makes it difficult to relate trade data to number of Polar Bears in trade. However, it is believed that exports in the period 2005-2009 represented between 300 and 400 Polar Bears per year, most exported from Canada. The overall volume of reported trade has changed relatively little in the past 25 years. Greenland introduced a voluntary temporary ban on export of Polar Bear products in 2007 and in 2009 Canada issued a negative non-detriment finding for all Polar Bears from the Baffin Bay management unit. In the US polar bear parts may only be used for traditional handicrafts, and commercial trade in polar bear skins or skulls is prohibited.

Analysis: Regarding the biological criteria for inclusion in Appendix I set out in *Resolution Conf. 9.24 (Rev. CoP15)*, the global population of Polar Bears (ca 20 000) would not appear to be small, following the guidelines for the definition of a small population set out in Annex 5 to the Resolution, which suggests a figure of less than 5000 is an appropriate guideline of what might constitute a small wild population. The Polar Bear's area of distribution extends over several million square kilometres and is clearly not restricted. The Polar Bear's population has not undergone a marked decline in the recent past, nor is there any evidence that the current size of the Polar Bear population represents a marked decline from a (hypothesized) historical baseline. There is general agreement that the Polar Bear population is currently declining, but the rate of decline is believed slow, as evinced by the lack of change in overall population estimates in the past decade. It would appear therefore that current rate of decline does not meet the definition of a marked ongoing decline as elaborated in Annexes 1 and 5 to *Resolution Conf. 9.24 (Rev. CoP15),* which suggest a general guideline for such a decline as 50% or more over 10 years or three generations, whichever is the longer.

Annex 1 of *Resolution Conf. 9.24 (Rev. CoP15)* also refers to a marked decline in the population size in the wild projected on the basis of any one of a number of factors. Annex 5 of the Resolution notes that projection involves extrapolation to infer likely future values. The numerical guidelines in Annex 5 to *Resolution Conf. 9.24 (Rev. CoP15)* do not explicitly address projected future declines and give no indication as to how such declines might be assessed within the context of the criteria. Any future changes in the Polar Bear population remain conjectural. Based on changing habitat conditions brought about by human-induced climate change, at least one model predicts major declines of Polar Bear populations by the middle of the 21st century; others predict less marked changes. The basis for the current IUCN Red List Categorization of the species as Vulnerable (published in 2008), taking all available information into account, was a view that the most likely decline over the next three generations (taken as 45 years) would be more than 30% but less than 50% (as the latter in this case would have led to a categorization of Endangered under criterion A2 of the IUCN Red List Categories and Criteria ver 3.1). If it assumed that the guideline figures in Annex 5 to *Resolution Conf. 9.24 (Rev. CoP15)* for a marked recent rate of decline could also be applied to a projected future decline, then on this basis, the Polar Bear would not appear to meet the biological criteria for inclusion in Appendix I.

Supporting Statement (SS)	Additional information
Range	
Canada, Greenland (Denmark), Norway, Russian Federation, United States of America.	
IUCN Global Category	
Vulnerable A3c.	*Assessed 2008 (ver. 3.1).*

Supporting Statement (SS)	Additional information
Biological criteria for inclusion in Appendix I	
A) Small wild population **(i) Population or habitat decline; (ii) small sub-populations; (iii) concentrated geographically during one or more life-history phases; (iv) large population fluctuations; (v) high vulnerability**	
20 000-25 000 in 19 putative populations, with a 20th population possibly occurring in the central polar basin.	*Considerable overlap between putative populations exists and the genetic differences between them are small (Schliebe* et al., 2008).
B) Restricted area of distribution **(i) Fragmented or localised population; (ii) large fluctuations in distribution or sub-populations; (iii) high vulnerability; (iv) decrease in distribution, population, area or quality of habitat, or recruitment**	
Distributed throughout the circumpolar basin.	*In Canada extent of occurrence estimated at 8.7 million km^2 and area of occupancy at 5.6 million km^2 (COSEWIC, 2008).*
C) Decline in number of wild individual **(i) Ongoing or historic decline; (ii) inferred or projected decline due to decreasing area or quality of habitat, levels of exploitation, high vulnerability, or decreasing recruitment**	
There are presently believed to be between 20 000 and 25 000 polar bears in 19 putative populations. While the overall population size estimate has varied little over the past 15 years, individual population estimates have become more precise. In 1993, for example, the total population estimate was 21 470–28 370 individuals. A 20th polar bear population may occur in the central polar basin.	*Overall population estimates have remained relatively unchanged for over 30 years. IUCN Mammal Red Data Book (Thornback and Jenkins, 1982) gave a range of 18 500 to 27 000 in total and quoted an estimate from 1972 of around 20 000, derived by summing regional estimates. Trend at the time of writing was believed stable or increasing.* *It is difficult to assess global population levels earlier than this because the quality of information was generally poor. Various attempts were made, based on surveys of more or less limited areas, including: extrapolation from aerial surveys along the coast of Alaska in the 1950s, leading to a global estimate of 17 000–19 000 bears; extrapolation from aerial surveys in the Russian Arctic in the 1960s leading to a global estimate of 11 000–14 000; extrapolation from den counts in Russia resulting in a global estimate of 5000–10 000 in the 1960s (Uspenski, 1979).*
Over the years, however, the current trend or status of the 19 subpopulations, as evaluated by the PBSG, in general has deteriorated. In 1993, for example, 13 subpopulations were reported as stable or stationary, while 2 were characterized as decreasing or possibly decreasing. By 2010 1 subpopulation was characterized as increasing or possibly increasing, 3 as stable or stationary, 8 as decreasing or possibly decreasing, and 7 as unknown or data deficient.	*The PBSG indicates that only 8 of 19 subpopulations had sufficient data to determine population status as of 2009. Since 2007 there have been published or reported updates of the status of several of populations, including the Northern Beaufort (Stirling* et al*.. 2011),Western Hudson Bay (Regehr* et al*. 2007; Atkinson et al. 2012), Baffin Bay (Peacock et al. 2012), Foxe Basin (Garshelis et al. 2012) and Davis Strait (Peacock* et al*. in prep). The Southern Hudson Bay, Viscount Melville, and Kane*

Supporting Statement (SS)	Additional information
Especially troubling is the lack of current polar bear population data. Only 8 of the 19 subpopulations have been surveyed and evaluated by the PBSG since 2000 (no published updates since 2007). Of the remaining 11 subpopulations, 4 have not been surveyed ever (no date or unknown), while another 7 have not been evaluated since the 1990s. In 2008, the IUCN listed the polar bear as Vulnerable citing criterion A3c based on a suspected population reduction of >30% within three generations (45 years) due to decline in area of occupancy, extent of occurrence and habitat quality. Some experts have concluded that polar bears will not survive due to the complete loss of summer sea-ice.	*Basin populations are also currently being updated. The PBSG has not updated their status table since 2009.* *Durner et al. (2009) derived a projection of Polar Bear habitat loss in the polar basin of 5% per decade using resource selection functions applied to general circulation climate models. Assuming a generation time of 12-15 years, this would equate to habitat loss of 15-22% over three generations. This excluded any potential loss in southeastern Canadian populations including Hudson Bay.* *Recent observations document a faster than previously forecast decline in summer sea ice with the largest retreat on record occurring in summer 2012 (Wang and Overland, 2012, and see National Snow and Ice Data Center website at NSIDC.org).* *Amstrup* et al. *(2008, 2010, also cited in the SS) developed a model using Bayesian probability approaches based on general circulation climate models and combining limited data (relating declining habitats to population status) with expert opinion. This predicted a high likelihood under business-as-usual climate scenarios of Polar Bears becoming extirpated in the seasonal ice and divergent ice ecoregions, where the majority of the population is found, by the middle of the 20th century. The model also indicated that, with climate mitigation measures, predicted declines in Polar Bear distribution and numbers were avoidable.* *Current IUCN Red List Assessment (Schliebe* et al.*, 2008), based on assessment made in 2005) notes overall population trend as declining and states: "There is little doubt that Polar Bears will have a lesser area of occupancy (AOO), extent of occurrence (EOO) and habitat quality in the future. However, no direct relation exists between these measures and the abundance of Polar Bears. While some have speculated that Polar Bears might become extinct within 100 years from now, which would indicate a population decrease of >50% in 45 years based on a precautionary approach due to data uncertainty. A more realistic evaluation of the risk involved in the assessment makes it fair to suspect population reduction of >30%." Polar Bear generation time is generally taken as 15 years but lower values have been observed.*

Trade criteria for inclusion in Appendix I

<u>The species is or may be affected by trade</u>

During the period 2001–2010 (UNEP-WCMC 2012), a total of 6,798 relatively large polar bear items were reported as gross exports by the several range States, as follows: 4,114 Skins (60.5%), 1,441 Skulls, 867 Trophies, 294 Bodies, and 82 Live	*For many commodities in trade, particularly specimens used in scientific research, it is impossible to determine the number of polar bears represented by reported trade. Only two commodities, full skins and skulls, can be used to make inferences on the*

Supporting Statement (SS)	Additional information
Bears. By range State during the same 2001–2010 period 5,386 (79.2%) of the 6,798 relatively large polar bear items were exported by Canada, 827 by Greenland, 327 by Norway, 176 by Denmark (Denmark + Greenland = 1,003 items), 76 by the Russian Federation, and 6 by the United States (Table 3). In terms of whole polar bears (combining skins and trophies), about 400–500 polar bears are traded annually. While gross exports were relatively steady at 527–831 items or individuals annually during the period 2001–2006, gross exports have declined steadily from 1333 to 307 items or individuals annually beginning in 2007 and ending in 2010.	*impact of international trade. Based on the 2005 to 2009 export data on full skins, between 300 and 400 polar bears were represented in international trade in a given year, out of a total legal harvest of 700-800. There has been a shift in market dynamics in recent years including increased value of skins and rising demand for skins in some importing countries such as Russia and China. There has also been a change in the purposes for export, with a reduction of exports for hunting trophies and an increase of exports for commercial trade and personal purposes. However, the total number of skins exported for commercial trade from 2005 to 2009 exhibited no trend and in Canada ranged from 71-195 per year. Gross exports of polar bear products varied over the last 25 years in response to variation in demand for polar bear parts, such as scientific specimens, rather than commercially traded items.* *Detailed discussion of trade in Polar Bears is provided in Shadbolt* et al. *(2012).* *There have been reports that CITES certificates accompanying polar bear hides brought legally from Canada are then used in Russia to sell items from polar bears harvested illegally in the Russian Arctic, where harvest is banned. Prices for hides in such shops have increased significantly which raises concerns that high prices could motivate additional illegal killing of polar bears in Russia. Unknown but notable numbers of skins from polar bears illegally harvested in the Russian Arctic are also being illegally brought to Ukraine and sold via the internet (PBSG* in litt., *2012).*

Other information

Threats

Habitat loss (see above).

The available scientific and commercial information indicates that harvest, increased bear-human interaction levels, defense-of-life take, illegal take, and take associated with scientific research live-capture programs are occurring for several populations. Loss of habitat will likely exacerbate the effects of utilization and trade in several populations. In addition, Polar Bear mortality from harvest and negative bear-human interactions may in the future approach unsustainable levels for several populations, especially those experiencing nutritional stress or declining population numbers as a consequence of habitat change.

The available scientific information indicates that disease and predation (including intra-specific predation) do not threaten the species throughout its range but may become more important in future as the effects of global warming are felt. Contaminant concentrations are not presently thought to have population level

The PBSG (2009) stated: 'the greatest challenge to conservation of Polar Bears is ecological change in the Arctic resulting from climatic warming. Declines in the extent of the sea ice have accelerated since the last meeting of the group in 2005, with unprecedented sea ice retreats in 2007 and 2008. The PBSG confirmed its earlier conclusion that unabated global warming will ultimately threaten Polar Bears everywhere. The PBSG also recognized that threats to Polar Bears will occur at different rates and times across their range although warming induced habitat degradation and loss are already negatively affecting Polar Bears in some parts of their range. Subpopulations of Polar Bears face different combinations of human threats. The PBSG recommends that jurisdictions take into account the variation in threats facing Polar Bears.' The largest summer sea ice retreat on record occurred in 2012 (see www.nsidc.org).

A number of studies have identified relationships between sea ice conditions and metrics other than population size (such as survival, reproduction, body condition, and

Supporting Statement (SS)	Additional information
effects on most Polar Bear populations. Increased exposure to contaminants, however, has the potential to operate in concert with other factors to lower recruitment and survival rates. In response to public concerns about potential harvest and trade impacts in Canada, the Nunavut Wildlife Management Board in 2011 invited the PBSG to comment on a proposal to increase the total allowable harvest for the Western Hudson Bay (WH) polar bear subpopulation in the Nunavut Settlement Area. The proposal to increase the harvest from 8 bears to 21 bears for the 2011–2012 harvest season was based in large measure on Inuit Traditional Knowledge. In summary, the PBSG opposed the proposed increase (Vongraven 2011. Despite this position, on October 28, 2011, Nunavut made the decision to increase the total allowable harvest in WH from 8 to 21 bears.	*access to denning habitats; Regehr et al. 2007, 2009; Rode et al. 2010, 2012; Derocher et al. 2011; Durner et al. 2009, Ovsyanikov 2012, Peacock* et al*. 2012). On June 26th 2012, the Nunavut Wildlife Management Board (NWMB) invited the IUCN/SSC Polar Bear Specialist Group (PBSG), to comment on the proposal by the Government of Nunavut's Department of Environment (GN) to increase the total allowable harvest (TAH) for the Western Hudson Bay (WH) polar bear subpopulation, in the Nunavut Settlement Area, to 24 rather than have it revert back to 8 for the 2012-2013 harvest season. In fact, last year's quota, which was actually 38 (17 to 'pay back' over harvests in previous years plus 21 to be used in 2011-12), was a one year increase that ended 30 June 2012. That increase was opposed at the time by the PBSG. On July 1st, the TAH would technically have reverted back to 8. The PBSG strongly opposed the proposed increase (Vongraven, i*n litt*. to Kusugak, 2012).* *Polar Bear harvest is male-biased (60-70% of the take) (PBSG, 2009). Some concern has been expressed that excessive take of males could lead to an impairment in recruitment due to an Allee effect (Molnár et al., 2008), although such impairment has yet to be demonstrated in a wild population of Polar Bears.*
<u>Conservation, management and legislation</u>	
Detailed information on national management is provided in the supporting statement. Recognizing the high likelihood of overharvesting shared polar bear populations due to communication and cooperation issues, several range States have initiated joint management and research agreements to limit actual or potential negative harvest and trade impacts: ▪ Agreement between the Government of the United States of America and the Government of the Russian Federation on the Conservation and Management of the Alaska-Chukotka Polar Bear Population.—This 2000 agreement between the United States and the Russian Federation seeks to enhance the polar bear population the Alaska-Chukotka polar bear population (Chukchi Sea). A quota was set in June 2010 but will not be implemented until 2013. ▪ Inuvialuit-Inupiat Polar Bear Management Agreement in the Southern Beaufort Sea.—This 1988 agreement between the United Stated and Canada seeks to enhance the polar bear population of Southern Beaufort Sea. ▪ Memorandum of Understanding between the Government of Canada, the Government of Nunavut, and the Government of Greenland for the	*Unless otherwise referenced, the following information (much of which is also in the supporting statement), is derived from the website of the IUCN Polar Bear Specialist Group.* *Within* ***Canada****, the authority for the management of Polar Bears lies with the seven provincial and territorial jurisdictions in which they occur. While the governments of the Provinces and Territories have the authority for management, the decision-making process for some is shared with Aboriginal management boards (e.g. Nunavut Wildlife Management Board) as part of the settlement of land claims. In most Canadian jurisdictions, hunting seasons, quotas, and protection of family groups have been legislated; however, only Manitoba prohibits the hunting of Polar Bears. Although Ontario and Québec have no enforced quotas, only native people may hunt Polar Bears. Over 80% of the hunting of Polar Bears in Canada occurs in Nunavut and the Northwest Territories, where management agreements and/or memoranda of understanding have been developed with local communities to ensure that all human-caused mortality is sustainable (but see Threats above). Programmes to monitor and analyze the annual human-caused mortality of Polar Bears are in place in all jurisdictions.* *Inuvialuit-Inupiat Polar Bear Management is not legally binding in the U.S., but is in Canada (i.e., the quotas are enforceable in the Northwest Territories) (PBSG* in litt

Supporting Statement (SS)	Additional information
Conservation and Management of Polar Bear Populations.—This 2008 agreement between Canada, Nunavut, and Greenland seeks to enhance polar bear populations in Kane Bay and Baffin Bay.	*2012).* *In addition, the Government of Nunavut has implemented a phased-in quota reduction for the Baffin Bay subpopulation until the on-going research results can be evaluated, and the population status can be re-assessed for sustainable harvest levels (PBSG, in litt.* 2012). *In 2011 the Polar Bear, on the recommendation of the Minister of the Environment, was added to Schedule 1 of the 2004 Species at Risk Act (SARA) as a species of special concern. Under SARA, the listing of a species as special concern in Schedule 1 requires the preparation of a management plan to prevent listed species from becoming endangered or threatened (http://www.sararegistry.gc.ca).* *Harvest of polar bears in* ***Greenland*** *was undertaken without quotas until 2006, when the Government of Greenland introduced quotas. National regulations for Polar bear management are fixed by law in Executive Order no. 21 of 22 September 2005 on the Protection and Hunting of Polar Bears. The Government of Greenland sets annual quotas taking into account international agreements, biological advice provided by Greenland Institute of Natural Resources, harvest statistics, and Consultations with the Hunting Council. The quota is divided between relevant Municipalities by the Department of Fisheries, Hunting & Agriculture in consultation with the Hunting Council, and they are set for three years. During the three years of regulations, the quotas have been reduced to ensure sustainable harvest. The quotas for polar bear are mandatory, and are enforced by a double-reporting system. In 1985 Greenland obtained authority to issue CITES permits. Early 2007, the CITES Management Authority requested a NDF (non-detrimental finding) for the polar bear, and the result was negative. After this Greenland introduced a voluntary temporary ban on export of Polar bear products which has remained in place to date.* *In 2009, Greenland, Canada and Nunavut signed a Memorandum of Understanding for the conservation of the Baffin Bay and Kane Basin subpopulations. In October 2011 it was reported that the Commission set up under the agreement had met twice to date (Ottawa 2010, Ilulissat 2010), and had approved a monitoring plan that was currently being implemented. Once new population abundance and demographic data are available, expected in 2013, the Commission would be in a position to formulate updated advice to manage harvest for these two subpopulations to ensure long-term viability (Anon., 2011).* *Polar Bears are fully protected in* ***Norway*** *and can only be killed in defence of life or property.*

Supporting Statement (SS)	Additional information
	*The Polar Bear was totally protected in **Russia** (USSR) in 1957. The only permitted take of Polar Bears is catching cubs for public zoos and circuses.* T*he Agreement between the Government of the USA and the Government of the Russian Federation on the conservation and management of the Alaska-Chukotka Polar Bear acknowledges the possibility of renewing a limited subsistence take of Polar Bears by native people of Chukotka (Russia). However, currently a complete ban on hunting of polar bears in Russia has been maintained. Monitoring and enforcement plans would be needed to legalize subsistence harvest by native people in Chukotka.* *Under the 1972 Marine Mammal Protection Act of 1972 (MMPA) hunting of Polar Bears in the **USA** is prohibited except by coastal-dwelling Alaska Natives for subsistence and handicraft purposes, provided the take is not wasteful. Under the MMPA, harvests quotas are not set unless Polar Bear populations are defined as "depleted" (below optimum sustainable population level). The U.S. Fish and Wildlife Service has primary responsibility for harvest management, and works cooperatively with Alaska Native user groups (e.g., the Alaska Nanuuq Commission, North Slope Borough) to cooperatively address harvest issues under existing user group agreements. In addition, international coordination is required for harvest management since both the southern Beaufort Sea stock (SBS) and the Chukchi/Bering seas stock (CS) are shared with Canada and Russia respectively. In 1988 the Inupiat of Alaska and Inuvialuit of Canada developed and implemented an Inupiat-Inuvialuit (I-I) conservation agreement for the SBS population. The Agreement was re-negotiated, and signed again in 1999. It establishes sustainable harvest limits and allocates quotas (which are reviewed annually) between the jurisdictions. It is not legally binding but has resulted in greater involvement by user groups in harvest management and conservation, as well as harvest levels generally remaining sustainable, although the reduction in estimated size of the SBS population is likely to necessitate reduction of harvest levels.*
	Similar species
	Polar Bears are very distinctive.

Reviewers: E. Cooper, IUCN Polar Bear Specialist Group (Sub-committee on CITES CoP16 proposal).

Deletion of Percy Island Flying Fox *Pteropus brunneus* from Appendix II

Proponent: Australia

Summary: '*Pteropus brunneus'* (Percy Island Flying Fox) is the name attached to a single specimen of flying fox collected in the 19th century lodged in the Natural History Museum, London, UK. The collecting location was given as Percy Island, Australia, and the collection date as 1859. The Percy Islands are a group of islands in the Northumberland Group (to Australia) some 50-75 km off the Queensland coast. The specimen closely resembles the Little Red Flying Fox *Pteropus scapulatus*, which occurs on the Australian mainland opposite the Percy Islands group. Although there is not complete agreement on the matter, there is a general view that the Percy Island Flying Fox is in fact a misattributed specimen of *P. scapulatus*, likely also with a misattributed collection site. The only flying fox known to occur on the Percy Islands is the considerably larger Black Flying Fox *P. alecto.*

Pteropus brunneus was included in CITES Appendix II in 1990 as part of a general listing of *Pteropus* spp. Eight species in the genus had been included in Appendix II in 1987 owing largely to concerns regarding international trade for food in the South Pacific region; in 1990 seven of these species were transferred to Appendix I and the rest of the genus included in Appendix II, largely for look-alike reasons. Under the current standard taxonomic reference for the genus, 65 species are recognised. Six species other than *P. brunneus* occur in Australia; all assessed by IUCN as Least Concern except for *P. poliocephalus* which is regarded as Vulnerable. Of the other members of the genus, two species – *P. subniger* from Mauritius and Réunion (France) and *P. tokudae* from Guam (to US) – are classified as Extinct and several others are in a similar position to *P. brunneus*, i.e. are known from one or two specimens of ancient provenance whose taxonomic status is uncertain. All Australian native mammals, including *Pteropus* species, are covered by legislation that strictly prohibits export for commercial purposes.

As part of the periodic review of the Appendices, the Animals Committee recommended that the Percy Island Flying Fox be removed from Appendix II (AC 26 WG1 Doc. 2). The recommendation was made based on information provided by the Australian CITES Scientific Authority for consideration at the 26th meeting of the Animals Committee (Geneva, March 2012).

Analysis: It is very likely that *Pteropus brunneus* never existed as a valid species. If it was a valid species, and its distribution was the Percy Islands, Australia, then it is almost certainly long extinct. All Australian native mammals are covered by legislation that strictly prohibits export for commercial purposes. There is evidently therefore no risk entailed in deleting *P. brunneus* from the Appendices. However, the species is included as part of a higher taxon listing (in this case for all *Pteropus* spp. other than those included in Appendix I). Several other species of *Pteropus* currently listed in Appendix II are of doubtful validity as species, or extinct – that is, the same conditions apply to these as to *P. brunneus*. Deletion of *P. brunneus* from the Appendices will require a specific amendment to the current listing to that effect. It is not apparent what function this would serve, in terms of simplifying the Appendices and facilitating implementation of the Convention.

Supporting Statement (SS)	Additional information
Taxonomy	
Pteropus brunneus Dobson, 1878 was described from a single specimen of an adult male collected on 'Percy Island' in 1859. The specimen, consists of a skull and skin erroneously labelled *P. gouldi*. No other specimens of *P. brunneus* are known and it is presumed to be a mistakenly identified specimen of the widespread Little Red Flying Fox *P. scapulatus*. A study in 2008 regarded *P. brunneus* as being distinct from the six extant species of *Pteropus* occurring in Australia on the basis of overall size, forearm length and concealed glandular tufts on the shoulders. However, its size, including forearm length, and coloration fall within known parameters for Little Red Flying Fox *P. scapulatus.*	*Hall (1987) noted that the species has been considered variously a windblown waif of* P. hypomelanus *from the Louisiade Archipelago (Papua New Guinea) or alternatively a distinct species from the Solomon Islands.*
Range	
Australia.	
IUCN Global Category	
Extinct (2008).	Classified as Extinct in 1996.
Biological and trade criteria for retention in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)	
B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences	
Nothing is known of its population size. *Pteropus brunneus* was described from a single specimen collected in 1859. After its collection, there were no further reports of *P. brunneus* except for a dubious second-hand eyewitness account lacking in critical details published in an 1897 paper. The only information available on the geographical distribution is 'Percy Island' (no further details), as marked on the label attached to the only known specimen. There is no Percy Island *per se*: the Percy Islands consist of a group of continental islands in the Northumberland Group, which lies between latitudes 21°S and 22°S. The three main islands, Middle, North East and South Percy, are about 75 km east of the central Queensland coast. On which of the three main islands in the group the specimen was collected was not specified by the collector.	

Supporting Statement (SS)	Additional information
Middle Percy (1657 ha) is the largest island of the group and may have been suitable for a permanent flying fox camp (roost). Part of the island was cleared for a grazing lease after 1964.	
A report published in 1897 stated that a collector reported this species to be 'plentiful' on Percy Island, flying between there and the mainland "opposite". There is no record of how the collector differentiated between *P. scapulatus* and *P. brunneus,* and it is reasonable to assume that P. scapulatus was the species reported in error.	*The considerably larger Black Flying Fox* Pteropus alecto *is present on the Percy Islands; no flying foxes that resemble* P. brunneus *have been recorded on the islands since the 19th century (Hall, 1987).*
No population estimates or trends have been published. It has not been seen in the wild since 1859.	
It is unlikely that the Percy Island Flying Fox was subject to trade. A single specimen was purchased by the British Museum of Natural History from Stevens' Sale Rooms, London in 1874. No subsequent trade is known or documented. The collection and subsequent sale of a single male specimen is unlikely to have contributed to the species's extinction.	
Export of live Australian native mammals is strictly prohibited for commercial purposes, but may be exported for specific non-commercial purposes (e.g. for research, education or exhibition). Should *P. brunneus* be rediscovered, it would be classed as an Australian native mammal and an Australian export permit would be required for its export even if it were delisted from CITES.	
The Percy Island Flying Fox was delisted from the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) in 2001 on the advice of the Threatened Species Scientific Committee (TSSC). The committee's reasons for delisting it included taxonomic uncertainty, the specimen's uncertain provenance and its similarity to Little Red Flying Fox.	
South Percy and North East Percy are national parks. Part of Middle Percy Island has recently been acquired by the Queensland Government as a conservation reserve. The Percy Group is accessible only by boat or seaplane and habitat destruction on a scale large enough to cause the extinction of a large, volant mammal such as a flying fox is unlikely.	

Supporting Statement (SS)	Additional information
Retention in Appendix II to improve control of other listed species	
A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I	
In appearance, the Percy Island Flying Fox specimen bears a strong resemblance to the Little Red Flying Fox *P. scapulatus*, an endemic Australian species. The specimen's coloration and morphometrics fall within the known variation for *P. scapulatus*, especially when shrinkage and discoloration with age are taken into consideration. *P. scapulatus* is widespread, highly nomadic and abundant in tropical and subtropical Australia. Its geographical distribution overlaps the hypothetical distribution of the Percy Island Flying Fox. Misidentification of the Percy Island Flying Fox specimen is therefore likely. The 2008 study does not elaborate on the significance of the concealed glandular tufts or the furred tibiae of the specimen. *P. brunneus* may be an aberrant specimen of *P. scapulatus* or have been collected from a colony of that species with a significant percentage of such aberrations. It is not known whether the specimen has been compared with similar *Pteropus* species that occur outside Australia.	Pteropus brunneus *was included in CITES Appendix II in 1990 as part of a general listing of* Pteropus *spp. Eight species in the genus had been included in Appendix II in 1987 owing largely to concerns regarding international trade for food in the Pacific region; in 1990 seven of these species were transferred to Appendix I and the rest of the genus included in Appendix II, largely for look-alike reasons. Under the current standard taxonomic reference for the genus, 65 species are recognised. Six species other than* P. brunneus *occur in Australia; all assessed by IUCN as Least Concern except for* P. poliocephalus *which is regarded as Vulnerable. Of the other members of the genus, two species* – P. subniger *from Mauritius and Réunion (France) and* P. tokudae *from Guam (to USA) – are classified as Extinct and several others in a similar position to* P. brunneus*, that is are known from one or two specimens of ancient provenance whose taxonomic status is uncertain (see iucnredlist.org for details).*
Other information	
Threats	
A grazing lease has been in operation on Middle Percy Island since 1964. This probably would have involved clearing of native hoop pine–vine thicket to create pasture which may have impacted on flying fox roosts if any were present.	
Other comments	
Pteropus brunneus is listed in Appendix II under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). *Pteropus brunneus* was one of many species nominated by Australia for inclusion in the Appendices when CITES first came into force on 1 July 1975. It was listed as a precautionary approach, as the species was not subject to trade.	Contra *the Supporting Statement*, *the species was included in the general listing for* Pteropus *spp, in 1990 (see above).*

Deletion of Thylacine *Thylacinus cynocephalus* from Appendix I

Proponent: Australia

Summary: The Thylacine *Thylacinus cynocephalus,* the sole modern representative of the family Thylacinidae, was the largest recent carnivorous marsupial, doglike in appearance. In modern times the species has only been recorded on the island of Tasmania, Australia. Prehistoric records indicate it once occurred widely in mainland Australia and on New Guinea, but died out here probably around 2000 years ago, possibly as a result of introduction of dogs (dingoes) by Aboriginal people. On Tasmania the Thylacine was widespread until the late 19th century although probably never very abundant. By the start of the 20th century the population had collapsed, almost certainly largely as a result of persecution under a bounty system (it was regarded as a threat to sheep), although disease and competition from domestic or feral dogs may also have played a part. The last recorded specimen was captured alive in 1933 and died in Hobart Zoo, Tasmania in 1936. It has been classified as Extinct by IUCN since 1982.

The Thylacine was included in CITES Appendix I in 1975, when the Convention first entered into force.

In the highly unlikely event of the species being rediscovered, it would be covered by Australian legislation that prohibits the export of native mammal species for commercial purposes and requires a permit for export for non-commercial purposes.

Analysis: *Resolution Conf. 9.24 (Rev. CoP15)* notes in Annex 4 (Precautionary measures) that no species listed in Appendix I shall be removed from the Appendices unless it has been first transferred to Appendix II, with monitoring of any impact of trade on the species for at least two intervals between meetings of the Conference of the Parties (para. A. 1). It also notes: 'Species that are regarded as possibly extinct should not be deleted from Appendix I if they may be affected by trade in the event of their rediscovery; these species should be annotated in the Appendices as 'possibly extinct' (para. D).

It is not evident that either of these two apply in this case. Para. A 1 clearly applies to extant species as there can be no impact of trade on an extinct species, With regard to para. D, the species is regarded as extinct rather than possibly extinct. In the highly unlikely event of its rediscovery, commercial export would be prohibited by Australian legislation.

Supporting Statement (SS)	Additional information
Range	
Australia.	
IUCN Global Category	
Extinct.	*Classified as Extinct since 1982 (McKnight, 2008;Thornback and Jenkins, 1982).*

Supporting Statement (SS)	Additional information
Biological criteria for inclusion in Appendix I	
A) Small wild population **(i) Population or habitat decline; (ii) small sub-populations; (iii) concentrated geographically during one or more life-history phases; (iv) large population fluctuations; (v) high vulnerability**	
Extinct. The species is considered to be extinct. Since 1937 there have been many systematic searches for the Thylacine in areas where it was last seen alive and in remote, seldom visited areas where it was most likely to persist. No authentic evidence of its survival has ever been produced.	
Trade criteria for inclusion in Appendix I	
The species is or may be affected by trade	
	Very limited "trade"/ movement of specimens, bodies, hair and bones for scientific or "Circus or travelling exhibition" purposes has been reported in the CITES trade database.
Precautionary Measure	
The Australian Environmental Protection and Biodiversity Conservation Act (1999) regulates trade in CITES listed and Australian native wildlife and their products. Export of live Australian native mammals is strictly prohibited for commercial purposes but may be allowed for specific non-commercial purposes (e.g. for research, education or exhibition). As an Australian native mammal an Australian native export permit would be required for the export of *Thylacinus cynocephalus* even if it were removed from the CITES Appendices. If the species was rediscovered, any take from the wild would be strictly regulated by relevant Australian domestic environmental legislation.	

Supporting Statement (SS)	Additional information
Other information **Threats** The main threatening process that led to its extinction in Tasmania was widespread and unrelenting hunting and trapping for bounties after white settlement. Bounties were offered in retribution for real but often exaggerated predation of livestock. In 1910 a distemper-like epidemic that affected large dasyurids (i.e. *Dasyurus*, *Sarcophilus*) was reported in Tasmania. Dasyurid populations recovered, but this additional pressure may have been sufficient to destroy whatever Thylacines remained at the time.	

Deletion of Crescent Nailtail Wallaby *Onychogalea lunata* from Appendix I

Proponent: Australia

Summary: The Crescent Nailtail Wallaby *Onychogalea lunata* was one of three members of the genus *Onychogalea* (part of the Kangaroo family or Macropodidae) endemic to Australia. It was a small wallaby, formerly distributed over a large part of western central Australia. The last reliable report dates from 1956. In 1964 a wallaby carcass from the Gibson Desert was reportedly identified as this species on the basis of a still greasy mandibular fragment, but the specimen was not preserved and the authenticity of this record has been questioned. The species has been classified as Extinct by IUCN since 1982.

Onychogalea lunata was included in CITES Appendix I in 1975, when the Convention came into force. No trade in any specimens has ever been recorded.

In the highly unlikely event of the species being rediscovered, it would be covered by Australian legislation that prohibits the export of native mammal species for commercial purposes and requires a permit for export for non-commercial purposes.

Of the two other species in the genus, one, the Bridled Nailtail Wallaby *O. fraenata*, from Queensland, is classified by IUCN as Endangered and is included in Appendix I; the other, the Northern Nailtail Wallaby *O. unguifera*, is classified by IUCN as Least Concern and is not listed in the Appendices.

Analysis: Resolution Conf. 9.24 (Rev. CoP15) notes in Annex 4 (Precautionary measures) that no species listed in Appendix I shall be removed from the Appendices unless it has been first transferred to Appendix II, with monitoring of any impact of trade on the species for at least two intervals between meetings of the Conference of the Parties (para. A. 1). It also notes: 'Species that are regarded as possibly extinct should not be deleted from Appendix I if they may be affected by trade in the event of their rediscovery; these species should be annotated in the Appendices as 'possibly extinct' (para. D).

It is not evident that either of these two apply in this case. Para. A. 1 clearly applies to extant species as there can be no impact of trade on an extinct species, while para. D applies to species that are 'possibly extinct' rather than species that are regarded as extinct, as in the present case. There is no reason to assume that the species would be affected by trade in the extremely unlikely event of its rediscovery. Export for commercial purposes would be prohibited by Australian legislation.

Supporting Statement (SS)	Additional information
Range	
Australia.	
IUCN Global Category	
Extinct.	*Classified as Extinct in 1982 (Thornback and Jenkins, 1982).*

Supporting Statement (SS)	Additional information
Biological criteria for inclusion in Appendix I	
A) Small wild population **(i) Population or habitat decline; (ii) small sub-populations; (iii) concentrated geographically during one or more life-history phases; (iv) large population fluctuations; (v) high vulnerability**	
Extinct. There are no quantitative population trend data for this species. It declined at the eastern and western extremities of its range during the last two decades of the 19th century. It was common in the south-west agricultural zone until after 1900. Thereafter its decline appears to have been precipitous; several specimens were collected between 1904 and 1907; the last Western Australian specimen was collected in the south-west in 1908. It persisted in remote parts of South Australia and Western Australia until the late 1920s. It was reported to be in small numbers in the southern Flinders Ranges-Northern Mt Lofty region of South Australia by 1941, although it had disappeared from South Australian coastal areas by about 1900. One was reportedly killed between the Tarlton and Jervois Ranges, Northern Territory in or about 1956. Unsubstantiated reports came from the Carnarvon Range, Western Australia in the 1960s and the Warburton Ranges, WA in 1964, but there have been no further verifiable records. Aboriginal people reported the Crescent Nailtail Wallaby had disappeared from the Flinders Ranges of South Australia by the 1890s and from western deserts by the 1940s.	*There is a record from Western Australia in 1964, when a dead wallaby found near the Gahnda Rockhole in the Gibson Desert, apparently killed by a fox, was reportedly identified on the basis of a still greasy mandibular fragment; the veracity of this record has been questioned and the specimen was not preserved (Thornback and Jenkins, 1982).*
Trade criteria for inclusion in Appendix I	
The species is or may be affected by trade	
	Never reported in trade under CITES.

Supporting Statement (SS)	Additional information
Precautionary Measures	
The EPBC Act regulates trade in CITES listed and Australian native wildlife and their products. Export of live Australian native mammals is strictly prohibited for commercial purposes but they may be exported for specific non-commercial purposes (e.g. for research, education or exhibition). As an Australian native mammal an Australian native export permit would be required for the export of *O. lunata* even if it were removed from the CITES Appendices. If the species was rediscovered, any take from the wild would be strictly regulated by relevant Australian domestic environmental legislation.	
Other information	
Threats	
The reasons for the extinction of *O. lunata* are unknown but this may have resulted from the cumulative effects of competition for grazing with introduced herbivores (e.g. rabbits, sheep); habitat loss exacerbated by overgrazing, erosion, altered fire regimes and drought; loss of habitat mosaic which formerly provided drought refuges; and predation by introduced predators.	
Similar species	
The genus *Onychogalea* includes two other endemic, extant Australian wallaby species: Northern Nailtail Wallaby *O. unguifera* and Bridled Nailtail Wallaby *O. fraenata*. *Onychogalea fraenata* was formerly distributed across a large part of inland eastern Australia. It was hunted extensively and thought extinct until its rediscovery in 1973. It now survives only in two small protected areas in western Queensland. *Onychogalea unguifera* has a wide distribution across tropical Australia, where it inhabits savannahs and grasslands. It is not threatened but is apparently uncommon in parts of its range.	Onychogalea fraenata *is listed in CITES Appendix I; a very small amount of trade in this species was recorded in the 1980s.* Onychogalea unguifera *is not listed in the Appendices.*

Deletion of Buff-nosed Rat-kangaroo *Caloprymnus campestris* from Appendix I

Proponent: Australia

Summary: The Buff-nosed Rat-kangaroo *Caloprymnus campestris* was a small marsupial recorded in semi-arid and arid areas in eastern central Australia. It bore a resemblance to species of bettong *Bettongia* but was placed in its own genus. The last definite records of the species were in 1935. There were unconfirmed sightings in western Queensland following periods of rain in 1956-1957 and 1974-1975 and in South Australia as recently as 1988 although a comprehensive search in north-east South Australia and south-west Queensland carried out between 1984 and 1989 failed to find convincing evidence of its survival. The species is believed likely to have been affected by predation by introduced Red Foxes *Vulpes vulpes* and feral cats and by habitat alteration owing to grazing by cattle. These factors are so pervasive that it is thought highly unlikely that the species still survives. It is now classified as Extinct by IUCN.

Caloprymnus campestris was included in CITES Appendix I in 1975, when the Convention first entered into force. It has never been recorded in international trade.

In the unlikely event of the species being rediscovered, it would be covered by Australian legislation that prohibits the export of native mammal species for commercial purposes and requires a permit for export for non-commercial purposes.

Analysis: Resolution Conf. 9.24 (Rev. CoP15) notes in Annex 4 (Precautionary measures) that no species listed in Appendix I shall be removed from the Appendices unless it has been first transferred to Appendix II, with monitoring of any impact of trade on the species for at least two intervals between meetings of the Conference of the Parties (para. A. 1). It also notes: 'Species that are regarded as possibly extinct should not be deleted from Appendix I if they may be affected by trade in the event of their rediscovery; these species should be annotated in the Appendices as 'possibly extinct' (para. D).

It is not evident that either of these two applies in this case. Para. A. 1 clearly applies to extant species as there can be no impact of trade on an extinct species. With regard to para. D there is no reason to assume that the species would be affected by trade in the unlikely event of its rediscovery. Commercial export would, in any event, be prohibited by Australian legislation.

Supporting Statement (SS)	Additional information
Range	
Australia.	
IUCN Global Category	
Extinct.	*Classified as Extinct in 1994.*

Supporting Statement (SS)	Additional information
Biological criteria for inclusion in Appendix I	
A) Small wild population **(i) Population or habitat decline; (ii) small sub-populations; (iii) concentrated geographically during one or more life-history phases; (iv) large population fluctuations; (v) high vulnerability**	
Extinct. The Buff-nosed Rat-kangaroo was endemic to arid regions of South Australia and Queensland. The species was first described by John Gould in 1843 based on three specimens from South Australia. It was over 90 years later in 1931 that the species was first recorded in the wild by Finlayson near Ooroowilanie, east of Lake Eyre, South Australia. The historical records indicate that the species was always rare and patchily distributed. The last reliable sighting of the Buff-nosed Rat-kangaroo was in 1935. Since then unconfirmed sightings have been recorded in Queensland in 1956–1957 and 1974–1975 following periods of drought-breaking rains and in South Australia up until 1988. A comprehensive search for the Buff-nosed Rat-kangaroo in north-east South Australia and south-west Queensland was carried out between 1984 and 1989. The study involved an examination of historical accounts, a study of Aboriginal names and places where the species possibly occurred, interviews with people that sighted the species in the 1920s to 1950s, a poster seeking the public to report sightings and spotlight surveys of selected sites. The study did not find the species; however, evidence was found of sightings during the 1970s to 1980s that described a small wallaby that matched the description of *C. campestris* and was seen within parts of its assumed former range. The most compelling evidence that the species survived up until 1988 was sightings of bettong-like animals on Clifton Hills Station of South Australia. One of the animals was observed carrying nesting material in its tail which was behaviour of *C. campestris*.	
Trade criteria for inclusion in Appendix I	
The species is or may be affected by trade	
	Never reported in trade under CITES.
Precautionary Measures	
The EPBC Act regulates trade in CITES listed and Australian native wildlife and their products. Export of live Australian native mammals is strictly prohibited for commercial purposes but they may be exported for specific non-commercial	

Supporting Statement (SS)	Additional information
purposes (e.g. for research, education or exhibition). As an Australian native mammal an Australian native export permit would be required for the export of *Caloprymnus campestris* even if it were removed from the CITES Appendices. If the species was rediscovered, any take from the wild would be strictly regulated by relevant Australian domestic environmental legislation.	

Other information

Threats

The rapid decline of the Buff-nosed Rat-kangaroo in the 1930s coincides with the invasion of the Red Fox *Vulpes vulpes* into its habitat. Predation by feral cats and red foxes and habitat alteration due to grazing by cattle and rabbits are likely to have contributed to the extinction of the species along with the bust cycles that the populations experienced during drought conditions. Given these threats, it is considered unlikely that the species will reappear as it had in the past following a good season of rain.

Similar species

Other species of rat-kangaroo, especially *Bettongia* spp. are similar in appearance.

The genus Bettongia *is currently included in Appendix I. The CITES species database recognises 4 extant spp, all endemic to Australia; IUCN Red List includes an additional extinct species* (B. pusilla) *known only from sub-fossil remains.*

Other comments

The species was classified as Indeterminate by IUCN in 1982 (Thornback and Jenkins, 1982) and was reclassified as Extinct in 1994 (Australasian Mammal Assessment Workshop, 2008).

Deletion of Pig-footed Bandicoot *Chaeropus ecaudatus* from Appendix I

Proponent: Australia

Summary: The Pig-footed Bandicoot *Chaeropus ecaudatus* was a highly distinctive Australian marsupial, regarded as the sole representative of the family Chaeropodidae, although previously included with other bandicoots in the family Peramelidae. It formerly had an extensive range in the interior of Australia. The last confirmed specimen was collected in 1907, with sightings and unconfirmed records reported into the 1920s, recollections of the species by the Pintupi people in the Great Sandy and northern Gibson Deserts into the 1950s and reports by Aboriginal people of its presence in and around the Tanami Desert in the Northern Territory into the 1960s. The species has been classified as Extinct by IUCN since 1982.

Chaeropus ecaudatus was included in CITES Appendix I in 1975, when the Convention came into force, by which time it was almost certainly extinct. No trade in any specimens has ever been recorded under CITES.

In the highly unlikely event of the species being rediscovered, it would be covered by Australian legislation that prohibits the export of native mammal species for commercial purposes and requires a permit for export for non-commercial purposes.

Analysis: Resolution Conf. 9.24 (Rev. CoP15) notes in Annex 4 (Precautionary measures) that no species listed in Appendix I shall be removed from the Appendices unless it has been first transferred to Appendix II, with monitoring of any impact of trade on the species for at least two intervals between meetings of the Conference of the Parties (para. A. 1). It also notes: 'Species that are regarded as possibly extinct should not be deleted from Appendix I if they may be affected by trade in the event of their rediscovery; these species should be annotated in the Appendices as 'possibly extinct' (para. D).

It is not evident that either of these two apply in this case. Para. A. 1 clearly applies to extant species as there can be no impact of trade on an extinct species, while para. D applies to species that are 'possibly extinct' rather than species that are regarded as extinct, as in the present case. There is no reason to assume that the species would be affected by trade in the extremely unlikely event of its rediscovery. Export for commercial purposes would be prohibited by Australian legislation.

Supporting Statement (SS)	Additional information
Taxonomy	
Family Chaeropodidae.	*Formerly included in the family Peramelidae (Thornback and Jenkins, 1982).*
Range	
Australia.	
IUCN Global Category	
Extinct.	*Classified as Extinct in 1982 (Thornback and Jenkins, 1982).*

Supporting Statement (SS)	Additional information
Biological criteria for inclusion in Appendix I	
A) Small wild population **(i) Population or habitat decline; (ii) small sub-populations; (iii) concentrated geographically during one or more life-history phases; (iv) large population fluctuations; (v) high vulnerability**	
Extinct. The last confirmed records of the Pig-footed Bandicoot were in 1843 for Western Australia and in 1857 for New South Wales. Aboriginal testimony indicates that the Pig-footed Bandicoot disappeared from arid South Australia between 1910 and 1920. There were reports from Aboriginals in the Northern Territory that suggest the Pig-footed Bandicoot survived until the 1960s in the Tanami Desert and areas west of this region.	*The only confirmed specimen in the 20th century was one collected on the west bank of North Lake Eyre in 1907 (Thornback and Jenkins, 1982).* *Reports of sightings in central Australia during the 1920s were unconfirmed. Burbidge* et al*. (2008) reported that there were recollections of this species by the Pintupi people in the Great Sandy and northern Gibson Deserts into the 1950s.*
Trade criteria for inclusion in Appendix I	
The species is or may be affected by trade	
	Never reported in trade under CITES.
Precautionary Measures	
The EPBC Act regulates trade in CITES listed and Australian native wildlife and their products. Export of live Australian native mammals is strictly prohibited for commercial purposes but they may be exported for specific non-commercial purposes (e.g. for research, education or exhibition). As an Australian native mammal an Australian native export permit would be required for the export of *Chaeropus ecaudatus* even if were removed from the CITES Appendices. If the species was rediscovered, any take from the wild would be strictly regulated by relevant Australian domestic environmental legislation.	
Other information	
Threats	
The reasons for the extinction of the Pig-footed Bandicoot are unknown. Collapse of *C. ecaudatus* populations was rapid after European settlement. Population declines preceded the establishment of the European Rabbit *Oryctolagus cuniculus* and Red Fox *Vulpes vulpes* but feral cats *Felis catus* were established. Feral cats may have contributed to its decline. The most likely cause of extinction of the	

Supporting Statement (SS)	Additional information
Pig-footed Bandicoot was alteration to its habitat. Changes in fire regimes coincided with declines in the Aboriginal population during the 19th century. The mosaic burning practices of the Aboriginals encouraged patches of fresh new growth which would have favoured the Pig-footed Bandicoot as it was a grazer. Sheep and cattle introduced in large numbers by the Europeans may have also affected habitat structure and food availability for the Pig-footed Bandicoot.	
Similar species	
The species can be easily distinguished from other bandicoots by its very distinctive feet.	*One other species of bandicoot*, *the Western Barred Bandicoot* Perameles bougainville, *is listed in CITES Appendix I; it is quite different in appearance from* Chaeropus ecaudatus.

Deletion of Lesser Bilby *Macrotis leucura* from Appendix I

Proponent: Australia

Summary: The Lesser Bilby *Macrotis leucura* was one of two species of bilby (genus *Macrotis*) in the bandicoot family (the Peramelidae). It was endemic to Australia where it occurred in arid regions in the interior. The last verified specimen was collected in 1931, although oral accounts by Aboriginals suggest that it may have survived into the 1960s. It has been classified as Extinct by IUCN since 1982. The reasons for its demise are unclear, although predation by introduced Red Foxes *Vulpes vulpes* and feral cats and habitat alteration have been implicated.

Macrotis leucura, along with its sister-species the Greater Bilby *Macrotis lagotis,* was included in CITES Appendix I in 1975, when the Convention came into force, by which time it was almost certainly extinct. No trade in any specimens has ever been recorded under CITES.

In the highly unlikely event of the species being rediscovered, it would be covered by Australian legislation that prohibits the export of native mammal species for commercial purposes and requires a permit for export for non-commercial purposes.

Macrotis lagotis, which is easily distinguishable from *M. leucura* by its greater size and different colouration, is extant and classified as Vulnerable by IUCN. A very small amount of non-commercial trade in specimens of this species is recorded in the CITES trade database.

Analysis: Resolution Conf. 9.24 (Rev. CoP15) notes in Annex 4 (Precautionary measures) that no species listed in Appendix I shall be removed from the Appendices unless it has been first transferred to Appendix II, with monitoring of any impact of trade on the species for at least two intervals between meetings of the Conference of the Parties (para. A. 1). It also notes: 'Species that are regarded as possibly extinct should not be deleted from Appendix I if they may be affected by trade in the event of their rediscovery; these species should be annotated in the Appendices as 'possibly extinct' (para. D).

It is not evident that either of these two apply in this case. Para. A. 1 clearly applies to extant species as there can be no impact of trade on an extinct species, while para. D applies to species that are 'possibly extinct' rather than species that are regarded as extinct, as in the present case. There is no reason to assume that the species would be affected by trade in the extremely unlikely event of its rediscovery. Export for commercial purposes would be prohibited by Australian legislation.

Supporting Statement (SS)	Additional information
Range	
Australia.	
IUCN Global Category	
Extinct.	*Classified as Extinct in 1982 (Thornback and Jenkins, 1982).*

Supporting Statement (SS)	Additional information
Biological criteria for inclusion in Appendix I	
A) Small wild population **(i) Population or habitat decline; (ii) small sub-populations; (iii) concentrated geographically during one or more life-history phases; (iv) large population fluctuations; (v) high vulnerability**	
Extinct. The Lesser Bilby disappeared between the 1920s and 1960s. Aboriginal people reported their last sightings for central Western Australia as: Clutterbuck Hills, 1960s; north of Rawlinson Range, 1950s; Walter James Range, 1950s; Great Sandy Desert between Southesk Tablelands and Jupiter Wells, 1940s; Murray Bore (south of Blackstone), late 1920s.	*The last confirmed collection of a specimen was in 1931 near Cooncherie in north-east South Australia; a skull of unknown age was found in 1967 in a Wedge-tailed Eagle's (*Aquila audax *) nest south-east of Alice Springs; Aboriginal oral history suggests survival possibly into the 1960s (Burbidge* et al., *2012).*
B) Restricted area of distribution **(i) Fragmented or localised population; (ii) large fluctuations in distribution or sub-populations; (iii) high vulnerability; (iv) decrease in distribution, population, area or quality of habitat, or recruitment**	
The total range of the Lesser Bilby extended over two regions in arid Australia: the north-east of South Australia and adjoining south-east Northern Territory; the Gibson and Great Sandy Deserts of Western Australia; and adjoining areas of the Northern Territory.	
Trade criteria for inclusion in Appendix I	
The species is or may be affected by trade	
	Never reported in trade under CITES.
Precautionary Measures	
The EPBC Act regulates trade in CITES listed and Australian native wildlife and their products. Export of live Australian native mammals is strictly prohibited for commercial purposes but may they be exported for specific non-commercial purposes (e.g. for research, education or exhibition). As an Australian native mammal an Australian native export permit would be required for the export of *Macrotis leucura* even if it were removed from the CITES Appendices. If the species was rediscovered, any take from the wild would be strictly regulated by relevant Australian domestic environmental legislation.	

Supporting Statement (SS)	Additional information
Other information	
Threats	
The primary cause of the extinction of the Lesser Bilby is most likely due to predation by feral cats *Felis catus* and Red Foxes *Vulpes vulpes*. Altered fire regimes and feral dromedary camels *Camelus dromedaries* are threats to the vegetation that occurs in the former range of the Lesser Bilby and may have contributed to their extinction.	
Similar species	
M. leucura was readily distinguished from the still surviving *M. lagotis* by its size and colouration.	M. lagotis *is included in Appendix I; it is classified as Vulnerable by IUCN (assessed 2008). A very small amount of trade in scientific specimens of this species is reported in the CITES trade database.* Macrotis *species are easily distinguishable from all other bandicoots (family* Peramelidae*).*

Amend the annotation for *Ceratotherium simum simum*

Proposed amendment (new text underlined): "*Ceratotherium simum simum* - only the populations of South Africa and Swaziland; all other populations are included in Appendix I. For the exclusive purpose of allowing international trade in live animals to appropriate and acceptable destinations and hunting trophies. <u>Hunting trophies from South Africa and Swaziland shall be subject to a zero export quota until at least CoP18.</u> All other specimens shall be deemed to be specimens of species included in Appendix I and the trade in them shall be regulated accordingly."

Proponent: Kenya

Summary: The Southern White Rhinoceros *Ceratotherium simum simum* is one of two subspecies of White Rhinoceros, the other being the Northern White Rhinoceros *C. s. cottoni*, which currently survives only as four individuals from captivity in a private sanctuary in Kenya. The Southern White Rhinoceros currently numbers around 20 000 wild individuals, 93% of which occur in South Africa. There are introduced or reintroduced populations based on founder stock from South Africa in Botswana, Kenya, Mozambique, Namibia, Swaziland, Uganda, Zambia and Zimbabwe and over 700 individuals in captivity around the world. The subspecies has been increasing (it was estimated at 11 000 individuals in 2004) and is currently classified as Near Threatened by IUCN.

The entire rhinoceros family, the Rhinocerotidae, was included in Appendix I of CITES in 1977. The South African population of Southern White Rhinoceros was transferred to Appendix II in 1994 with the following annotation: "For the exclusive purpose of allowing international trade in live animals to appropriate and acceptable destinations and hunting trophies. All other specimens shall be deemed to be specimens of species included in Appendix I and the trade in them shall be regulated accordingly." The population of Swaziland was transferred to Appendix II in 2004 under the same annotation. The population of Southern White Rhinoceros in Swaziland is very small, and no export of the species from the country is recorded in the CITES trade database.

There is a highly significant demand for rhino horn in consumer countries, particularly in Asia. This provides strong incentives for illegal killing of rhinos and illegal trade in rhino horn. Illegal killing of rhinos in South Africa has increased very markedly in recent years, from 13 in 2007 to 448 in 2011 and, as of early December, 618 in 2012. There is also concern that sport hunting of Southern White Rhinoceros has provided a legal method of obtaining rhino horn which can then be legally exported and which may then be sold commercially for medicinal, ornamental and status purposes. These end-uses are in contravention of import permits granted for hunting trophies. Hunting with this intention has been referred to as "pseudohunting". It has been estimated that in the period 2009 to September 2012 "pseudohunting" has been the second largest source of horns from Africa destined for the illegal Asian market, accounting for around 17% of the number of horns, with almost all the rest (75% of the total) coming from illegally killed rhinoceroses. The majority of applications for sport hunting of Southern White Rhinoceros that are believed to represent "pseudohunting" have originated in Viet Nam. An increase in sport hunting applications from the Czech Republic and Poland in 2011 is believed to have represented proxy "pseudohunting", it being thought very likely that any resulting trophies were destined for Asia.

In February 2012, South Africa's national Department of Environmental Affairs suspended the issuance of hunting permits to Vietnamese citizens until Viet Nam reported back on the status of previously exported hunting trophies to ensure that they have not entered trade. This was followed in April 2012 with the publication of revised norms and standards for marking rhinos and rhino horn, and for trophy hunting of rhino. In South Africa compulsory attendance by an official is now legally required at all hunts, and hunting *curricula vitae* from applicants which show their hunting experience in their country of origin and with

African game are now required before permits can be granted. DNA sampling of horns is now mandatory. Implementation of these measures has resulted in a marked decline in rhino hunting applications by citizens from Southeast Asia, the Czech Republic and Poland, and a reduction of over 60% in total number of rhino hunting applications in South Africa in 2012 compared to 2011.

The proponents believe that continued legal trophy hunting of rhino may be stimulating demand for illegal uses of horn and have therefore proposed a zero quota for export of hunting trophies from South Africa and Swaziland until at least CoP18.

Analysis: As a general point, proposals to introduce annotations to the Appendices that attempt to bind Parties to an agreement not to make changes to the Appendices in future appear to go against both the letter and the spirit of the Convention and to be in practice unenforceable, in that there is nothing to prevent Parties proposing amendments to them at a later CoP (or intersessionally). This is borne out by the only current example in the Appendices, concerning the African Elephant *Loxodonta africana*, adopted at CoP14 and proposed for amendment both at CoP15 (CoP 15 Prop 6) and (currently) at CoP16 (Cop16 Prop. 12) by one or more of the Parties that proposed an annotation of this form in the first place. The current proposal takes this form, as it asks Parties to agree to a zero quota at least until CoP18.

There are no guidelines in *Resolution Conf.* 9.24 (*Rev. CoP15)* for assessing amendment proposals of this kind. However, a zero export quota for an Appendix-II listed species is similar in effect (though in fact stricter than) an Appendix-I listing. The combined populations of Southern White Rhinoceros in South Africa and Swaziland do not meet the criteria for inclusion in Appendix I. However, the proponents argue that the existence of a legal trophy export trade provides a conduit for rhino horn to enter illegal commercial markets in Asia through '"pseudohunting"' and believe that this has the effect of stimulating demand, thereby increasing pressure on rhino populations and on those charged with protecting them.

The first part of this argument seems undoubtedly true, supported in particular by the large numbers of imports of rhino trophies to Viet Nam in recent years. However, South Africa in 2012 has taken extensive domestic measures to deal with the issue of "pseudohunting". These have resulted in a recent marked reduction in number of hunting licences issued, particularly to applicants from countries whose nationals are believed to be participating in or to have participated in "pseudohunting". The second part seems more questionable. It is very hard to establish any direct link between supply and demand for commodities such as these which are highly valued but traded in small volume (in absolute terms) and in which most of the trade is illegal.

This proposal, if accepted, would not affect the ability of all other range States – i.e. those whose White Rhino populations are in Appendix I – to allow export of hunting trophies for non-commercial purposes.Only a small amount of such trade has been reported in recent years. However, this means that the proposal would not have the intended outcome of stopping all international trade in White Rhino trophies, but would have the effect of imposing stricter export controls on South Africa and Swaziland than on any other range State.

Supporting Statement (SS)	Additional information
	Range *Native: South Africa;* *Possibly extinct: Democratic Republic of the Congo; Sudan;* *Regionally extinct: Central African Republic; Chad;*

Supporting Statement (SS)	Additional information
	Reintroduced: Botswana; Kenya; Mozambique; Namibia; Swaziland; Uganda; Zimbabwe; *Introduced: Zambia (Emslie, 2012). The proposal refers only to populations of South Africa and Swaziland.*
IUCN Global Category	
Near Threatened.	*Assessed 2011 (ver. 3.1).*
Population	
The IUCN African Rhino Specialist Group reported that as of 31st December 2010, the continental population of Southern White Rhinoceros was 20,161. South Africa's population of approximately 18 800 Southern White Rhinoceros, represents almost 95% of the total continental population.	
Harvest and trade	
According to CITES trade data, between 2006 and 2011, 403 horns of wild White Rhinoceros were exported (399 from South Africa and 4 from Namibia). Viet Nam was the primary importer of these horns (177) followed by the US (56), Spain (38) and Russia (20). In addition, from 2006 – 2011, 941 trophies of wild White Rhinoceros were exported from Namibia (10), Tanzania (2), South Africa (928) and Zimbabwe (1). The primary importers of these trophies were Viet Nam (217), USA (202), Russia (99) and Spain (91). As reflected in the data, there has been an increase in the number of hunts carried out by individuals from countries not traditionally associated with trophy hunting, especially Vietnamese nationals. Viet Nam has also failed to provide evidence for what happens to "trophy" horns following their importation into the country. It is suspected that some of these horns are illegally sold into trade for use in traditional medicines and as tonics (CoP15 Doc 45.1 Annex). Poaching of rhinoceros for their horns has increased dramatically in the last five years. Rhinoceros horn is used in Traditional Asian Medicine, and recent spurious claims that it can cure cancer have resulted in a surge in demand. Rhinoceros horn is also sought after for use in making ornately carved handles for ceremonial daggers (jambiyas) worn in some Middle Eastern countries. In 2007, 13 rhinoceros were poached in South Africa. In 2008, the number of rhinos killed in South Africa rose to 83, while in 2009 122 rhinos were poached. In 2010, 333 rhinos were	*Vietnamese citizens have hunted more than 400 White Rhino legally on privately-owned properties throughout South Africa over the last nine years (Milliken and Shaw, 2012).The draft IUCN/TRAFFIC report for CoP16 (Emslie* et.al. *2012) notes that serious discrepancies between the rhino horn trophy export data from South Africa and the import data of Viet Nam (previously noted in the IUCN/TRAFFIC CoP15 report – Milliken* et al *2009) have continued with only about a quarter of legally exported rhino horn trophies from South Africa being declared at the point of importation in Viet Nam.* *No White Rhino have been hunted in Swaziland since the annotated transfer to Appendix II in 2004.* *Rhino horn has historically had two main uses: traditional use in Chinese medicine, and ornamental use (for example ceremonial daggers (jambiyas) worn in some Middle East countries (especially in Yemen) and has been carved into libation cups that were believed to be able to detect poision). Recent increases in prices in Asia have however meant that trade to Yemen has effectively stopped, but new uses have surfaced in Viet Nam (Milliken and Shaw 2012) . Until recently, at the continental species level, poaching of White Rhinos has not had a serious impact on overall numbers. From detected and reported figures, the annual average poaching incidents during 2003 to 2005 represented just 0.2 % of the total number of White Rhinos at the end of 2005 (Emslie et al. 2007). However poaching has escalated dramatically in recent years in response to significant increases in black market prices for horn. (Emslie, 2012). Overall White Rhino numbers continue to grow at a continental level*

Supporting Statement (SS)	Additional information
poached, and in 2011 a new record of 448 rhinos was reached (2.4% of the estimated total population; 94% being southern White Rhino). In addition to poaching, Asian demand for rhino horn has recently resulted in "pseudohunting" by nationals from countries not previously associated with trophy hunting, in particular from Viet Nam. Since 2003, it is estimated that hundreds of Vietnamese hunters have paid more than USD22 million to participate in rhino hunting trips in South Africa.	*but if poaching continues to increase year on year numbers will start to decline.* *In 2007, 13 rhinoceros were poached in South Africa. In 2008, the number of rhinos killed in South Africa rose to 83, while in 2009 122 rhinos were poached. In 2010, 333 rhinos were poached, and in 2011 a new record of 448 rhinos was reached (2.4% of the estimated total population; 94% being southern White Rhino). By the 10th December 2012, 618 rhinos had been reported poached in the country (Emslie and Knight,* in litt. 2012).

Other information

Threats

Although poaching is the predominant reason for the pressure on White Rhino populations, habitat loss is an added concern.

*Emslie and Knight (*in litt. *2012) note that South Africa is currently facing a crisis as a result of the escalating poaching which has resulted in increased security costs and risks to owners, staff and rhino and coincided with a drop in live sale prices from 2008-2011. This has reduced economic incentives to conserve rhino and the value of the country's White Rhino fell by USD65m over the period 2008-2011. Indications are that live sale turnover and prices have continued to fall in 2012. Increasing numbers of private rhino owners have either got rid of their White Rhino, are in the process of getting rid of their rhino, or are considering getting rid of their rhino. What started out affecting small populations of limited conservation value is now starting to impact upon larger populations. Private sector owners in South Africa conserve almost a quarter of Africa's White Rhino and look after more White Rhino than there are rhino in the rest of Africa. If demand and new homes for surplus White Rhino dries up this creates a problem for South Africa, whose state reserves need to remove White Rhino to keep populations productive (as densities in many state populations are approaching ecological carrying capacity). All state reserves that could take White Rhino already have them, so that only the private sector and communal land can provide new homes for a growing rhino population in South Africa. The extent to which this will happened will depend upon perceived risks and economic incentives.. Revenue from White Rhino live sales has also been an important addition to the conservation budgets of parastatal conservation agencies such as SANParks (which recently has allocated live rhino sale revenue to boost anti-poaching efforts) and Ezemvelo-KZN-Wildlife. A zero export quota, if approved, would most likely further reduce the number of hunts and prices paid as many potential bona fide hunters may either not be prepared to wait at least six years for their trophies with no guarantee they will ever get them; or those that do hunt could be expected to want a significant price discount to compensate them for the delay/risk. Any further reductions in economic incentives in the current climate will most probably contribute to*

Supporting Statement (SS)	Additional information
	encouraging more owners to get rid of their rhino, threatening to reduce land available for rhinos and ultimately reducing the potential number of White Rhino in South Africa and also metapopulation growth rates.
Conservation, management and legislation	
Wildlife management has been regulated nationally in South Africa since 2004 by the National Environmental Management: Biodiversity Act, Act 10 of 2004 (NEMBA). Threatened or Protected Species (TOPS) Regulations were introduced in 2007. These provide a national standard for the protection and utilization of listed threatened or protected species in South Africa, including White Rhinos. In 2009, further legislation was implemented to overcome irregularities which had been detected within the hunting industry. This included the introduction of micro-chipping, reporting all dead rhinoceros and marking rhino horns. Recent estimates indicate that approximately 25% of the wild population of Southern White Rhinos in South Africa is privately owned (Knight, 2011). A draft of a White Rhino management plan and monitoring standards in South Africa is nearing completion. South Africa, the primary source for illegal rhino horn by virtue of the number of animals that continue to be poached, has ceased issuance of hunting trophy permits to individuals that are nationals of a country that is not able to confirm the efficacy of their legal and enforcement systems to the degree that they can confirm that hunting trophies remain in the possession of the hunter and importer. However, this approach could be abused if, as the Czech Republic reports, third country nationals claim to be the exporter whilst they are just middle men.	*In February 2012, South Africa's National Department of Environmental Affairs suspended the issuance of hunting permits to Vietnamese citizens until Viet Nam reported back on the status of previously exported hunting trophies to ensure that they have not entered trade. This was followed in April 2012 with the publication of revised norms and standards for marking rhinos and rhino horn, and for trophy hunting of rhino. Compulsory attendance by an official is now legally required at all hunts, and hunting CVs from applicants which show their hunting experience in their country of origin and with African game are now required before permits can be granted. DNA sampling of horns is now mandatory. Implementation of these measures has resulted in a marked decline in rhino hunting applications by citizens from Southeast Asia, the Czech Republic and Poland. So far, there has been a 60% reduction in rhino hunting applications in 2012 compared to 2011 (IUCN and TRAFFIC* in prep)*.* *Live sale turnover of White Rhino by the three biggest selling agencies SANParks, Ezemvelo-KZN-Wildlife and Vleisscentraal auctioneers over the four years 2008-2011 generated USD27.8m with much of this going to fund conservation including purchase of additional conservation land and more recently boosting anti-poaching efforts by parastatal conservation agencies such as SANParks and EKZNW (Emslie and Knight,* in litt*.. 2012).*
Similar species	
The other species of African rhinoceros, the Black Rhinoceros, *Diceros bicornis*, is listed in CITES Appendix I and as Critically Endangered by IUCN. Rhinoceros horn is the key resource, as it is the one that is targeted by poachers. All the African rhinoceros species as well as the Asian rhinoceros species are therefore targeted by poachers, and it is extremely difficult for enforcement officers to visually distinguish between white, black or Asian rhino horn and derivatives.	*The Indian Rhinoceros* Rhinoceros unicornis *is classified as Vulnerable by IUCN, the Javan Rhinoceros* R. sondaicus *and the Sumatran Rhinoceros* Dicerorhinus sumatrensis *as Criticially Endangered (see IUCN Red List).*

Reviewers: H. Dublin, R. Emslie, M. Knight, T. Milliken.

Amend the annotation for African Elephant *Loxodonta africana*

Proposed amendment: (additional text underlined, deleted text struckthrough):

> **h) no further proposals to allow trade in elephant ivory from any populations ~~already~~ in Appendix II shall be submitted to the Conference of the Parties for the period from CoP14 and ending nine years from the date of the single sale of ivory that is to take place in accordance with provisions in paragraphs g) i), g) ii), g) iii), g) vi) and g) vii). In addition, such further proposals shall be dealt with in accordance with Decisions 14.77 and 14.78 (Rev. CoP15).**

Proponent: Burkina Faso and Kenya

Background: The African Elephant *Loxodonta africana* was included in Appendix II in 1977 and transferred to Appendix I in 1989. The populations of Botswana, Namibia and Zimbabwe were transferred to Appendix II in 1997, and the population of South Africa in 2000. These transfers were subject to detailed annotations that were further modified during subsequent meetings of the Conference of the Parties. The current annotation was agreed at CoP14. With regard to trade in raw ivory, it allowed those African Elephant range States whose populations are already included in Appendix II to dispose of agreed quantities of stockpiled ivory in a one-off sale, under a series of restrictions. One of these restrictions is that included in the paragraph proposed for amendment here, namely that those range States (Botswana, Namibia, South Africa and Zimbabwe) should not submit further proposals to allow trade in elephant ivory for a period of nine years after the single sale of their ivory stockpiles. This restriction does not apply to other African Elephant range States, which all have their elephant populations in Appendix I and can therefore submit proposals concerning trade in African Elephant ivory. The sale of ivory in question took place in November 2008. The current annotation therefore applies until November 2017.

The proponents believe that the agreement reached during discussions among the African Elephant range States at CoP14 was that no proposals for trade in elephant ivory would be submitted by any range State until at least nine years had elapsed after the one-off sale of ivory from Botswana, Namibia and South Africa. They believe that the amendment proposed here, if adopted, would make this clear.

Discussion: There are three issues with this proposal. The first concerns whether it is appropriately dealt with as a proposed amendment to the Appendices; the second with the interpretation of the wording; and the third with whether it would be practical in whatever form it were considered.

Appropriateness as an annotation under *Resolution Conf. 11.21 (Rev. CoP15)*

The Appendices comprise lists of species the trade in specimens of which is regulated under the Convention. Many of the entries in the Appendices are annotated to specify or clarify the type of specimen actually regulated, this being allowed in some cases under the Convention. At CoP11 and again at CoP14, the Parties considered the use of annotations in the Appendices, producing *Resolution Conf. 11.21 (Rev. CoP15)*. They recognised two kinds of annotations: reference annotations and substantive annotations.

Reference annotations are for information purposes only and include those relating to nomenclature and whether a species is possibly extinct or not.

Substantive annotations are considered to be integral parts of the species listing. There are two kinds. One specifies the inclusion or exclusion of designated geographically separate populations, subspecies, species, groups of species, or higher taxa, which may include export quotas. The other specifies the types of specimen or export quota. No other kind of annotation is recognised, nor is it easy to see how any other kind of substantive annotation could be regarded as consistent with the provisions of the Convention as they currently stand.

As noted in the Analysis for CoP15, the paragraph in question does not conform to either of the two kinds of recognised annotation and is therefore not in conformity with *Resolution Conf. 11.21 (Rev. CoP15)*. The proposed amendment would not alter this.

Wording of the proposed amendment

Retaining a reference to the past ("the period from CoP14") in a substantively changed annotation, as would occur if the current proposal were adopted, would render the annotation an nonsensical – Parties cannot agree not to do something (or to do something) in the past. This could be resolved by altering the phrasing simply to refer to the date in question ("no proposals shall be submitted to the Conference of the Parties…… until November 2017 at the earliest").

It is questionable whether the proposed amendment would achieve the proponent's aim. If adopted, the amendment would now read "no proposals to allow trade in elephant ivory from any populations in Appendix II....". But the proposals that the amendment is intended to address are for populations in Appendix I, not II, at the time that transfer and trade are proposed. The proposal (CoP16 Prop. 11) from the United Republic of Tanzania at CoP16 is a case in point.

Practicality of implementation

The Parties could, in theory, agree to the substance of this proposal in a Resolution or Decision, rather than as an annotation to the Appendices. Even if they were to do so, it is difficult to see how this would prevent a Party submitting a relevant proposal under the terms of Articles XV and XVI of the Convention text at any time, should it decide to do so. Unless the text of the Convention were amended (as is allowed by Article XVII), it would appear that the Secretariat and the Parties would then be obliged to follow the procedures set out in the appropriate Articles to consider, and if necessary vote, on the proposal.

Moreover, were the substance of this proposal to be accepted as a Decision, a Resolution or an annotation to the Appendices, any Party could submit a revised version for consideration at any meeting of the CoP (or, if an annotation, at any time), creating a challenge to its sustained implementation. This proposal is itself intended to amend an annotation that was agreed at CoP14 to stand for nine years from the time of sale of the ivory referred to in paragraph g) of annotation 5 (i.e. until Nov 2017, as the sale took place in Nov 2008), demonstrating the difficulty of sustaining an agreement of this kind.

Transfer of West African Manatee *Trichechus senegalensis* from Appendix II to Appendix I

Proponent: Benin, Senegal, Sierra Leone

Summary: The West African Manatee *Trichechus senegalensis* is a herbivorous aquatic mammal found in coastal and estuarine habitats, coastal lagoons and river systems over a wide area of western Africa from Mauritania to Angola, extending as far inland as Mali, Niger and Chad. There are 21, possibly 22, range States. The species is one of three extant members of the genus *Trichechus*. Life history parameters are poorly known; females of the closely related Caribbean Manatee *T. manatus* produce a single calf on average once every 2.5 years, though this figure varies greatly, and mature at around four to five years. Florida Manatees *T. manatus* and Dugongs *Dugong dugon* can be long-lived (up to 60–70 years), though approximately 40 years may be a better estimation for the West African Manatee. The West African Manatee is difficult to survey and there are few recent population estimates. However, based on those that have been conducted, the population is believed to have declined and several local populations have been extirpated. The population is under pressure from hunting for meat and oil, incidental by-catch, and the destruction and fragmentation of habitat from mangrove harvesting, pollution and dams that restrict the movement and isolate some populations. Nearly 300 West African Manatee were estimated to be accidently captured annually in Cameroon alone. No reliable population estimate has been made based on quantitative data, but it may be that there are fewer than 10 000 individuals. The species was assessed by IUCN as Vulnerable in 2008, based on a high probability of a 30% or more projected population decline within three generations (taken as 90 years).

Hunting pressure is believed to be high. Manatee products, chiefly meat and oil, are used domestically but are also believed to be traded across national borders within West Africa. Legislation in all range States currently prohibits trade in any part of the West African Manatee but is reported to be largely ineffective, mainly due to the weak capacity and lack of resources in enforcement agencies.

The West African Manatee was first included in Appendix II in 1975; the two other manatee species were included in Appendix I in the same year. From 2000 to 2010, the CITES trade database recorded 27 wild live animals of the species in international trade, in addition to 120 specimens and a small number of bones, skins and other derivatives, mainly for scientific purposes and zoos. Any cross-border trade within western Africa goes unrecorded.

The proposal seeks to transfer West African Manatee from Appendix II to Appendix I in accordance with biological criteria A i) and v), and C ii) in *Resolution Conf. 9.24 (Rev. CoP15).*

Analysis: The West African Manatee does not have a restricted range. There is no reliable global population estimate for the species. It is thought possible that the current population may number fewer than 10 000, however, it seems unlikely that it would be considered small under the guidelines in Annex 5 to *Resolution Conf. 9.24 (Rev. CoP15).* There are no historic or recent data on population trends, although there is no indication that the species is considered to have undergone a recent decline that would be considered marked under the guidelines in Annex 5 to *Resolution Conf. 9.24 (Rev. CoP15)*.

Annex 1 of *Resolution Conf. 9.24 (Rev. CoP15)* also refers to a marked decline in the population size in the wild projected on the basis of any one of a number of factors. Annex 5 of the Resolution notes that projection involves extrapolation to infer likely future values. The numerical guidelines in Annex 5 to *Resolution Conf. 9.24 (Rev. CoP15)* do not explicitly address projected future declines and give no indication as to how such declines might be assessed within the context of the criteria for inclusion in Appendix I. Any predictions of future changes in the West African Manatee population remain conjectural. The basis for the current IUCN Red List Categorization of the species as Vulnerable (published in 2008), taking all available information into account, was a view

that the most likely decline over the next three generations (taken as 90 years) would be more than 30% but less than 50% (as the latter in this case would have led to a categorization of Endangered under criterion A2 of the IUCN Red List Categories and Criteria (ver 3.1)). If it is assumed that the guideline figures in Annex 5 to *Resolution Conf. 9.24 (Rev. CoP15)* for a marked recent rate of decline could also be applied to a projected future decline, then on the basis of the scant information available, this decline would be less than that suggested as a marked decline in the Resolution.

The species is hunted for meat and oil, some of which is said to be traded across borders within West Africa, although this trade goes unregulated and unreported. Very limited international trade under CITES has been reported since the species was listed in Appendix II in 1975, notably a small number of live individuals as display animals and some skins. All domestic and international trade has been prohibited under legislation in all range States. The species has a relatively low productivity and harvesting may be having a negative impact on the species along with other threats. However, from the scant information available it would appear unlikely that West African Manatee meets the criteria for inclusion in Appendix I.

Supporting Statement (SS)	Additional information
Range	
Mauritania, Senegal, The Gambia, Mali, Guinea, Guinea-Bissau, Sierra Leone, Liberia, Côte d'Ivoire, Ghana, Togo, Benin, Niger, Nigeria, Cameroon, Chad, Congo, Equatorial Guinea, DRC, Gabon and Angola.	*Possibly Burkina Faso (CMS, 2012).*
IUCN Global Category	
Since 1978 it has been classified as Vulnerable (Criteria A3cd and C1, 2008). A new review of the species is anticipated in 2013.	

Biological criteria for inclusion in Appendix I

A) Small wild population

(i) Population or habitat decline; (ii) small sub-populations; (iii) concentrated geographically during one or more life-history phases; (iv) large population fluctuations; (v) high vulnerability

The population of *Trichechus senegalensis* is estimated at fewer than 10 000 individuals based on survey data from Côte d'Ivoire, Guinea-Bissau, Gambia, parts of Senegal and Cameroon, and deducing from what is known of the manatees in other range States and from density data on the *T. manatus*.	*Estimating the absolute abundance of West African Manatees is extremely difficult as individuals mostly occur in turbid waters and are present in countries which may lack the funds to conduct aerial surveys (Marsh* et al., *2011). Thus, there are currently no reliable data on which population size and trends can be estimated (Marsh,* in litt.*, 2012; Morales,* in litt., *2012).* *An estimate made between 1979 and 1983 predicted that the total West African Manatee population in Côte d'Ivoire comprised fewer than 750–850 individuals, based on a rough estimate of the number killed annually and on apparent population trends (Roth and Waitkuwait, 1986).*

Supporting Statement (SS)	Additional information
	In detailed interviews of 329 people (mainly fisherman, hunters, farmers and former manatee hunters) in three areas of Guinea-Bissau, a total of 256 manatee sightings involving 439 individuals between 1990 and1998 were reported (Silva and Araújo, 2001).
The species' vulnerability is increased by its relatively long generation period and a low reproductive rate. If life history is similar to that of the better-known West Indian Manatee, gestation could be around 12-14 months and age at maturity about four to five years. Some studies indicate that the most advanced age of West African Manatees is 39 years old.	*The lifespan of the West African Manatee is not known but Florida Manatees (T. manatus latirostris) and Dugongs (*Dugong dugon*) have been found to live as long as 57 and 73 years, respectively (Marsh,* in litt., *2012).*
B) Restricted area of distribution **(i) Fragmented or localised population; (ii) large fluctuations in distribution or sub-populations; (iii) high vulnerability; (iv) decrease in distribution, population, area or quality of habitat, or recruitment)**	
The species is present in coastal and estuary habitats, coastal lagoons and lower reaches of most river systems, from Mauritania to Angola. It goes back into the river systems as far inland as Mali, Niger and Chad. Permanently isolated populations can be found in particular in the wetlands of northern Cameroon and in Chad, in the Logone River, the Chari River and Mayo Kebi River. The species is found far from the coast at sea, off-Bissau, in the Bijagos Archipelago. Dams have been built on some watercourses, meaning habitat is reduced and fragmented, curtailing manatees' migrations or trapping them in unsuitable habitat. In coastal areas, excessive exploitation and the conversion of large mangrove areas contributes to the reduction of manatee habitat. Other compounding factors include pollution of important portions of lagoons and deltas through rubbish dumps, industrial waste and oil spills. The new mining zones located near the rivers are also potential sources of threat that must be closely monitored and regulated. Droughts in the 1970s and 80s, profoundly changed the characteristics and environment of the hydrographic basins of West Africa. The intense degradation of the vegetation intensified water runoff resulting in a proliferation of sand banks in water beds and floodplains. In the Sahel - Sudan area of the range where many river distributaries are no longer regularly flooded because of the decline and irregularity of rainfall, a large number of habitats that once sheltered the species, are now destroyed or no longer accessible.	*The West African Manatee distribution is discontinuous, with some populations already extirpated (Nishiwaki, 1984).* *It is thought that several local populations have been extirpated, though anecdotal accounts of manatees from these places still emerge (Powell, 1996).* *Genetic isolation of populations poses a key threat as manatees lose the ability to move between different sections of rivers and wetlands (Dodman* et al., *2008).*

Supporting Statement (SS)	Additional information
C) Decline in number of wild individuals **(i) Ongoing or historic decline; (ii) inferred or projected decline due to decreasing area or quality of habitat, levels of exploitation, high vulnerability, or decreasing recruitment**	
This population is likely to decrease by at least 10% (within three generations) based on the continued and increasing anthropogenic threats to the species. The lack of demographic data means that results from isolated surveys done as part of projects, experts' findings in the course of specific missions, the testimony of villagers, and press reports are the only option to be used to identify a trend. All these sources indicate explicitly or implicitly that this trend is clearly a decline. Based on these findings, CMS listed the species in Appendix I in 2008. Strong human population growth and its concentration in coastal areas and along major rivers exert direct pressure by excessive takings (poaching and accidents) from the population, and indirect pressure from different developments (embankments, agricultural irrigation projects, clearing of mangroves, wetlands embankments, etc.). Overall, the number of range States for the West African Manatee does not seem to have varied. However, in the range states, as well as at a more localized level, the species is now absent from areas and water bodies where it existed before. In particular, it is has not been reported in Lake Chad since 1929, nor in the Chari River in Central Africa and in some lagoons of Côte d'Ivoire.	*It has been estimated that there is a high probability that a 30% or greater reduction in population size will result within a 90-year, three-generation period (Powell and Kouadio, 2008). Calculation of a single generation time of up to 30 years in an unexploited population is based on data from the assessment for the Florida Manatee* (*T. manatus). Reynolds* (in litt*., 2012) considers this generation time to be unrealistic. Marsh* et al*. (2011) agree with the figure of 30% but infer three generations equates to approximately 60 years on the basis of data from the Florida Manatee.* *Habitat loss is likely to increase as the human population is predicted to grow exceptionally fast over the next in 50 years in West Africa in comparison to the rest of the world (United Nations, 2004).*

Supporting Statement (SS)	Additional information

Trade criteria for inclusion in Appendix I

The species is or may be affected by trade

International trade as reported in the CITES trade database between 2000 and 2010

Product	Wild	Total
Live animals	26	28
Bodies	1	1
Skins / skin pieces	30	30
Specimens	118	118
Bones	17	17
Bone carvings /bones	19	19
Skulls	1	1
Oil	150ml	150ml

Exports from range States went to Republic of Korea, China, Taiwan POC, Canada, United States, Thailand and Italy.

Illegal international trade is a growing threat to the manatee across its range motivated by high market prices of manatee products and a growing human population.

Manatees are mostly hunted for their meat, but all body parts, including oil, are used and actively traded throughout most of their range. The varying price of manatee parts and derivatives in different range States seems to encourage international trade.

National reports indicate an active trade in meat and by-products of the species between Guinea, Sierra Leone and Cote d'Ivoire, and between Chad, Cameroon

The majority of international trade reported in the CITES trade database between 2000 and 2010 was reportedly for scientific purposes.

International trade as reported in the CITES trade database between 2000 and 2010. Quantities reported by importers were used in the first instance; if these were missing then exporter quantities were used.

Product	Wild	Total	E	Q	S	T	Z
Live animals	27	30	0	2	13	6	9
Bodies	1	1	0	0	0	0	1
Skins / skin pieces	30	30	0	0	30	0	0
Specimens	120	120	0	0	120	0	0
Bones	37	37	0	0	37	0	0
Bone carvings /bones pieces	19	19	0	0	19	0	0
Skulls	1	1	1	0	0	0	0
Oil	150ml	150ml	0	0	150ml	0	0

** E (Educational), Q (Circus or travelling exhibition), S (Scientific), T (Commercial), Z (Zoo)*

Exports from range States also went to Japan (CITES Trade database).

The majority of meat is moved across very remote borders (such as southern Gabon into Congo, northern Chad into Nigeria) where there is no enforcement or anyone to document the trade (Keith Diagne, in litt., *2012).*

Studies of wild meat tend to focus on the use of terrestrial species, and are normally focussed on use within countries, rather than trade between countries. Studies of aquatic species do not normally include manatees. Therefore, there is little documented evidence in the cross-border trade of West African Manatee (Keith Diagne, in litt., 2012*).*

In Chad, meat is not sold locally, but dried before to be exported to Cameroon and

Supporting Statement (SS)	Additional information
and Nigeria. Also in coastal areas, the development of illegal local, national or cross-border trade is reported from Senegal to the Gulf of Guinea. Although no statistical data are currently available for trade, all stakeholders in the conservation of the species observe that the meat trade from Sierra Leone and cross-border trade of the species between Chad, Cameroon and Nigeria are already an established threat to the existence of the species in these parts of the range.	*Nigeria (Dodman* et al*., 2008).*
In Sierra Leone, the financial stakes of the trade in manatee specimens are such that a kind of "Manatee Mafia" has now appeared. More than 350 manatees were the victims of commercial poaching between 2007 and 2010. Concerns are growing that such organized hunting may eventually extend from Guinea and Sierra Leone to the entire sub-region.	*Climate change is also likely to exacerbate poaching of the species because of the associated loss of protein from fish due to the projected fisheries collapse (Marsh* et al., *2011).*
The wildlife breeding and trading facility, River Zoo farm, based in Guinea-Bissau, advertises live wild caught manatees for sale to zoos on its website and is known to have exported two manatees to Toba Aquarium in Japan in 1996.	*Manatees are captured live for zoos or for wildlife collections on rare occasions and captures have taken place recently in Guinea-Bissau (Dodman* et al., *2008).* *Japan reported the import of four live manatees from Guinea-Bissau in 1996 (Guinea-Bissau reported having exported six to Japan in that same year). In 2004, Cote d'Ivoire exported three wild specimens to Taiwan, POC. In 2010, China imported two captive-bred and two wild-caught live manatees from Cameroon, and the Republic of Korea reported the import of one wild-caught and one captive-bred individual from Guinea; all were destined for zoos.*

Other information

Threats

Habitat degradation, along with poaching, are the greatest threats affecting the West African Manatee in its natural range.	*For sirenians, adult mortality from poaching is likely to be the greatest threat (Marsh* in litt., *2012).*
Manatee populations are negatively affected by accidental catch in fishing nets.	*Accidental capture in fishing nets is perhaps one of the greatest threats faced by West African Manatees; as fishing has increased and with the wider use of strong nets made of synthetic fibres, so the incidental capture of manatees has also increased (Dodman* et al., *2008).*
Climate change threatens West African Manatees, by directly or indirectly changing water regimes and the quality of watercourses.	
Manatees are impacted by the cutting of mangroves for rice farming, timber, smoking and salt extraction in particular.	*Accidental capture of West African Manatees was estimated at 292 animals per year in Cameroon (Ayissi, 2008).*
Affected manatees have become trapped in valves of irrigation canals and killed during the construction of the dams or of the port installations.	*Despite the high number of manatee deaths in Cameroon, fishermen continue to believe that, manatees are still numerous in their respective habitat because they believe that they have high reproductive potential and breed every year (Takoukam, 2011).*
In highly populated areas (Abidjan and Lagos in particular), pollution from urban	

Supporting Statement (SS)	Additional information
effluents eliminated manatees in several of the water areas they had naturally occupied before. Similarly, much of the Niger Delta is now removed from this species' habitat due to spills of unrefined oil.	*At high tide, manatees may on occasion enter rice fields and eat the crop resulting in them being hunted as a pest (Dodman* et al., *2008). Silva and Araújo (2001) stated that the destruction of rice fields was one of the two main conflicts which occurred between manatees and people, along with the destruction of fishing gear.*
Although this is not documented, it is likely that, in areas where there are large scale hydro-agricultural developments or mining operations, the significant quantities of pesticides and other chemicals dumped in the water courses (the valley of the Senegal River and Niger River, in particular, and in Guinea-Bissau) constitute a threat to the health of individuals, as well as to their habitat.	*The conversion of wetlands to other land uses is a threat to manatees (Dodman* et al., *2008).*
Data on these issues are very limited, but the scientific information available does not mention any disease or any parasite that could threaten the species.	*Manatees sometimes become stranded and die as water levels become lower during the dry season (Powell, 1996).*
Crocodiles were the only predator, aside from humans, reported as an opportunist predator on young manatees.	*Subsistence hunting has been intensive in some areas and it may be the principal cause of West African Manatee population declines (Reeves* et al., *1988).*
Collision with water craft is not yet a threat, but the various development projects in this sector are potential causes of threats in the sub-region.	*Existing threats are likely to be exacerbated by projected high increases in human population, poverty of almost all range States and the adverse effects of climate change on food and water insecurity in the region (Marsh* et al., *2011).*
Conservation, management and legislation	
Since 1975, it has been listed in CITES Appendix II. At present, it is the only species of the Sirenia Order not included in CITES Appendix I.	
The African Convention on the Conservation of Nature and Natural Resources included the West African Manatee in Class A (totally protected species) in 1968.	
CMS listed the species in its Appendix II in September 2002 (CoP7), then uplisted it to Annex I in December 2008 (CoP9).	
The Convention for Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region (Abidjan Convention) explicitly protects the West African Manatee.	
Legislation in all range States prohibits trade in any part of the West African Manatee meaning all national, local, and trans-boundary trade is illegal. Ineffective protection is mainly due to the weak capacity of the developing country authorities responsible for manatee protection and wildlife law enforcement.	*In Lake Ossa Wildlife Reserve, Cameroon, the Forest and Wildlife office lacks basic equipment such as boats and life jackets needed to patrol the aquatic component of the reserve, leaving manatee unprotected from hunting (Takoukam, 2011).*
The efforts of NGOs in the late 1990s/early 2000s to host meetings and fund studies and conservation projects coalesced under the aegis of the Regional Conservation	*Consider listing of* Trichechus senegalensis *in CITES Appendix I of CITES is identified as an action to be initiated by Range States under Objective 1 of the "Action*

Supporting Statement (SS)	Additional information
Programme for the Coastal and Marine Area of West African (PRCM) with UNEP, the CMS Secretariat, the Secretariat of the Abidjan Convention and the Regional Coastal and Marine Program, to build a regional network, collect scientific data and develop a conservation action plan for the manatee across the PRCM region. This led to the development of the UNEP/Wetlands International "Conservation Plan for the West African Manatee" and the CMS "Memorandum of Understanding concerning the Conservation of the Manatee and Small Cetaceans of Western Africa and Micronesia" which includes the "Action Plan for the Conservation of the West African Manatee". Two areas are protected specifically as manatee habitat - the sanctuaries of Léré and Tréné in Chad, and the Tocc Tocc Reserve of the Guiers Lake in Senegal. Education and awareness actions in the Senegal River valley and along the coastline of Côte d'Ivoire, Gabon and Gambia conducted by NGOs (Océanium Dakar, Noé Conservation, Wildlife Conservation Society, Sea to Shore Alliance, WWF and NAAFO) are helping to foster community-level ownership of the species and reduce poaching. Locally, significant efforts are regularly deployed by villagers, NGOs and nature management agencies to rescue individual manatees trapped by a too rapid withdrawal of water or caught in irrigation dams. The preservation of the species is included in the programmes and initiatives of international environmental conservation organizations, including UNEP, IUCN, WWF and Wetlands International Afrique.	*Plan for the Conservation of the West African Manatee" (improve policies and legislation for protection of West African manatees and law enforcement).*
<u>Similar species</u>	
The genus Trichechidae includes three species (*Trichechus senegalensis, T. manatus* and *T. inunguis*) and the Dugongidae one species *(Dugong dugon).* Physically, the three species of *Trichechus* are very similar and it is difficult for non-experts at first glance to differentiate the West African Manatee *Trichechus senegalensis* from *T.manatus* by their appearance, weight or colour. By contrast, *T. inunguis* is smaller in size, darker in colour and has pectoral fins without nails. No other Sirenian species can be found in the range of *T. senegalensis*.	*All sirenians are listed in Appendix I of CITES except the West African Manatee.*
<u>Captive breeding/Artificial propagation</u>	
No captive breeding or artificial propagation of the West African Manatee has been reported in its range.	

Supporting Statement (SS)	Additional information
	Other comments
Ineffective protection is mainly due to the weak capacity of the developing country authorities responsible for manatee protection and wildlife law enforcement. Range States are optimistic that an Appendix I listing, and the attendant publicity, will bring needed attention and resources to their task. Senegal was charged by its peers to consult with the other range States for the species. In September 2012, Senegal presented the proposal to a meeting attended by the management authorities of 25 CITES Parties from the African region (17 of which were range countries). Responses to the range States consultations were favorable to the submission of this proposal.	*The West African Manatee is the most threatened species in the Order Sirenia (Reynolds* in litt*., 2012; Marsh* in litt*., 2012).*

Reviewers: H. Marsh, B. Morales, J. Reynolds, S. Ringuet.

Deletion of Guadalupe Caracara *Caracara lutosa* from Appendix II

Proponent: Mexico

Summary: The Guadalupe Caracara *Caracara lutosa* was a falcon endemic to the 240 km^2 Guadalupe Island in the Gulf of California, Mexico. It was described in 1875 but by 1889 it was thought to have been extirpated from the island as a result of persecution from local goat farmers protecting their livestock through poisoning and hunting. However, eleven individuals were reportedly collected in 1900. A survey in 1906 failed to locate a single individual, and more recent surveys through the 20th century have found no individuals. The species is classified on the IUCN Red List as Extinct.

Caracara lutosa was listed in Appendix II in 1975 as part of the listing for all Falconiformes, of which all species are included in either Appendix I or II except for *Sarcoramphus papa,* listed in Appendix III by Honduras in 1987. The Guadalupe Caracara was one of three species in the genus *Caracara*¸ and was similar in appearance to the two others *Caracara cheriway* (Northern Crested Caracara) and *Caracara plancus* (Southern Crested Caracara), both extremely widespread birds in the Americas, neither of which is considered threatened. There has been some trade in *Caracara plancus* with 323 live birds reported as exported since 1977, around 14% of these being reported as hatched or bred in captivity. Minimal trade has been recorded for *Caracara cheriway* since 2008 (one live, one captive-bred body and four scientific specimens).

In the highly unlikely event of the species being rediscovered it would be protected by Mexican legislation under the Ley General de Vida Silvestre which would only authorize the use of specimens of species at risk when prioritizing collection and capture for restoration activities, restocking and reintroduction.

Analysis: *Caracara lutosa* was last recorded in the wild at the start of the twentieth century. Since then surveys conducted over an appropriate time-frame have not found any specimens in the wild; it is now considered to be extinct. It has not been recorded in international trade since it was listed in Appendix II as part of the listing of all Falconiformes. It is said to have resembled two other caracaras, one of which seems to be in moderate demand internationally. In the highly unlikely event of its rediscovery, Mexican legislation would prevent its collection for purposes other than conservation and would prohibit its export for commercial purposes. It does not meet the criteria for inclusion in Appendix II. However, because *Caracara lutosa* was listed in Appendix II as part of the listing of all Falconiformes (at a time when it was undoubtedly already extinct), it is not clear that removing the species from the Appendices would simplify the implementation of the Convention.

Supporting Statement (SS)	Additional information
Range	
Mexico.	
IUCN Global Category	
Extinct.	*Classified as Extinct in 1988.*

Supporting Statement (SS)	Additional information
Biological and trade criteria for retention in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)	
A) Trade regulation needed to prevent future inclusion in Appendix I	
The Guadalupe Caracara *Caracara lutosa* was an endemic to Guadalupe Island in the Gulf of California, Mexico, which is now considered extinct. The species was discovered by Dr. Edward Palmer in 1875 at which time it was apparently present and abundant throughout the island. Ten years later (1885) a significant decrease in population numbers of the species was observed. In 1896, four individuals were seen by goat hunters and one was seen in March 1897. By *1889* it was reported that the species had been extirpated from the islands. However, in 1900 a flock of eleven individuals (the last remaining individuals on the island), were collected by Rollo Beck, a scientific collector. During a two-month stay on the island in 1906 researchers failed to see a single individual. Similarly, there have been no individuals of this species recorded in recent surveys at the end of the 20th century. The species is listed as Extinct in both Mexican law (NOM-059-SEMARNAT-2010) and by IUCN.	*Howel and Cade (1953) stated that the species was last recorded in 1903 and was now extinct.* *No trade has been recorded for this species.*
Retention in Appendix II to improve control of other listed species	
A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I	
	Listed in Appendix II in 1975 along with all Falconiformes *spp.* *No trade has been recorded for this species.* *Similar in appearance to* Caracara cheriway *(Northern Crested Caracara) and probably also* Caracara plancus *(Southern Crested Caracara). Minimal trade has been recorded for* Caracara cheriway *since 2008 (one live, one captive-bred body and four scientific specimens). There has been more trade in* Caracara plancus *with 323 live birds reported as exported, around 14% of these being reported as hatched or bred in captivity. Around 80% were reported as for commercial trade or with no reported purpose.*

Supporting Statement (SS)	Additional information
Other information	
	Threats
The species was persecuted by inhabitants of Guadalupe Island because it attacked baby goats. Additionally the scientific collection of skins, grazing and uncontrolled breeding of goats caused a significant reduction in available habitat for nesting and feeding of this species.	*The primary cause of the species's decline was direct persecution by settlers (BirdLife International, 2012; Greenway, 1967).*
	Conservation, management and legislation
	Were the species to be re-discovered it would be classified as "En peligro de extinction" (In danger of extinction) and under the Ley General de Vida Silvestre the only authorized collection of specimens would be for restoration activities, restocking and reintroduction.

Deletion of Grey Junglefowl *Gallus sonneratii* from Appendix II

Proponent: Switzerland, as Depositary Government, at the Request of the Animals Committee (prepared by New Zealand)

Summary: The Grey Junglefowl *Gallus sonneratii* is endemic to India and inhabits subtropical and tropical moist forests, bamboo thickets, open woodlands and dry deciduous shrubland. The species has a wide range, estimated at around 1 million km^2. It is believed to be affected by habitat loss and by some illegal hunting for its meat for domestic consumption. Good populations are likely now to be mainly confined to protected areas. The overall population is believed likely to be declining, though not at a rate fast enough to merit classifying the species as threatened. It was assessed as of Least Concern in 2012 by BirdLife International.

Gallus sonneratii was one of several species of Galliform included in Appendix II in 1975 owing to concerns about the international trade in their feathers – the males possess long neck hackles (elongated feathers) with very distinctive patterning, which are in demand for making fishing flies. In the period 2000–2010, nearly 240 000 *G. sonneratii* feathers were recorded in the CITES trade database as in international trade; 99% of these were reported as coming from captive-bred birds and virtually all exported from non-range States. Over half were exported from the UK to the USA in 2001. Very little trade in feathers has been reported since 2004. There is a small amount of trade in live, captive-bred birds. The species is reported to be easy to keep in captivity. No other species of *Gallus* is listed in the Appendices.

The species is legally protected from hunting in India. There are records of seizures of illegal shipments from India in the CITES Trade database but no records of legal commercial export. There is additional evidence to suggest some illegal trade in feathers from wild sourced birds in India to Europe.

Gallus sonneratii was one of 18 species of Galliformes chosen to be reviewed between CITES CoP13 and CoP15 as part of the Periodic Review of the Appendices. At AC26 (Geneva, 2012) the Animals Committee recommended that *Gallus sonneratii* should be deleted from Appendix II and requested Switzerland, as Depositary Government to submit this proposal.

Analysis: The Grey Junglefowl has been listed in Appendix II since 1975. It has a large though evidently fragmented range in India in which it is regarded as at least locally common. The population is thought likely to be declining, albeit slowly, and the species is not currently considered threatened. The major use of the species internationally is to supply feathers for use in fly-fishing. It is easily bred in captivity and all legal supply of feathers is derived from birds captive-bred outside the range State. The species is legally protected in India, although is subject to illegal harvest, primarily for local consumption as food, with evidence of some illegal export of feathers and skins, although this is believed to be at a relatively low level. It is unlikely that deletion of the species from the Appendices would result in it qualifying for inclusion in the Appendices in the near future. The species has not been subject to a recommendation under the provisions of the Review of Significant Trade within the last two intervals between meetings of the Conferences of the Parties.

Supporting Statement (SS)	Additional information
Range	
India.	
IUCN Global Category	
Least Concern (Assessed 2012).	*Least Concern (Assessed 2012, criteria version 3.1).*

Supporting Statement (SS)	Additional information

Biological and trade criteria for retention in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)

A) Trade regulation needed to prevent future inclusion in Appendix I

Gallus sonneratii is widely distributed in southern and central peninsular India. Its range is estimated to be 1 000 300 km^2.	*Madge and McGowan (2002) comment that the extensive range of this species may be deceptive as strong populations are now largely confined to protected areas.*
The overall population size has not been determined but the species is considered to be locally common throughout much of its range.	*The population size has not been quantified, but it is not believed to approach the thresholds for Vulnerable under the population size criterion (i.e. to have <10 000 mature individuals with a continuing decline estimated to be >10% in ten years or three generations) (BirdLife International, 2012).*
Gallus sonneratii has largely disappeared from lowland and cultivated areas.	
The species is suspected to be declining, but the decline is not considered to be sufficiently rapid to approach the thresholds for Vulnerable under the population trend criterion (>30% decline over ten years or three generations).	*Populations are increasingly fragmented, in particular in Kerala (del Hoyo* et al., *1994).*
	The species's range is now highly fragmented across India due to agricultural encroachment and other anthropogenic activities (Ramesh et al., *2011).*
	Ramesh et al. *(2011) conducted line transects in Theni Forest Division, Western Ghats and found densities varying from 3.7 to 9.5 birds per km^2.*

B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences

	Demand for hackles for fly fishing seems to be satisfied with captive-bred birds (del Hoyo et al., *1994). Feathers are used for a wide variety of artificial flies, including the woolly bugger, one of the most popular lures in North America; skin pieces for this use are referred to as bugger saddles (www.featheremporium.com). Saddles from captive bred birds in the USA are priced at USD35-80 depending on quality. Capes (feathers from around the neck) from birds bred in the UK are offered for sale on websites for GBP30-100.*
	Discussions on forums indicate that a pair of Gallus sonneratii *will cost approximately USD80-150, and that they are much easier to raise than other junglefowl. One contributor suggests using* Gallus sonneratii *as a "starter" bird for people interested in raising more difficult junglefowl such as* Gallus varius *(backyardchickens.com, 2010).*
The vast majority of the legal trade is of loose feathers, skins or skin (neck) pieces for use of feathers in manufacturing lures for fly-fishing hooks (Table below).	*The annual number of feathers reported by importers (excluding records measured in kg/sets) appears to be declining (Figure below). Of the 238 821 feathers in trade between 2000-2010, 99% were reported as being captive-bred (source code 'C'). The largest import was of 146 523 feathers from captive-bred birds into the USA from the UK in 2001. India, the only range State, reportedly exported 18 feathers and 30 skin*

Supporting Statement (SS)

Gross Exports/Imports of *Gallus sonneratii* (in most cases, the unit value is the number of specimens). Data from CITES Trade Database.

Term	Total (1975-1999)	Wild (1975-1999)	Total (2000-2010)	Wild (2000-2010)
Bodies	8	3	0	0
Feathers	72 544	29 653	273 620	2540*
Garments	219		201	
Live	731	290	270	0
Pairs of shoes	24	24	0	0
Skin pieces	3240	2650	5221	0
Skins	1786	82	719	0
Specimens	1203	1200	0	0
Trophies	3	3	4	3
Unspecified	192	25	0	0
Watchstraps	6	6	0	0
Grand Total	**79 956**	**33 936**	**280 035**	**3**

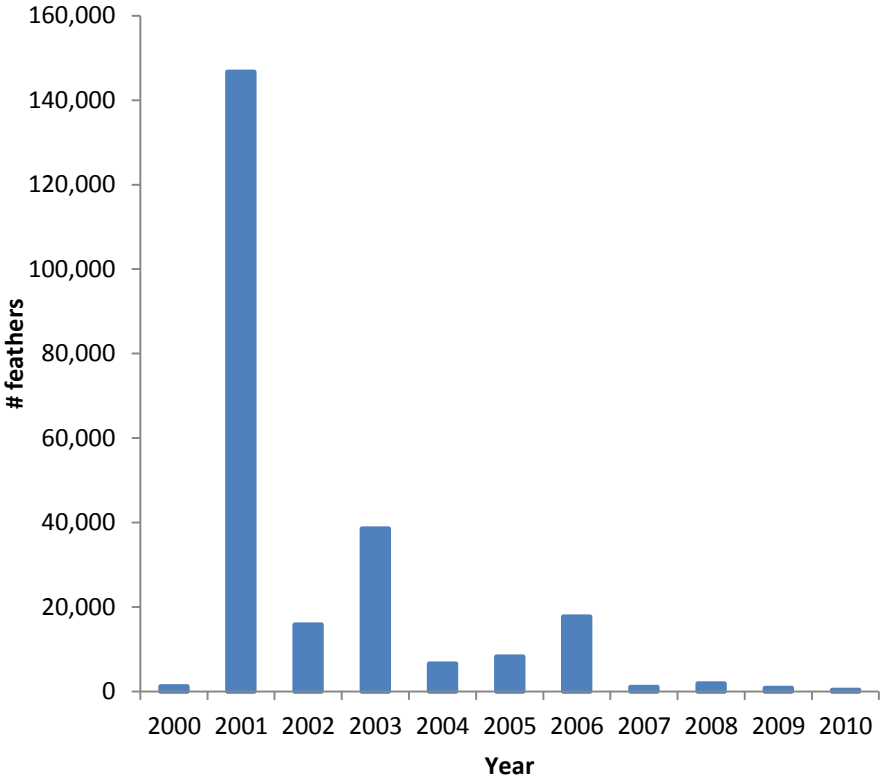
** The apparent export of 2540 wild-sourced feathers since 2000, mainly from UK (2140 in 2008- 09), Canada (206) and the US (193) may be in error, because none were exported from India, the only range State.*

The main exporters since 2000 have been UK and Canada, and the main importers were the US, Norway, Canada and India.

Exports of live birds since 2000 were mainly from the Netherlands (256) to the United Arab Emirates (180), and Thailand (46).

Additional information

pieces between 2000-2010, all of which were confiscated or seized (source code 'I').



Number of feathers reported (by importers) in trade between 2000-2010.

The countries which reported exporting the greatest number of feathers between 2000-2010 were the UK, Kenya, Canada and Denmark. The countries which reported importing the greatest number was the US, Norway, Canada, the UK and Japan.

Supporting Statement (SS)	Additional information
Illegal trade Information is not readily available, but is not believed to be significant. Actual or potential trade impacts information is not readily available, but capture for trade does not appear to be a significant issue.	*There is evidently some illegal trade in feathers and skin pieces from India. According to seizures data collected by EU Member States between 2005-2010, 16 skins, 58 feathers, 261 specimens and 15 bodies were illegally imported into the EU from India. According to the CITES Management Authority of Latvia (Nature Conservation Agency)* in litt. *2012, specimens imported into Latvia were falsely declared as domestic cock. The CITES trade database contains records of 218 feathers and 37 skin pieces that have been seized, the majority of which were reported as coming from EU countries or India. There does not appear to be an overlap in the seizures from these two data sources.* *Finnish and Indian authorities investigated an individual who was sending* Gallus sonneratii *parts from India to a fishing tackle company in Finland (Hirvonen, 2012), indicating at least some of the illegal trade is for commercial purposes. A search of the individual's office in 2010 resulted in the seizure of 934 pieces of* Gallus sonneratii *neck feathers which were ready to be smuggled from India to an EU Member State (Czirák,* in litt., *2012).* *The price of necks from wild birds imported from India to Norway was a tenth of the price of necks from captive-bred birds from the UK imported to Norway (Czirák* in litt., *2012).* *Ahmed (*in litt., *2012) notes that the main reason for poaching is for meat of which the major by-product are sets of neck feathers which are then routed to be traded in an organized manner for the fly-fishing industry (Ahmed* in litt., *2012). He believes that poaching is a significant problem for the species.* *In their wildlife enforcement identification notes, the US Fish & Wildlife Forensics Laboratory (1996) comment that the colour and definition of feathers from captive-bred fowl is poor.*

Retention in Appendix II to improve control of other listed species

A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I

Similar to Red Junglefowl *Gallus gallus,* Green Junglefowl *G. varius* and Sri Lanka Junglefowl *G .lafayetti*, but neck feathers and neck skins, which form the bulk of international trade in *G. sonneratii*, are readily identifiable.	*None of the similar species noted in the SS are currently listed in the CITES Appendices.*

Supporting Statement (SS)	Additional information
Other information	
Threats	
Primary threats to the species are habitat loss and degradation caused by agricultural practices and encroachment, timber extraction and fires.	*Firewood collectors may destroy essential vegetation in the forest understorey and take eggs. The main threat in Periyar Tiger Reserve appears to be egg collecting and poaching (Zacharias, 1997).*
Illegal hunting for meat, often using snares, is a threat.	Gallus sonneratii *can hybridise with Red Junglefowl* Gallus gallus *in the narrow zone where the two ranges overlap (Madge and McGowan, 2002) and domestic fowl (Eriksson* et al*., 2008). This may endanger the long-term genetic purity of the species.*
Conservation, management and legislation	
Gallus sonneratii has been listed in CITES Appendix II since 1975, and is currently included in EU Annex B. Protected from hunting through its listing in Schedule II of the Indian Wildlife (Protection) Act 1972. The range of *Gallus sonneratii* includes many protected areas, such as National Parks and Tiger Reserves.	
Captive Breeding/Artificial Propagation	
Records of this species in captivity in Europe indicate that there were 80 adult birds and 109 young raised in 2011, mainly in Germany and France. In 2012, 38 captive individuals were recorded in nine *International Species Information System (*ISIS) institutions outside India. All of these records rely on voluntary submission of records. There are records of 68 captive individuals in seven zoos in India in 2011/12.	
Other comments	
The proposal was sent to the Management and Scientific Authorities of India on 17 August 2012 with a request for comments. As of 24 September 2012, those officials had not responded.	

Reviewers: P. McGowan, R. Thomas.

Deletion of Blood Pheasant *Ithaginis cruentus* from Appendix II

Proponent: Switzerland, as Depositary Government, at the request of the Animals Committee (prepared by New Zealand)

Summary: The Blood Pheasant *Ithaginis cruentus*, a round partridge-shaped pheasant (40-45 cm in length) is found in Bhutan, southwestern and central China, northern India, extreme northern Myanmar, and Nepal. It is the only pheasant in the genus *Ithaginis*. The species has a very large range estimated at between 650 000 and 800 000 km^2 although is believed to occur only patchily within this. There are no overall population estimates; it is considered to be locally common in some areas but rare in others. Blood Pheasants are hunted locally for food and the species may in some areas be targeted for its bright plumage as well as opportunist egg collection. Normally a fairly tame bird, where it is hunted it is wary. The species is also believed to be affected by habitat loss and degradation caused by timber extraction for firewood, overgrazing and agricultural conversion. The global population is suspected to be slowly declining but not sufficiently rapidly to approach the thresholds used by BirdLife International and IUCN as criteria for listing as threatened. It is currently classified by BirdLife and IUCN as Least Concern.

The species was listed in CITES Appendix II on 1st July 1975 along with a number of other Phasianidae species, due to concerns about the international trade in live specimens for private aviary holdings and in feathers for use in the manufacture of fly-fishing lures. There has been little recorded trade in the species since the listing, a total numbering perhaps in the region of 100 live specimens from captive and wild sources have been recorded. Since 2000 only four trophies have been reported in trade. There is apparently limited demand by collectors and the species is not known to breed well in captivity.

It is difficult to confuse *Ithaginis cruentus* with other species. The male is very distinctive. The less brightly coloured female is still readily recognisable because of its erectile crest, which means that it cannot be confused with female *Tragopan spp.* or Koklass Pheasant *Pucrasia macrolopha.*

Analysis: The Blood Pheasant has a very large range. There are no recent population estimates, but the species is considered to be at least locally common and is classified by IUCN as Least Concern. There has been very little reported trade in this species since its inclusion in the CITES Appendix II in 1975 and no evidence of significant international demand. There are no records of illegal trade in the CITES trade database, nor has the species been subject to a recommendation under the provisions of the Review of Significant Trade to improve its conservation status within the last two intervals between meetings of the Conference of the Parties. It seems unlikely that deletion from the Appendices would stimulate trade such that it would qualify for inclusion in the Appendices in the near future. It would appear therefore that the species does not meet the criteria for inclusion in Appendix II and that the precautionary measures in Paras 4 and 5 of Annex 4 to *Resolution Conf. 9.24 (Rev. CoP15)* Annex 4 Paragraphs 4 and 5 are met.

Supporting Statement (SS)	Additional information
Range	
Bhutan, China, India, Myanmar, Nepal.	
IUCN Global Category	
Least Concern.	*Least Concern (Assessed 2012, criteria version 3.1).*

Biological and trade criteria for retention in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)

A) Trade regulation needed to prevent future inclusion in Appendix I

The global population size has not been quantified although the species is reported to be common in some areas and rare in others.	*It is listed as Vulnerable in China Red Data Book of Endangered Animals (Zheng and Wang, 1998).*
Locally common game bird.	
Large distribution of about 800 000 km^2 along the Himalayas from Nepal through Bhutan and extreme northeast India to extreme northern Myanmar, and northward into southern China.	*BirdLife estimates the extent of occurrence area of breeding/resident Blood Pheasants to be 658 000 km^2 (BirdLIfe International, 2012). Probably inhabits an area much smaller than its geographical limits as its habitat is naturally restricted and increasingly fragmented (Madge and McGowan, 2002).*
	Blood Pheasants inhabit high mountains at an altitude from 2135 m to 4575 m (Johnsgard, 1999), their limited dispersal ability (sedentary, poor flight ability) could mean their really suitable habitat may be much smaller than earlier estimates given. It was very common in some suitable habitat, such as in reserves, but in some parts of Yunnan and Sichuan illegal hunting was very heavy. Birds were shot or captured by snare for food use by local people; eggs were also collected during the spring. In winter because of the heavy snowfall Blood Pheasants move to lower altitudes closer to villages making them more accessible for hunting. Sometimes the birds were found in the farmers market of Yunnan. Blood Pheasants are rarely seen in these areas now (Jia Chenxi in litt*., 2012).*
The population is suspected to be slowly declining but BirdLife International (2012) do not consider that the decline is sufficiently rapid to approach the thresholds for Vulnerable under the population trend criterion (>30% decline over ten years or three generations).	*The species has declined throughout Nepal especially outside protected areas. While birds were sighted frequently outside protected areas of Nepal pre-1990, only two reliable reports of birds have been made from areas outside Protected areas post-1990 indicating that the birds have continued to decline (Baral* in litt., *2012).*
Some subspecies are distributed in a narrow range with very limited population.	*The range sizes of several races in Hengduan Mountain were very limited, such as the subspecies cluster of* kuseri/rocki/holoptilus/marionae/clarkei *with possibly as little as 25 000 km^2 of available habitat, and they may well be vulnerable (del Hoyo* et al., *1994). According to the literature, Blood Pheasant were found in some areas in the recent past, but now no sightings have been reported in these areas for many years,*

Supporting Statement (SS)	Additional information
	such as southern Shanxi, northwestern Henan and central Gansu. Possibly they may already be extinct in these areas (Zheng and Wang, 1998). *Those populations in the Eastern Himalaya and deep valleys of the Myanmar/Yunnan border region may be threatened (Madge and McGowan, 2002).*
B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences	
Since 2000, there has been minimal trade in the species (four trophies). There has been virtually no international trade reported since 2000. About half of the trade in the period 1975-1999 was of live birds raised in captivity in Germany and Japan, exported to the United States and Switzerland, though many of these records of trade from non-range States appear to have been erroneously classified as being 'wild caught'. The only exports of wild-caught live birds from a range State were of 42 birds exported from Nepal to Switzerland (20) and the United States (22) between 1984 and 1988. The four trophies traded since 2000 were exported from China to the United States in 2005. Illegal trade is not believed to be significant.	*Before 1999 there was limited trade reported in the CITES trade database in both "captive" and "wild-caught" specimens, likely amounting to fewer than 100 specimens in total. In 2005 four trophies were exported from China to the USA. No trade has been reported in the CITES trade database since then. Baral (*in litt., *2012) and Jia Chenxi (*in litt., *2012) considers that there is likely to be unreported/illegal trade in this species, which they believe will increase if the species is removed from the CITES Appendices.* *BirdLife International (2012) records the harvests of the species for the international pet trade as at a trivial level, whereas domestic use for food is recorded as non-trivial.* *There is some demand for this species within a few Chinese zoos, less so from private collectors. The Chinese zoo demand is addressed partly by trapping of wild birds, but more by finding nests to take and incubate eggs. Hatch rates have been satisfactory, but survival of birds to adulthood is low. Therefore collection of wild-laid eggs has continued in order to maintain exhibits, but probably the total numbers involved are small (tens, not hundreds) (Davison* in litt., *2012).* *Where it is hunted it is very wary and flees on sight, but seems to maintain a scattered population. Where protected it can be very tame. Such sites can be close together. The wildness of birds away from protected areas clearly indicates that hunting takes place. Pressures are mostly hunting rather than taking of eggs since these are not particularly easy to find (Davison* in litt., *2012).* *Jia Chenxi (*in litt., *2012) considers that the aviculturists often meet their needs, legal or illegal, from wild harvest in general. In recent years, captive breeding attempts have been made in Beijing Zoo. Baral (*in litt., *2012) also considered that there is some demand from captive breeders for wild stock to strengthen their captive stock. According to some websites "they are a difficult species to breed, and yet they are gaining popularity in aviculture." See http://www.birdtrader.co.uk/breed/pheasants_blood_pheasant/171* *Davison (*in litt., *2012) considers that there is not much international demand because*

Supporting Statement (SS)	Additional information
	*it is known to be a "difficult" species. Otherwise, no doubt demand would increase. However, Baral (*in litt., *2012) considers that because this is not an easy species to breed it is likely to be seen as a challenge to some who will continue to "explore" captive breeding by acquiring birds from wild stock.*

Retention in Appendix II to improve control of other listed species

A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I

Males of *Ithaginis cruentus* are distinctive, with no look-alike issues. Females have less distinct plumage, but size and shape of bare parts makes them quite recognisable. It is difficult to confuse *Ithaginis cruentus* with other species. The male is very distinctive. The less brightly coloured female is still readily recognisable because of its erectile crest, which means that it cannot be confused with female *Tragopan spp.* or Koklass Pheasant *Pucrasia macrolopha* (Madge and McGowan, 2002).	

Other information

Threats

Adults and juveniles are caught for human subsistence at a national level. Habitat loss and degradation caused by timber extraction for firewood, overgrazing and agricultural conversion. The species is also threatened by hunting. Blood Pheasant are hunted for their bright plumage, and opportunistic collection of their eggs may occur.	*The species is declining throughout much of its range owing to habitat loss and degradation caused by timber extraction, overgrazing and agricultural conversion as well as hunting pressure (del Hoyo* et al., *1994).* *In Nepal Blood Pheasants are threatened by hunting and trapping, especially outside protected areas, but also within some protected areas, although as it is a bird of high altitudes, it may be under less pressure than pheasants at lower elevations. (Draft Red Data Book for Birds of Nepal,* in prep*; Baral* in litt., *2012).* *In China its population size is believed to be declining because of continuing habitat loss, habitat fragmentation and hunting (Zheng and Wang 1998).*

Conservation, management and legislation

CITES Appendix II and EU Annex B. In India, the species is protected on Schedule I of the Wildlife (Protection) Act 1972, and in China it is on the national list of second class protected species under the Law	*In Sichuan and Shaanxi is it well protected by Buddhist beliefs or within nature reserves (Davison* in litt., *2012).*

Supporting Statement (SS)	Additional information
of the Peoples Republic of China on the Protection of Species 1988. In Nepal, Bhutan and Myanmar, it is protected within National Parks, Wildlife Sanctuaries and other conservation areas. Throughout its range, *Ithaginis cruentus* occurs in many protected areas, for example in Nepal, the species is found in four conservation areas, five national parks and one hunting reserve.	
Captive Breeding/Artificial Propagation	
The World Pheasant Association captive census recorded about 100 *Ithaginis cruentus* in Europe in 2010/2011. ISIS (2012) records no captive individuals in ISIS institutions; however, it is held in Beijing Zoo. Both WPA and ISIS databases rely on voluntary submission of records.	*Has been successfully bred in captivity in Belgium (http://www.youtube.com/watch?v=LonlFlPAWB4).* *Davison (*in litt., *2012) considered that although captive breeding is recorded, successes are fairly short-lived, and the skills and care these birds need mean that a large captive population spread across numerous establishments will be very unlikely. Successes tend to fade away over a few years.* *In recent years, captive breeding attempts have been made in Beijing Zoo (Jia Chenxi* in litt., *2012).*
Other comments	
After consulting with the Scientific Authority of China and the domestic authorities of wildlife management, the Management Authority of China suggested that the species should be retained in Appendix II. This suggestion arose because, "although the scientists still have disputes about the taxonomy of subspecies of *Ithaginis cruentus*, the population and habitat situation of the subspecies is quite different. Some subspecies are distributed in a narrow range with very limited population. To retain *Ithaginis cruentus* in Appendix II is of great importance to the protection of these subspecies".	*Eleven (Madge and McGowan 2002) - fourteen (del Hoyo, 1994) subspecies are recognised (*I.c. cruentus, I.c affinis, I.c tibetanus, I.c geoffroyi, I.c berezowskii I.c beicki, I.c michaelis, I.c sinensis, I.c annae, I.c kuseri, I.c rocki, I.c marionae, I.c holoptilus, I.c. clarkei)*. Considerable intergradation between most of the described races suggests that much of the variation observed is probably clinal, and therefore the validity of many races is dubious.*

Reviewers: H. Baral, Jia Chenxi, G. Davison, T. Inskipp, P. McGowan (also contributed to the original compilation of information for the US as part of the Periodic Review), R. Thomas.

Deletion of Imperial Pheasant *Lophura imperialis* from Appendix I

Proponent: Switzerland, as Depositary Government, at the request of the Animals Committee (prepared by France)

Summary: The Imperial Pheasant *Lophura imperialis* is a rare dark-blue pheasant known in the wild from just four records from Viet Nam. First described in 1924 from a single live pair, it is now accepted as being an occasional naturally-occurring hybrid between Silver Pheasant *L. nycthemera* and Edward's Pheasant *L. edwardsi*. A bird captured in 1990 was likely a hybrid between *L. nycthemera* and Vietnamese Pheasant *L. hatinhensis* which itself has been found to be an inbred form of *L. edwardsi*. There have been no other confirmed reports of Imperial Pheasant in the wild. A captive stock was established in Europe and the USA from a pair caught in 1923, which were subsequently cross-bred with *Lophura nycthemera* to create new stock. Birds with Imperial Pheasant phenotype have also been created in captivity by hybridizing Silver Pheasant and Edward's Pheasant.

Lophura imperialis and *L. edwardsi* were both listed in CITES Appendix I in 1975. Since 1975 international trade in 31 *L. imperialis* individuals has been reported in the CITES trade database, all but four declared as captive-bred. These four comprise animals exported before 1999 from non-range States with no source code included in the record. There is no reason to suppose that these were not also captive-bred.

Lophura imperialis is proposed for removal from Appendix I on the basis that it is no longer recognised as a species. The proposal notes that under *Resolution Conf. 10.17 (Rev. CoP15)* on animal hybrids the Imperial Pheasant would still be considered as included in Appendix I because one of its parents (*L. edwardsi*) is in that Appendix. There is therefore no need to transfer the taxon to Appendix II before then removing them from the Appendices, as would normally be the case under the precautionary measures in para A 1 to Annex 4, of *Resolution Conf 9.24 (Rev. CoP15*).

The proponent has also asked for an Amendment in the Annex to *Resolution Conf 12.11 (Rev CoP15)* regarding the reference standard for birds adopted by the Conference of the Parties: "Dickinson, E. C. (ed.) (2003): *The Howard and Moore Complete Checklist of the Birds of the World.* Revised and enlarged 3rd Edition. 1039 pp. London (Christopher Helm). [for all bird species – except for the taxa mentioned below]" by replacing "for all bird species – except for the taxa mentioned below" with "for all species birds, except *Lophura imperialis* and taxa mentioned below". *Lophura imperialis* will not appear in the upcoming 4th edition of the publication "*The Howard and Moore Complete Checklist of the Birds of the World*" (scheduled for publication in 2012/2013), as it has been permanently removed from the taxonomy of birds.

At its 26th meeting (Geneva, March 2012) and in the context of the Periodic Review of the Appendices, the Animals Committee recommended preparing a proposal to delete *Lophura imperialis* from Appendix I because of its status as a hybrid of (see document AC26 Doc. 13.2.1 and its Annex). France volunteered to prepare such proposal.

Analysis: Based on the low number of individuals found, despite search efforts, it seems unlikely that *L. imperialis* forms the 'distinct and stable populations in the wild' required allowing hybrids to be specifically included within the Appendices and as such would appear not to be eligible for inclusion in its own right. Under *Resolution Conf. 10.17 (Rev. CoP15)*, if *L. imperialis* were deleted from the Appendices, specimens would still be treated as if included in Appendix I because one of its parents (*L. edwardsi*) is in that Appendix.

Supporting Statement (SS)	Additional information
Taxonomy	
Lophura imperialis should be considered as a natural hybrid between *L. edwardsi* and *L. nycthemera.* It was reported that *L. hatinhensis* could possibly be one of the parental species, but *L. hatinhensis* has recently been proven to be an inbred form of *L. edwardsi.*	
At its 15th meeting (Doha, 2010), as shown in the Annex to *Resolution Conf. 12.11 (Rev. CoP15)*, the Conference of the Parties adopted the following publication as the standard reference for pheasant taxonomy and nomenclature: "Dickinson, E.C. (ed. 2003): *The Howard and Moore Complete Checklist of the Birds of the World*. Revised and enlarged 3rd Edition. 1039 pp. London (Christopher Helm)". In this publication, *Lophura imperialis* is still considered as a species.	
The species *Lophura imperialis* will not appear in the upcoming fourth edition of the publication "Dickinson E.C., *The Howard and Moore Complete Checklist of the Birds of the World*" (in press, scheduled for publication in August 2012), as it has been permanently removed from the taxonomy of birds.	*The upcoming fourth edition is due to be published in February 2013 (www.nhbs.com, 2012).*
Range	
Viet Nam.	*Hunters have reported a similar looking bird in Lao PDR, though its presence there remains unproven (Madge and McGowan, 2002).*
IUCN Global Category	
Lophura imperialis is no longer a valid taxon. It was therefore removed from the IUCN Red List.	

Biological criteria for inclusion in Appendix I

A) Small wild population

(i) Population or habitat decline; (ii) small sub-populations; (iii) concentrated geographically during one or more life-history phases; (iv) large population fluctuations; (v) high vulnerability

A single wild pair were acquired in 1923 in the region of Dong Hoi Viet Nam. Then in 1990, an immature male was captured 12 km from Cat Bin, followed by another immature individual caught in 2000 in Da Krong District.	*Expeditions to find wild* Lophura imperialis *in the 1930s failed (Hennache* et al.*, 2003).*

Supporting Statement (SS)	Additional information

Trade criteria for inclusion in Appendix I

The species is or may be affected by trade

There will be no actual or potential trade, since *Lophura imperialis* will be treated as a hybrid of *L. edwardsi* and as such, will retain the same status of Appendix I, in accordance with *Resolution Conf 10.17 (Rev. CoP15)*.

Gross exports/imports of *Lophura imperialis*

Term	1975-1999	2000-2010
Live total (wild)	22 (4)	9 (0)
Grand total	22 (4)	9 (0)

It appears that the four individuals identified as being wild in the SS were designated so because the source code had been left blank in the CITES database. These records consist of two individuals exported from the USA to Belgium, and two individuals exported from the Netherlands to Denmark and are very likely to have been captive-bred. All other trade reported in the CITES is in individuals reported as captive-bred.

Other information

Conservation, management and legislation

Lophura imperialis was listed in Appendix I of CITES in 1975.

One of the parental species, *Lophura edwardsi*, is listed in CITES Appendix I.

Lophura imperialis is present on the Red List (2007) of Endangered Species in Viet Nam.

Lophura imperialis *and* L. edwardsi *are both listed in EC Regulations Annex A.*

Similar species

Hennache et al*. (2003) found that* Lophura imperialis *showed no unique shape features or plumage. For most measurements* L. imperialis *were intermediate in size between* L. edwardsi *and* L. nycthemera*. All specimens of* L. imperialis *had plumage characteristics that were to some degree intermediate between the two parent species.*

Supporting Statement (SS)	Additional information
Artificial Propagation/Captive breeding	
The pair captured in 1923 were exported to France and produced a line of captive animals which died out after World War II due to lack of additional founders. In 2003 at the Zoological park of Clères, Alain Hennache hybridized the two parental species, resulting in five offspring. The last record of *Lophura imperialis* in captivity in Europe was in 2009 in the United Kingdom, a farmer reported having three specimens.	*A captive stock was established in Europe and the USA from the 1923 pair, which had to be cross-bred with* Lophura nycthemera *to create new stock (Madge and McGowan, 2002).*
Other comments	
Viet Nam, the only range State of *Lophura imperialis*, expressed its support for the proposal.	

Reviewers: R. Thomas.

Transfer of Caspian Snowcock *Tetraogallus caspius* from Appendix I to Appendix II

Proponent: Switzerland, as Depositary Government, at the request of the Animals Committee (prepared by New Zealand)

Summary: The Caspian Snowcock *Tetraogallus caspius* is a large (55-65 cm) gamebird found in mountains in Armenia, Azerbaijan, Georgia, Iraq, Islamic Republic of Iran, Turkey and Turkmenistan. It is one of five species of snowcock in the genus *Tetraogallus,* part of the pheasant family (Phasianidae). The species has a very large range, estimated at over 300 000 km^2. In 2004 the population was estimated by BirdLife International at between 10 000 and 50 000 individuals (6700-33 000 mature individuals). There is said to be some harvest for local use, with over-hunting and habitat degradation from over-grazing believed to have some impact on the species. The population is thought to be declining but not sufficiently rapidly to approach thresholds used by BirdLife and IUCN as criteria for listing as threatened. It is currently classified by BirdLife and IUCN as Least Concern.

The species was included in CITES Appendix I in 1975 when the Convention first came into force. It was one of a number of species of Phasianidae listed at that time, including the Tibetan Snowcock *Tetraogallus tibetanus*, also listed in Appendix I. Since then no trade in it has been recorded (although no commercial trade would be expected, given that the species was listed in Appendix I). On the basis of available information it appears that there is little demand for the species in international trade.

The Caspian Snowcock can be clearly distinguished by its plumage from the Tibetan snowcock *Tetraogallus tibetanus*, itself the subject of a proposal for transfer from Appendix I to II (CoP16 Prop. 19). It resembles the three other *Tetraogallus* species (*T. caucasicus*, *T. altiacus* and *T. himalayensis*) although both adults and juveniles of *T. capsius* can be distinguished reasonably easily from these by differences in plumage. None of these species is listed in the Appendices.

The proponents state that they are proposing to transfer *Tetraogallus caspius* from Appendix I to Appendix II, in accordance with provisions of *Resolution Conf. 9.24 (Rev. CoP15)* Annex 4 precautionary measures A1 and A 2a/b. This suggests that the intention is to remove the species from the CITES Appendices after an appropriate period of monitoring of any impact of trade on the species whilst it is in Appendix II. The proponents have been requested by the Animals Committee to submit this proposal, the species having been subject to the Periodic Review process.

Analysis: It would appear that the Caspian Snowcock does not meet the biological criteria for inclusion in Appendix I. No trade has been recorded since its inclusion in Appendix I in 1975 and it is not known to be in demand for international trade. The only other *Tetraogallus* species currently listed in the Appendices is the Tibetan Snowcock *Tetraogallus tibetanus*, itself proposed for transfer from Appendix I to Appendix II (CoP16 Prop. 19). The two species can be clearly distinguished by their plumage. The transfer of the Caspian Snowcock to Appendix II is unlikely to stimulate trade in, or cause enforcement problems for any other species included in Appendix I regardless of whether the proposal regarding *T. tibetanus* is accepted. The proposal thus appears to meet the precautionary measures in *Resolution Conf. 9.24 (Rev. Cop15)* Annex 4 A1.

Supporting Statement (SS)	Additional information
Range	
Armenia, Azerbaijan, Georgia, Iraq, Islamic Republic of Iran, Turkey and Turkmenistan.	*IUCN Red List currently does not list Armenia as a range State, although this is an error and will be corrected (Symes,* in litt., *2012).*
IUCN Global Category	
Least Concern.	*Least Concern (Assessed 2012, criteria version 3.1).*

Biological criteria for inclusion in Appendix I

A) Small wild population

(i) Population or habitat decline; (ii) small sub-populations; (iii) concentrated geographically during one or more life-history phases; (iv) large population fluctuations; (v) high vulnerability

Tetraogallus caspius is listed by the IUCN as being of 'Least Concern' globally, but is regarded as 'vulnerable' within Georgia, where the population at the edge of the species's range is believed to be very small. The size of the population is estimated to be 10 000 to 50 000 individuals, which equates to 6700 to 33 000 mature individuals.	*The population size may be moderately small to large, but it is not believed to approach the thresholds for Vulnerable under the population size criterion (<10 000 mature individuals) (BirdLife International, 2012).* *In Europe, the breeding population was estimated to number 2500-9000 breeding pairs, equating to 7500-27 000 individuals (BirdLife International, 2004). Based on Europe forming 5-24% of the global range and the 2004 estimates; the estimate of global population size was 10 000-50 000 individuals (roughly equating to 6700-33 000 mature individuals), although further validation of this estimate is needed.* *Caspian Snowcock in Turkmenistan has limited distribution, it is rare and the only threat is illegal hunting as a game species. The species is included in the Red Data Book of Turkmenistan (2011) as endangered (Rustamov and Sopiev* in litt., *2012).*

B) Restricted area of distribution

(i) Fragmented or localised population; (ii) large fluctuations in distribution or sub-populations; (iii) high vulnerability; (iv) decrease in distribution, population, area or quality of habitat, or recruitment

The species has a very large range (314 000 km^2).	

Supporting Statement (SS)	Additional information
C) Decline in number of wild individuals **(i) Ongoing or historic decline; (ii) inferred or projected decline due to decreasing area or quality of habitat, levels of exploitation, high vulnerability, or decreasing recruitment.**	
The overall population is suspected to be slowly declining but BirdLife International (2012) do not consider that the decline is sufficiently rapid to approach the thresholds for Vulnerable under the population trend criterion (>30% decline over ten years or three generations).	*In Iran, Tohidifar (*in litt,, *2012) considers that habitat quality for the species is declining even in protected areas and wildlife refuges.*

Trade criteria for inclusion in Appendix I

The species is or may be affected by trade

No legal trade in this species has been recorded since the species was listed in Appendix I in 1975. Commercial trade would not be permitted for Appendix I species, and so the lack of existing trade does not necessarily indicate a lack of future demand for international trade.	*No other snowcock species appears to be in demand in international trade and no evidence was found to suggest that there is or would be demand for this species if trade were permitted.* *Snowcocks dig over the ground extensively when foraging and are therefore somewhat difficult to keep in aviaries, making them less popular as display animals (McGowan,* in litt., *2012). Tohidifar (*in litt., *2012) notes that live capturing of this bird is quite difficult because of its cautious behaviour.* *Tohidifar (*in litt., *2012) considers that there is little hunting of the species in Iran mainly because of their low population density and that access to their natural habitat is difficult. However, Khaleghizadeh (*in litt., *2012) suggests that the species is being hunted by hunters reaching higher mountain areas, although there is probably not commercial demand.* *According to Rustamov and Sopiev (*in litt., *2012) there is no trade of the species in Turkmenistan.*

Supporting Statement (SS)	Additional information
Precautionary Measures Commercial trade would not be permitted for Appendix I species, and so the lack of existing trade does not necessarily indicate a lack of future demand for international trade. Information is not readily available, but trade is not believed to be significant. There have been no examples of legal trade nor confiscations in Georgia. The Tibetan Snowcock *Tetraogallus tibetanus*, the only other snowcock listed in Appendix I of CITES, is clearly identified by its plumage features, especially its white flanks with longitudinal black stripes and lack of white on the primaries. *Tetraogallus caspius* is not in known demand for international trade, nor is its transfer to Appendix II likely to stimulate trade in, or cause enforcement problems for, any other species included in Appendix I.	T. tibetanus *is currently listed in Appendix I although it is also the subject of a proposal for transer to Appendix II, which if accepted at the CoP would mean there were no other snowcocks listed in Appendix I.*

Other information

Threats

Threats to the species are predominantly habitat degradation from over-grazing and over-hunting throughout most of its range. Adults and juveniles are caught for human subsistence on a national level. Illegal trade is not believed to be significant.	*Conflict was also noted as a threat in Azerbaijan by del Hoyo* et al. *(1994). No information was available on current levels of hunting and the impact of this.* *Land degradation, habitat destruction, overgrazing of livestock and lower effectiveness of conservation measures in protected areas of Iran nowadays, are the main threats undoubtedly reducing the population of many wild animals, and presumably this species, in comparison with three previous decades (Tohidifar,* in litt., *2012). Illegal hunting also exists.* *Khaleghizadeh (*in litt., *2012) raised concerns that in the future climate change may result in a reduction of snow cover on mountains and loss of the species's habitat. This may also result in increased accessibly of the species by hunters.*

Conservation, management and legislation

Tetraogallus caspius was listed in CITES Appendix II on 1 July 1975 as part of a group of Galliformes species. Listed on EU Annex A.	*In Iran this bird occurs in protected areas but current control and protection in such areas is reported to be weaker than in previous decades (Tohidifar,* in litt*., 2012).*

Supporting Statement (SS)	Additional information
The species is found in five Important Bird Areas in Armenia, five in Azerbaijan, four in Georgia, six in Turkey and one in Turkmenistan. In the Islamic Republic of Iran the species is found in five protected areas and one wildlife refuge.	
Similar species	
Males and females are similar to *Tetraogallus caucasicus* from the Caucasus Mountains of Georgia, Azerbaijan and extreme southwest Russia, except that in the hand they have a grey hindneck and cheek stripes rather than rusty, and spots on the upper breast rather than chevrons or scalloping, but juveniles are harder to distinguish. Also similar in general appearance to *T. altaicus,* and *T. himalayensis*, but in the hand, adults and juveniles are easily distinguished by plumage differences. All of these look-alike species are classified as of 'Least Concern' by IUCN.	Tretraogallus caucasicus, T. altaicus *and* T. himalayensis *are not listed in the CITES Appendices.*
The Tibetan Snowcock *Tetraogallus tibetanus*, the only other snowcock listed in Appendix I of CITES, is clearly identified by its plumage features, especially its white flanks with longitudinal black stripes and lack of white on the primaries.	T. tibetanus *is also listed in Appendix I; only one captive-bred live specimen has been recorded in the CITES trade database. It is also the subject of a proposal for transfer from Appendix I to Appendix II.*
Artificial Propagation/Captive breeding	
There are no records of this species in captivity in Europe in the WPA database (31 July 2012), and ISIS (31 July 2012) records no captive individuals in ISIS institutions; however, both databases rely on voluntary submission of records.	*There is at least one confirmed case in Iran (Tohidifar,* in litt., *2012).*

Reviewers: P. McGowan, M. Tohidifar. R. Thomas.

Transfer of Tibetan Snowcock *Tetraogallus tibetanus* from Appendix I to Appendix II

Proponent: Switzerland, as Depositary Government, at the request of the Animals Committee (prepared by New Zealand)

Summary: The Tibetan Snowcock *Tetraogallus tibetanus* is a large (45-55 cm) gamebird widely distributed in the high mountains of central Asia, from the extreme east of Tajikistan, through extreme northern India, Nepal, south western China, Bhutan, and the extreme north of Myanmar. It is one of five species of snowcock in the genus *Tetraogallus,* part of the pheasant family (Phasianidae). The species has a very large range at over 1 000 000 km^2. Although there are no recent population estimates its wide range suggests that there are several hundred thousand individuals. There is no evidence of any substantial threats, although the glacial moraines that it inhabits at high altitude are expected to be more affected than other types of habitats by climate change. The population is believed to be stable and is currently classified by IUCN as Least Concern.

The species was listed in CITES Appendix I on 1 July 1975 when the Convention first came into force. It was one of a number of species of Phasianidae listed at that time, including the Caspian Snowcock *Tetraogallus caspius*, also listed in Appendix I. Since then almost no trade in it has been recorded; there has only been one record of a captive-bred bird being imported by the UK from the US in 1981 (although no commercial trade would be expected, given that the species was listed in Appendix I). On the basis of available information it appears that there is little demand for the species in international trade.

The Tibetan Snowcock can be clearly distinguished by its plumage from the Caspian Snowcock *Tetraogallus caspius*, itself the subject of a proposal to transfer it from Appendix I to II (CoP16 Prop. 18). In appearance it is similar to *T. himalayensis* and *T. altiacus*; however, they are smaller and have distinct markings that differentiate them. Neither of these two species is listed in the Appendices.

The proponents state that they are proposing to transfer *Tetraogallus tibetanus* from Appendix I to Appendix II, in accordance with provisions of *Resolution Conf. 9.24 (Rev. CoP15)* Annex 4 precautionary measures A1 and A 2a/b. This suggests that the intention is to remove the species from the CITES Appendices after an appropriate period of monitoring of any impact of trade on the species whilst it is in Appendix II. The proponents have been requested by the Animals Committee to submit this proposal having been the subject of the Periodic Review process.

Analysis: It would appear that the Tibetan Snowcock does not meet the biological criteria for inclusion Appendix I. No trade has been recorded since its listing in Appendix I in 1975 and *Tetraogallus tibetanus* is not in known demand for international trade. The only species of snowcock that is currently listed in Appendix I is the Caspian Snowcock *Tetraogallus caspius*, itself the subject of a proposal to transfer to Appendix II (CoP16 Prop. 18). Regardless of whether that proposal is accepted, the two species can be clearly identified by their plumage features and therefore the transfer of the Tibetan Snowcock to Appendix II is unlikely to stimulate trade in, or cause enforcement problems for any other species included in Appendix I thus meeting the precautionary measure A 2a of Annex 4 *Resolution Conf. 9.24 (Rev. CoP15)*.

Supporting Statement (SS)	Additional information
Range	
Bhutan, China, India, Myanmar, Nepal, Tajikistan.	*Myanmar not noted as a range State by BirdLife International (2012a and b).*
IUCN Global Category	
Least Concern.	*Least Concern (Assessed 2012, criteria version 3.1).*
Biological criteria for inclusion in Appendix I	
A) Small wild population **(i) Population or habitat decline; (ii) small sub-populations; (iii) concentrated geographically during one or more life-history phases; (iv) large population fluctuations; (v) high vulnerability**	
The population size of this central Asian gamebird has not been estimated, but its wide range suggests that there are several hundred thousand individuals.	
The population size is estimated to be 100 000 to 499 999 mature individuals.	*No reference is given for the population size of 100 000 to 499 999 mature individuals in the Supporting Statement.*
B) Restricted area of distribution **(i) Fragmented or localised population; (ii) large fluctuations in distribution or sub-populations; (iii) high vulnerability; (iv) decrease in distribution, population, area or quality of habitat, or recruitment**	
Tibetan Snowcock is widely distributed in the high mountains of central Asia, from the extreme east of Tajikistan, through Jammu and Kashmir in extreme northern India, Nepal, south western China, Bhutan, and the extreme north of Myanmar.	
The species has a very large range (1 070 000 km^2).	
C) Decline in number of wild individuals **(i) Ongoing or historic decline; (ii) inferred or projected decline due to decreasing area or quality of habitat, levels of exploitation, high vulnerability, or decreasing recruitment.**	
The population trend is suspected to be stable.	

Supporting Statement (SS)	Additional information
Trade criteria for inclusion in Appendix I	
The species is or may be affected by trade	
No legal trade in this species has been recorded since it was listed in Appendix I in 1975. Note that commercial trade is not permitted for Appendix I species, and so the lack of existing international trade does not necessarily indicate a lack of future demand for international trade. One specimen recorded in trade between 1975–1999.	*CITES trade data show one captive-bred live specimen was imported by the UK from the US in 1981 for personal purposes.*
Precautionary Measures	
Tetraogallus tibetanus is not in known demand for international trade, nor is its transfer to Appendix II likely to stimulate trade in, or cause enforcement problems for any other species included in Appendix I.	*No other snowcock species appears to be in demand in international trade and no evidence was found to suggest that there is or would be demand for this species if trade were permitted.*
Its transfer to Appendix II, with monitoring of any impact of trade on the species for at least two intervals between meetings of the Conference of the Parties, will allow an assessment of any international trade that may be stimulated by its transfer to Appendix II.	*Snowcocks dig over the ground extensively when foraging and are therefore somewhat difficult to keep in aviaries, making them less popular as display animals (McGowan,* in litt., *2012).*
Other information	
Threats	
Some subsistence hunting and use as pets. Climate change could be a potential threat to this species. As global warming continues, the glacial moraines that it inhabits at high altitude are expected to be more affected than other type of habitats.	*BirdLife International (2012b) notes an absence of evidence of substantial threats.*
Similar species	
Males and females are similar to *Tetraogallus himalayensis* and *T. altaicus*, but are smaller, have prominent white flanks with longitudinal black stripes, and lack white on the primaries. These look-alike species are classified as of 'Least Concern' by IUCN and are not listed on the CITES Appendices.	*The Himalayan Snowcock has been introduced into the USA where it is possible to buy permits to hunt the species (see http://www.ndow.org/about/pubs/almanac/sum07/Sum07_Snowcock.pdf).*
The Caspian Snowcock *Tetraogallus caspius*, the only other snowcock listed in Appendix I of CITES, is clearly identified by its plumage features, especially its dark breast and flanks, and large patches of white on its primaries.	Tetraogallus caspius *is also the subject of a proposal to transfer the species from Appendix I to II. Proponents do not anticipate any great demand for this species but if accepted, the impact of a listing of the Tibetan Snowcock in Appendix II would be possible to determine through records in the CITES trade database.*

Reviewers: T. Inskipp, P. McGowan (also contributed to the original compilation of information for the US as part of the Periodic Review), R. Thomas.

Transfer of Attwater's Prairie Chicken *Tympanuchus cupido attwateri* from Appendix I to Appendix II

Proponent: Switzerland, as the Depositary Government, at the request of the Animals Committee (prepared by the United States of America)

Summary: Attwater's Prairie Chicken *Tympanuchus cupido attwateri* is a subspecies of prairie-chicken endemic to the USA where it is now present in three locations in Texas. It is one of two extant subspecies of *T. cupido,* the other being *Tympanuchus cupido pinnatus.* The nominate subspecies *T. cupido cupido* is extinct. The subspecies has not been assessed for the IUCN Red List, but is listed as Endangered under the U.S. Endangered Species Act. The population occupies a very small geographic range which is fragmented thus isolating each sub-population. Prior to the 1890s, the population numbered nearly one million individuals, but had declined to 46 individuals by 2012. This extreme decline has largely been due to loss of habitat (in 1991 it was estimated that less than 1% of coastal prairie grasslands were in a habitable condition for this subspecies), as well as hunting pressure in the early part of the 20th century. The subspecies is intensively managed, relying on the reintroduction of captive-bred birds to maintain a wild population. The species as a whole remains relatively widespread and abundant in northern-central parts of the USA, although its range has contracted markedly and numbers declined in the past century. It is currently classified as Vulnerable by IUCN. A population estimate of around 700 000 birds was made in 2004. *Tympanuchus cupido* is one of three species in the genus *Tympanuchus*. All are native to North America (Canada and USA).

Under the US Endangered Species Act a permit is required for import and export. The subspecies is managed by Texas Parks and Wildlife Department under corresponding State legislation and is not subject to harvest.

Tympanuchus cupido attwateri was listed in CITES Appendix I in 1975, since then there has been no reported trade in wild specimens, although given its Appendix-I listing, no commercial trade would be expected. There is limited trade in live birds and specimens of other *Tympanachus*, including *T. cupido.*

Attwater's Prairie Chicken was included in the Animal's Committee's Periodic Review process. The range State supports the Animal Committee's decision that prior to the taxon being removed from the Appendices, the precautionary measures described in Annex 4 para A 1 of *Resolution Conf. 9.24 (Rev. CoP15)* should be complied with and the taxon be transferred to Appendix II for two intervals between meetings of the Conference of the Parties to allow for monitoring of any impact of trade.

Analysis: It would appear that *Tympanuchus cupido attwateri* still meets the biological criteria for inclusion in Appendix I, having an extremely small and fragmented population and a restricted area of distribution. However, the taxon is intensively managed and covered by domestic legislation and there is no evidence of any international demand for specimens. Thus it would appear that the precautionary measures in Annex 4 A2a are met.

The current listing of *Tympanuchus cupido attwateri* is inconsistent with recommendations for split-listing set out in Annex 3 of *Resolution Conf. 9.24. (Rev. CoP15)*, which advise that when split-listings occur they should be on the basis of national or regional populations rather than subspecies, and that split-listings that place some populations of a species in the Appendices, and the rest outside the Appendices, should normally not be permitted.

Supporting Statement (SS)	Additional information
Taxonomy	
Tympanuchus cupido attwateri is one of three recognised subspecies of *Tympanuchus cupido*, along with *T. c. pinnatus* and *T.c. cupido (*extinct).	
Range	
United States of America.	
IUCN Global Category	
The species *Tympanuchus cupido* is listed as Vulnerable (2008).	Tympanuchus cupido attwateri *is not currently listed. The species* Tympanuchus cupido *is listed as Vulnerable (assessed 2012) (A2bcde+3bcde+4bcde version 3.1).*

Biological criteria for inclusion in Appendix I

A) Small wild population
(i) Population or habitat decline; (ii) small sub-populations; (iii) concentrated geographically during one or more life-history phases; (iv) large population fluctuations; (v) high vulnerability

Between 1967 and 1977, the wild population increased from approximately 1000 individuals to 2000, but this number had decreased again to 1000 by the late 1980s and continued declining until 1995, where it remained at a constant level of around 50 individuals. After 2007 numbers increased, and had reached 110 individuals in 2011. The population then declined to 46 individuals in 2012.

Tympanuchus cupido attwateri occurs in three isolated populations in Texas. In 2012 the three sub-populations held 30 individuals, 14 individuals and two individuals. All three sub-populations are supplemented with captive-bred birds.

Populations are now small, fragmented, and susceptible to genetic isolation and disease. There is no direct evidence that Tympanuchus cupido attwateri populations are currently suffering from inbreeding depression, but this may become more of an issue if the genetic diversity of the captive-bred birds, used to supplement populations, does not improve. As well as a reduction in genetic fitness, current small populations are now more vulnerable to extirpation than before due to high mortality caused by parasites.

Tympanuchus cupido attwateri is an r-selected species, experiencing rapid growth and reproduction, but also experiencing sudden population declines. Population trends at some sites suggest strongly that, if a population drops below 250 cocks for more than three years in succession without intensive management, then there is a high probability that the population will become extinct.

Supporting Statement (SS)	Additional information
B) Restricted area of distribution **(i) Fragmented or localised population; (ii) large fluctuations in distribution or sub-populations; (iii) high vulnerability; (iv) decrease in distribution, population, area or quality of habitat, or recruitment**	
In 1991, it was estimated that less than 1% of coastal prairie grasslands were in a habitable condition for *Tympanuchus cupido attwateri* and that this habitat was largely fragmented. *Tympanuchus cupido attwateri* were present in 48 counties in the 1940s, but loss and degradation of the Texan prairie grassland habitat has resulted in a decline to two counties in 1999, then increasing to three countries in 2007 following a reintroduction.	*Historically,* Tympanuchus cupido attwateri *inhabited an estimated 2.4 million ha (U.S. Fish and Wildlife Service, 2010). Approximately 93% of the 2.4 million ha had been lost by 1937 (Lehmann, 1941).*
C) Decline in number of wild individuals **(i) Ongoing or historic decline; (ii) inferred or projected decline due to decreasing area or quality of habitat, levels of exploitation, high vulnerability, or decreasing recruitment.**	
Prior to the 1890s,the *Tympanuchus cupido attwateri* population had been near one million individuals. There has been a dramatic decline since 1937, with numbers falling from just under 9000 individuals to 46 in 2012. The Texas legislature closed the hunting season in 1937 due to the continued decline of *Tympanuchus cupido attwateri*, prior to this hunting was a significant threat.	*Population and habitat viability analyses conducted for* Tympanuchus cupido attwateri *suggest there is a high probability of extinction within 20 years due to the small isolated nature of the populations (Brooks* et al., *2002).*
Trade criteria for inclusion in Appendix I **The species is or may be affected by trade**	
There have only been two reported instances of international trade in the UNEP-WCMC CITES trade database since 1975. The first was in 1996 when one captive-bred scientific specimen was exported from the United States to Sweden. The second was in 1998 when two scientific specimens from captive-bred, U.S.-origin birds were re-exported from Sweden to the United States for medical purposes and were confiscated or seized. There is no evidence of international trade for zoological display within the International Species Information System (ISIS), though the database relies on voluntary submission of records. There is no current information about trade impacts on *Tympanuchus cupido attwateri*. The subspecies, however, is not in demand for international trade.	*The UNEP-WCMC CITES trade database also reports two captive-bred live* Tympanuchus cupido *(sub-species not specified) being exported from Great Britain to the Netherlands in 1985.* *An online review found no evidence of a demand for this species, nor any individuals offered for sale. However, this is to be expected from an Appendix I listed species.*

Supporting Statement (SS)	Additional information
Precautionary Measures	
There is no current information about trade impacts on *Tympanuchus cupido attwateri*. The subspecies, however, is not in demand for international trade nor would any trade be anticipated if it were transferred from Appendix I to Appendix II or delisted from the CITES Appendices. The genus *Tympanuchus* includes three species *Tympanuchus cupido* (of which there are two extant subspecies: *T. c. pinnatus* (Greater Prairie Chicken) and *T. c. attwateri*), *T. pallidicinctus* (Lesser Prairie Chicken) and *T. phasianellus* (Sharp-tailed Grouse) (of which there are six subspecies). Only *Tympanuchus cupido attwateri* is listed in the CITES Appendices.	*Commercial trade has not been permitted since* Tympanuchus cupido attwateri *was first listed in Appendix I in 1975.*
Other information	
Threats	
The main cause of the decline of *Tympanuchus cupido attwateri* populations is the loss and fragmentation of prairie grassland habitat due to increases in agricultural practices such as livestock grazing, as well as habitat conversion, urban and industrial expansion, and the invasion of woody plant species. Anthropogenic structures such as roads, buildings, and electric transmission lines can have a negative impact on the use of habitat by *Tympanuchus cupido attwateri* as reports suggest that booming grounds have been abandoned following the construction of these features. Mortality of *Tympanuchus cupido attwateri* broods is often caused by avian and mammalian predation, high levels of precipitation during the brooding season and the poor quality of the brood rearing habitat. Preliminary findings indicate that perhaps Red Imported Fire Ants decimated insect densities to the point that it had affected the number of insects available to newly hatched chicks during this very critical period of their life. Red Imported Fire Ants, in addition to severe drought, probably contributed to the population size decline between 2011 and 2012. Additional research to investigate this hypothesis is currently ongoing.	Tympanuchus cupido *may suffer from competition with introduced Ring-necked Pheasant* Phasianus colchicus *(del Hoyo* et al., *1994).* *Illegal take by dove, quail, and waterfowl hunters is a possible threat (U.S. Fish and Wildlife Service, 2010).* *Peterson (2004) provides an extensive overview of information available on parasites and infectious diseases of prairie grouse, including* Tympanuchus cupido attwateri*. Peterson concluded that parasites and infectious viruses have the potential to regulate prairie grouse populations or even extirpate small, isolated populations. Hudson* et al. *(2006) speculated that increased temperatures and climatic disruption brought about by global warming will result in increased frequency and intensity of outbreaks of some parasite populations.*
Conservation, management and legislation	
Tympanuchus cupido attwateri has been listed in Appendix I of CITES since 1975.	*Tympanuchus cupido attwateri* is listed on EC Regulations Appendix A.

Supporting Statement (SS)	Additional information
At the Federal level, the subspecies is listed as Endangered under the U.S. Endangered Species Act of 1973, as amended, and is also subject to the Lacey Act of 1900, as amended 22 May 2008. At the State level, the subspecies is managed as Endangered by Texas Parks and Wildlife Department under corresponding State legislation and is not subject to harvest. Domestic regulation of the subspecies prohibits (among other things) import, export, and shipment in foreign commerce of the subspecies by persons subject to U.S. jurisdiction without a permit. The Attwater Prairie Chicken National Wildlife Refuge (APCNWR) was set up in 1972 with the aim of protecting and enhancing 4265 ha of prairie habitat as well as conserving populations of *Tympanuchus cupido attwateri.* The population of *Tympanuchus cupido attwateri* in the refuge increased from approximately 25 individuals in 1972 to 222 in 1987, but unfortunately since then has declined. Another area that supports a very small population (6 individuals) of the subspecies is the 970 ha Texas City Prairie Preserve (TCPP). Both the APCNWR and the TCPP populations are supplemented with individuals that have been bred in captivity. A third population of *Tympanuchus cupido attwateri* was reintroduced onto private lands in Goliad County in 2007.	
<u>Similar species</u>	
The genus *Tympanuchus* includes three species: *Tympanuchus cupido, T. pallidicinctus* and *T. phasianellus.* Only *Tympanuchus cupido attwateri* is listed in the CITES Appendices. Two other grouse taxa are candidates for listing under the U.S. Endangered Species Act of 1973, as amended (*Centrocercus minimus* and *Centrocercus urophasianus*) while *Tympanuchus phasianellus columbianus* was evaluated but will not be listed.	*There are minor physical differences between* Tympanuchus cupido attwateri *and* T. cupido pinnatus; *smaller measurements of wing, tail, bill, and total length and differences in general ruddiness and buffiness of the underparts are characteristic and can be used to separate* Tympanuchus cupido attwateri *as a subspecies (Lehmann, 1941).* *The US Fish and Wildlife Service's trade database (LEMIS) indicates some trade in live birds and products of* Tympanuchus cupido*.* *Between 2000-2012, the US Fish and Wildlife Service's trade database (LEMIS) lists 6076* T. phasianellus *being exported as trophies (>99% wild), 683 bodies (99% wild), 1758 as meat (99% wild) and 531 feathers (99% wild). Advertisements of live* T. phasianellus *and their derivatives (wings/stuffed specimens) for sale online suggest there is commercial interest in this species. However, several adverts indicated they would not export outside of the USA.*

Supporting Statement (SS)	Additional information
	The US Fish and Wildlife Service's trade database (LEMIS) lists 14 trophies and nine bodies of T. pallidicinctus *exported between 2000-2012, all of which came from wild sources. No evidence of the sale of* T. pallidicinctus *online could be found.*
Artificial Propagation/Captive breeding	
The International Species Information System (ISIS) database records five institutions, all in the United States, that have captive *Tympanuchus cupido attwateri.* The World Pheasant Association database of Galliformes in captivity does not contain any records of *Tympanuchus cupido attwateri* in Austria, Germany, Belgium, Netherlands, Luxemburg, Portugal, France or the United Kingdom. Both databases rely on voluntary submissions. At present there are breeding programs underway at Fossil Rim Wildlife Center, Houston Zoo, San Antonio Zoo, Sea World of Texas, Abilene Zoo and Caldwell Zoo. In January 2011, these institutions (excluding the Sea World of Texas) had a total of 284 individuals in captivity, 90 of which were bred during 2010. Additional breeding facilities are now currently being established. Currently the three populations of *Tympanuchus cupido attwateri* are dependent on captive breeding for survival. Although captive breeding has been instrumental in preventing the extinction of *Tympanuchus cupido attwateri*, brood survival from captive bred hens introduced into the wild has been very poor and is stated to be the single factor limiting the recovery of the subspecies. The main reason for this low survival rate has been attributed to nutritional deficiency in the chicks. Recovery could occur if the problems with poor brood survival are resolved, but until this time, populations of *Tympanuchus cupido attwateri* are increasingly vulnerable to stochastic events.	*From 1995−2009, a total of 1703 captive-reared birds were released at the three locations where* Tympanuchus cupido attwateri *are currently present (US Fish and Wildlife Service, 2010).*

Reviewers: R. Thomas.

Deletion of Imperial Woodpecker *Campephilus imperialis* from Appendix I

Proponent: Mexico

Summary: The Imperial Woodpecker *Campephilus imperialis,* the world's largest woodpecker, was formerly distributed throughout the Sierra Madre Occidental of Mexico where the population may historically have numbered around 8000 birds. Extensive habitat destruction through logging has reduced suitable habitat to less than 1% of its former range. This and hunting have led to collapse in the population. The species has not been recorded with certainty since 1956, despite extensive and prolonged searches within its former range. Thorough mapping and analysis of remaining habitat has been conducted and the results do not provide much hope that any population has been able to survive. However, unconfirmed sightings persist – the most recent in 2005 – and IUCN and BirdLife International consider that it cannot yet be presumed to be Extinct as the degree to which individuals can use sub-optimal regenerating forest is unknown, and it remains possible that some individuals survive. Any remaining population is likely to be tiny, and for these reasons it is treated by IUCN as Critically Endangered (Possibly Extinct).

Campephilus imperialis was listed in Appendix I in 1975. Since then there has only been one record of re-export of four specimens for scientific purposes from the USA back to Mexico in 2006. There are about 160 stuffed specimens worldwide. The only other woodpecker in the CITES Appendices is the Appendix-I listed *Dryocopus javensis richardsi,* a subspecies of the Asian White-bellied Woodpecker that occurs in the Democratic People's Republic of Korea. This taxon resembles the Imperial Woodpecker in that both are large black-and-white woodpeckers in which the male has a red crest.

In the unlikely event of the species being rediscovered it would be protected by Mexican legislation under the Ley General de Vida Silvestre which would only authorise the use of specimens of species at risk when prioritising collection and capture for restoration activities, restocking and reintroduction.

The Animals Committee at its 26th Meeting (Geneva, April 2012), considered that the precautionary measures in Annex 4 of *Resolution Conf. 9.24 (Rev CoP15)* regarding the transfer of Appendix-I listed species to Appendix II before their removal from the Appendices are not considered applicable in this case, and asked Mexico to prepare the proposal to remove the species from the Appendices at CoP16.

Analysis: Despite recent unconfirmed sightings, the Imperial Woodpecker *Campephilus imperialis* is almost certainly extinct.
Resolution Conf. 9.24 (Rev. CoP15) notes in Annex 4 (Precautionary measures) that no species listed in Appendix I shall be removed from the Appendices unless it has been first transferred to Appendix II, with monitoring of any impact of trade on the species for at least two intervals between meetings of the Conference of the Parties (paragraph A. 1). It is not clear that this is intended to apply to species that are definitely or almost definitely extinct. The Resolution also notes: "Species that are regarded as possibly extinct should not be deleted from Appendix I if they may be affected by trade in the event of their rediscovery; these species should be annotated in the Appendices as 'possibly extinct' (paragraph D)". In the highly unlikely event that the Imperial Woodpecker were to be rediscovered, it would be protected by Mexican legislation under the Ley General de Vida Silvestre, which would not permit trade in this species.

Supporting Statement (SS)	Additional information
Range	
Mexico.	
IUCN Global Category	
Extinct.	*Critically Endangered (Possibly Extinct). Assessed first as Critically Endangered in 1994.*

Biological and trade criteria for retention in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)

A) Trade regulation needed to prevent future inclusion in Appendix I

Believed to have once had a total population of around 8000 individuals.	*A bird was reported in November 2005 in the Barrancas-Divisadero region of Barranca del Cobre, Chihuahua, but subsequent searches have found neither Imperial Woodpecker, nor appropriate habitat or recent local knowledge of the species, within a 50 km radius of the locality (BirdLife International, 2012a). There are now no unsurveyed old-growth remnants that are large enough for a breeding territory. In March 2010, the location of the 1956 record in Durango was checked, but no evidence of the species was found, and interviews suggest that the species disappeared from the area in 1956-1960 (BirdLife International, 2012a). Even if a few individuals persist, extensive habitat modification and continued hunting pressure from rural people has made extinction virtually inevitable (Lammertink* et al., *1996; BirdLife International, 2012a).*
Because of its large size, this Imperial Woodpecker was hunted for fun, as a food source and for medicinal purposes. However, there is no indication that this parts of products entered international trade. Information from local residents suggested that extinction occurred by 1965 at the latest; the last documented observation of the species was in 1956. However, in 1995 there were reports of two sightings of single individuals, one in Durango and one in Sonora, in locations separated by over 730 miles, without sufficiently large areas of habitat to allow them to find food and nesting sites. A study of the area revealed that the forest had been cut down. Mature forests of pine and pine-oak, Imperial Woodpecker habitat, changed dramatically due to the creation of mills and the use of trees for pulp. In an intensive search of suitable habitat for the species by image analysis, aerial surveys and field visits, it was concluded that only 0.61% of the original forest habitat of the Sierra Madre Occidental ancient forests remained in patches greater than 1 km^2. Although pine-oak forests are represented in many protected areas in the former range of the species, their conservation status is variable and they usually do not provide the necessary conditions of large dead trees over 50 cm in diameter that the species used for nesting. It was considered that the recovery of the species would be virtually impossible even if there were any wild individuals. Since the species was listed in Appendix I in 1975 there has only been one record of trade of four museum specimens for scientific purposes re-exported from USA back to Mexico in 2006. There are about 160 stuffed specimens worldwide.	*Any remaining population is assumed to be tiny (numbering fewer than 50 individuals) based on the lack of confirmed records since 1956; analyses of remaining habitat indicate that no tracts remain which are large enough to support the species.*

Supporting Statement (SS)	Additional information

Retention in Appendix II to improve control of other listed species

A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I

The Imperial Woodpecker was the world's largest woodpecker, with a body mass of 700 g and a length average between 510 and 560 mm. It was completely black except for two white lines along the back at the base of their wings. Displaying sexual dimorphism where males had a red crest, while the female crest was black and curved upward. The male's ivory beak was long and wide, and with a slightly curved the culmen or upper ridge. The eyes displayed a yellow colouration, rather greyish in immature individuals.

Only two woodpeckers are listed in the CITES Appendices.

Dryocopus javensis richardsi, *listed in Appendix I, is a rare subspecies of the White-bellied Woodpecker, which may now only be present in People's Republic of Korea, where the population has been estimated at < c.100 breeding pairs (Brazil, 2009) having previously been found in Japan and Republic of Korea too (BirdLife International 2012b). These woodpeckers are similar both being large with males possessing red crests, however, they can be distinguished by their beak colour, that of the Imperial Woodpecker being distinctively ivory in colour.* D. javensis richardsi *also has a distancing white belly and rump (Thomas* in litt*., 2012).*

Other information

Threats

Logging affected 99% of the estimated range of the species in the western Sierra Madre.

The main pressures that led to the species's extinction were the fragmentation and loss of habitat, and hunting. However there is no indication that the latter was related to the international trade. Because of its large size, this woodpecker was hunted for fun, as a food source and medicinal purposes.

The specific habitat requirements the species had made it very susceptible to logging during the 1950s, which also led to greater access for hunting, accelerating the population decline.

Although over-hunting probably precipitated the initial decline, this was compounded by the widespread removal of dead pines for pulp and mature pines for timber. By 1996, only 22 km^2 of suitable breeding habitat remained and even the area from which the pair were reported in 1993 had been logged (Lammertink et al., *1996). The species's social nature made it particularly susceptible to both types of threat; it frequently occurred in groups of four to eight (sometimes up to 20) individuals and therefore required large tracts of forest and was easily exploited by hunters (Mendenhall, 2005). Interviews indicate that logging interests encouraged persecution of the species, including through the poisoning of foraging trees (Lammertink* et al., *2011; BirdLife International, 2012c).*

Conservation, management and legislation

The Imperial Woodpecker is included in the NOM-059-SEMARNAT-2010 (DOF 2010), in which it has been considered extinct since 2001. The pine-oak forests of the Sierra Madre Occidental are present in the states of Durango, Chihuahua, Jalisco and Michoacán. However, they are areas heavily affected by timber activities. Although many reserves in the country contain areas covered by this forest, logging has continued and there are few remnants of mature forests in Protected Areas that could provide habitat for the species.

Prepare to follow-up any further local reports. Continue searching areas of old-growth forest in the former range, especially in small patches now surrounded by managed forest. The forest above the abandoned farm of Bajio de Don Victor, in Taxicaringa, and a patch of remnant forest to the north-west of Babicora, in Chihuahua, have been identified as priority sites for future searches (BirdLife International, 2012b).

Were the species to be re-discovered it would be classified as "En peligro de extinction" (In danger of extinction) and under the Ley General de Vida Silvestre the

Supporting Statement (SS)	Additional information
	only authorised collection of specimens would be for restoration activities, restocking and reintroduction.
Captive Breeding/Artificial Propagation	
There are no records of the species in captivity anywhere in the world.	

Deletion of Laughing Owl *Sceloglaux albifacies* from Appendix II

Proponent: New Zealand

Summary: The Laughing Owl *Sceloglaux albifacies* was a tall owl (35-40 cm) with relatively long legs, endemic to New Zealand. It was the only species in the genus *Sceloglaux*. The last confirmed sighting of the species was 1889. Unconfirmed sightings persisted until the 1960s; however, over the past century exhaustive surveys have been undertaken throughout its historical range in known or suspected habitat, at appropriate times (night and day) throughout the year, all of which have failed to confirm the presence of the species. It is believed that the causes of its extinction were habitat loss through grazing or burning, predation by introduced mammals and hunting by humans. It is now accepted as Extinct by IUCN and BirdLife International.

The Laughing Owl was included in the CITES Appendices in 1979 as part of the listing of the whole Order Strigiformes, although it was almost certainly already extinct at that time. Since then there has been one record of trade in the CITES trade database, but these are now known to have been misreported White-faced Scops Owl *Ptilopsis leucotis*.

In the unlikely event of the species being rediscovered, it would be covered by New Zealand's Wildlife Act 1953 which would prevent the hunting, killing, taking, trapping, capturing, or trading of the species by any means.

Analysis: *Sceloglaux albifacies* is almost certainly extinct. The one record of trade in the CITES trade database is an error. It was distinctively different from the other three owl species found in New Zealand and it is unlikely that removal of the species would stimulate the trade of look-alike species under the name of this species. It therefore does not meet the criteria for inclusion in Appendix II. In the highly unlikely event of its re-discovery it would automatically become protected according to New Zealand's Wildlife Act 1953, preventing the hunting, killing, taking, trapping, capturing, or trading of the species by any means.

However, the Laughing Owl forms part of a generic listing of a higher taxon (the Order Strigiformes) in the Appendices. At the time the Order was listed, the species was almost certainly already extinct. Removing it would likely result in an annotation to the current listing for Strigiformes. It is not clear how this will simplify implementation of the Convention.

Supporting Statement (SS)	Additional information
Range	
New Zealand.	
IUCN Global Category	
Extinct.	*Classified as Extinct by IUCN in 1988.*

Supporting Statement (SS)	Additional information
Biological and trade criteria for retention in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)	
A) Trade regulation needed to prevent future inclusion in Appendix I	
In the last 98 years exhaustive surveys have been undertaken throughout its historical range in known or suspected habitat, at appropriate times (night and day) throughout the year. Unfortunately, these surveys have failed to confirm the presence of the species, and so the species can be defined according to Annex 5 of *Resolution Conf. 9.24 (Rev. CoP15)*, as being 'possibly extinct'. The last accepted sight records were of birds seen at Waikohu near Gisborne in 1889, and near Porirua before 1892, but there were a few unaccepted records through to the 1930s. The species declined rapidly after about 1880, and the last known bird was found freshly dead at Blue Cliffs, South Canterbury in July 1914, but unverified records were reported through to the 1960s. If the species is ever found to be alive, it would not be affected by international trade because it would automatically become absolutely protected according to New Zealand's Wildlife Act 1953. This would prevent the hunting, killing, taking, trapping, capturing, or trading of the species by any means.	*Sceloglaux albifacies was endemic to* ***New Zealand*** *with the nominate race on the South and Stewart Islands (with bones known from the Chatham Islands) and the subspecies rufifacies on the North Island. Birds were not uncommon until the first half of the 19th century, but were becoming rare by the 1840s. The last specimens of rufifacies were collected in 1889, with unconfirmed reports until the 1930s, and of albifacies, in 1914, with unconfirmed reports until the 1960s (Williams and Harrison, 1972; Tennyson and Martinson, 2006; BirdLife International, 2012).* *Ghana reported the import of 50 live wild specimens from Togo that originated in New Zealand in 2010. Ghana has stated that this was in fact trade in specimens of White-faced Scops Owl* Ptilopsis leucotis *(Ghana Management Authority,* in litt., *2012).*
Retention in Appendix II to improve control of other listed species	
B) Compelling other reasons to ensure that effective control of trade in currently listed species is achieved	
The Laughing Owl belongs to the endemic, monospecific, genus *Sceloglaux*, and so has no close relatives. It was a moderately large (600 g) owl with yellowish-brown plumage heavily streaked brown, a white or rufous facial disk around dark reddish-brown eyes, and with disproportionately long legs for an owl. It is distinctively different from the other three owl species found in New Zealand. It is very much larger and paler than both the native *Ninox novaeseelandiae* and the introduced *Athene noctua*. Darker, streaked plumage and long legs distinguishes it from the smaller self-introduced *Tyto alba.* New Zealand is of the opinion that the removal of Laughing Owl from the CITES Appendices will not stimulate the illegal trade of look-alike species under the name of this species. It is well recognised in conservation and ornithological literature that this distinctive species is extinct, and if ever it is miraculously rediscovered, then this endemic species would automatically become absolutely protected in New Zealand under the Wildlife Act 1953. This would prevent	Ninox novaeseelandiae*,* Tyto alba*,* Athene noctua *are all listed in CITES Appendix II.*

Supporting Statement (SS)	Additional information
the hunting, killing, taking, trapping, capturing, or trading of the species by any means.	

Other information

Threats

Primary threats to the species were habitat loss as open grassland was burned and converted to pastoral farmland. Laughing Owls were hunted by Maori, early European settlers, and by museum and curio collectors. Predation by introduced mammals, especially mustelids and possibly rats and cats, is considered the likely main cause of extinction.	*Causes of the species extinction are obscure, possibly habitat modification through grazing or burning, or predation by introduced mammals (Williams and Harrison, 1972).*

Conservation, management and legislation

Although listed in 1979 in CITES Appendix II as part of the Order Strigiformes, the species was almost certainly extinct before it was listed. It is included in Annex B of the European Union's CITES Regulations.	

Other comments

The species has been subject to the Periodic Review of the Animals Committee. At AC26 the Animals Committee recommended that *Sceloglaux albifacies* should be deleted from Appendix II (based on AC26 WG1 Doc 2) because it is extinct.	

Transfer of the American Crocodile *Crocodylus acutus* population in the Bahia Cispata of Colombia from Appendix I to Appendix II

Proponent: Colombia

Summary: The American Crocodile *Crocodylus acutus* is a widely distributed New World member of the family Crocodylidae, found in 17 range States in southern North America, Central America, the Caribbean and northern South America. It was assessed at species level by IUCN in 2012 as Vulnerable. In Colombia, it is found in a number of mangrove swamps and river deltas, including the Bay of Cispata, municipality of San Antero, Department of Cordoba. The proposal applies to this population only, delimited by the perimeter of the Integrated Management District (IMD).

Cispata Bay mangroves extend over a total area of 115 km^2, within which around 14 km^2 is considered to be suitable habitat for *Crocodylus acutus*. Since 2003 the species has been the subject of an active management programme involving the construction of artificial nesting areas and head-starting based on release of juveniles hatched from eggs taken from the wild. Nearly 3000 individuals were released in total between 2003 and 2011. Population trends are unclear. Surveys between 2003 and 2010 variously counted between 67 and 122 animals with no obvious trend. A survey in 2011 counted just over 200 individuals; nearly one third of these were in the smallest size category, in which few animals were recorded in previous surveys. The number of recorded nests increased from 15 to 67 in the period 2003-2005. Subsequently (i.e. during 2006-2012) it has fluctuated between 50 and 60 per year. There are some indications of increasing average clutch size (from around 25 eggs per nest in 2004-2006 to around 30 in 2010-2012), associated with an increasing average size of reproductive females in the population. Annual hatching rate has varied from 40% to 80%, averaging around 65%, although has declined in the last two years.

In 2006, Cispata Bay mangrove forests and surrounding areas were declared an Integrated Management District of natural resources (IMD). A management plan for the conservation of *Crocodylus acutus* in the Cispata Bay IMD has been drawn up, including activities such as monitoring, research, practical conservation and environmental education. Community participation is a major component of the Cispata Bay conservation programme, including ex-hunters of crocodiles, which have formed a conservation co-operative ASOCAIMAN. There are plans to use this as a pilot for developing national conservation of the species in the future. In 2012 Colombia introduced a new policy for the integrated management of biodiversity (PNGIBSE) which aims to ensure the conservation and equitable sharing of benefits derived from use of biodiversity. The supporting statement estimates potential skin production and export from the Cispata Bay population at 1500 to 4500 skins per year.

The Colombian population of *Crocodylus acutus* was originally included in CITES Appendix II in 1975 and transferred to Appendix I in 1981. Commercial hunting of *Crocodylus acutus* has been banned in Colombia since the late 1960s. The proposal seeks to transfer the population of the Bay of Cispata to Appendix II with a note stating the intentions of the project are predominantly conservation; if there is a surplus of animals in the immediate future they could be used for commercial issues, and indicating an intention to submit a ranching proposal to CoP17.

There is an international market for *Crocodylus acutus* skins. Colombia exports predominantly raw and salted products produced in six CITES-registered captive-breeding facilities. Principal destinations for these skins are France, Italy, Japan and Singapore, and between 2001 and 2011 importers reported importing around 3500 skins from Colombia, nearly 60% of these in 2011.

Analysis: The *Crocodylus acutus* population of Cispatá Bay, Colombia, remains very small, with a restricted range and occurrence at few locations. Population trends are unclear; after an initial increase in the number of nesting females, there has been no further increase in the past seven years despite considerable management efforts, including head-starting. It would appear that the population still meets the biological criteria for inclusion in Appendix I as set out in Annex 1 to *Resolution Conf. 9.24 (Rev. CoP15)*.

Adoption of the proposal would result in the split listing of Colombia's population of Crocodylus acutus; Annex 3 of *Resolution 9.24 (Rev. CoP15)* states that when a split-listing does occur, it should generally be on the basis of national or regional populations.

Para A 2 of Annex 4 of the Resolution sets out a series of precautionary measures regarding transfer of species from Appendix I to Appendix II. It is not apparent that these are met in this case. The species is in demand for trade, with export of skins of captive-bred *C. acutus* from Colombia recorded up to 2011. The proposal is not a ranching proposal, and no export quota or other special measure has been proposed. Management measures are set out in general terms in the supporting statement but enforcement controls, for example with regard to the tagging of skins for export, are not specified. It is thus not clear how skins from this source might be distinguished from those of other wild *C. acutus* in Colombia, which would remain in Appendix I. The basis for the suggested productivity of the population in supplying skins for export is not clear.

Supporting Statement (SS)	Additional information
Taxonomy	
Synonym: *Crocodylus americanus.*	
Range	
Bay of Cispata, municipality of San Antero, Department of Cordoba, Colombia. **Range of species**: Belize, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Peru, USA, Venezuela (Bolivarian Republic of).	
IUCN Global Category	
	Assessed as Vulnerable A2cd in 2012 (ver. 3.1).
Biological criteria for inclusion in Appendix I	
A) Small wild population **(i) Population or habitat decline; (ii) small sub-populations; (iii) concentrated geographically during one or more life-history phases; (iv) large population fluctuations; (v) high vulnerability**	
The population being proposed for transfer from Appendix I to II is from the Cispata Bay in the municipality of San Antero, department of Cordoba. In Cispata Bay	*Numbers and units provided in the text of the proposal and the various figures and tables vary, with total numbers of animals sighted in 2011, for example, quoted as*

Supporting Statement (SS)	Additional information
surveys have been carried out since 1999, and in 2004 a standard methodology was introduced – once a year, once around the route checking nests in three areas, covering 80% of the natural habitat.	*214, 221 and 231 in different sections.*
Average number of *Crocodylus acutus* sightings in Cispata Bay from 2002-2011 was approximately 107 animals per year. However, the average in 2002-2010 was only 93 animals, with there being a large increase in sightings in 2011, to ~220 animals sighted in a 14 km^2 area. This population increase has been attributed to the release programme that has been in place since 2003, with over 3000 eggs and juveniles having been re-introduced into the wild during this period (derived from eggs collected from within the area).	*No estimate of absolute population size in the bay is provided and an overall increase in population size appears to have been extrapolated from a near doubling of the number of animals counted in 2011 versus 2010. Between 2002 and 2010, counts fluctuated between 67 and 122 animals. Then in 2011, ~220 individuals were counted, 59 of which were of the smallest size class of which very few had been counted in previous surveys. It is highly likely that these represented recently hatched nests.*
From 2002 to 2010, on average one crocodile was sighted for every one km surveyed, increasing to two per km in 2011. Similarly individuals per km^2 of area between 2002 and 2010 ranged from five to 10 animals, but in 2011 this increased to nearly 15 animals per km^2.	*The increase in total population size has been attributed the release programme, however, the survey data do not show the large number of hatchlings/juveniles that have reportedly been released. There is no indication in the proposal as to what has happened to these thousands of animals, such as whether they are surviving the release but not being counted or have migrated elsewhere (due to the site having reached maximum carrying capacity), or whether they are being lost to anthropogenic or natural mortality.*
According to survey data, authors infer that the Cispata Bay population structure is unbalanced, with a low proportion of juveniles. From 2008, there is a slight increase in sightings of the smallest class individuals (3 to 5 individuals compared to zero in previous years), with a sudden increase to 59 in 2011. Nesting females are thought to make up only 5-10% of the population.	
Females lay 10-60 eggs after each copulation. Between 2004 and 2012 over 13 000 eggs were counted in 490 nests. Over this time there was a gradual increase (17%) in the number of eggs laid in each nest due to the increase in the age of females in the population over this time (older females are known to produce more eggs). On average 73% of eggs hatch.	*Using values in Table 5, between 2003 and 2011, on average only 65% of eggs hatched. Hatching success ranged from 78% in some years (2005 and 2009) to only ~40% in others (2003 and 2011).*
Since 2003 approximately 3500 “individuals” (including eggs, hatchlings and animals at various stages of development) have been released.	*Table 5 also records the numbers of crocodiles released over the period, and when compared to the number of hatchlings, the numbers that were actually released vary from 2 to 88% of hatchlings. Percentage releases were consistently low from 2007-2011 (17, 13, 2 and 21%), suggesting large quantities of eggs did not contribute to the restoration of the population in the wild. In 2011, no crocodiles were released, due to lack of husbandry facilities, but the eggs were replaced in their nests once having been measured and weighed.*
It is difficult to estimate efficiency of detection of nests, however, in Cispata Bay detection is thought to be more efficient due to knowledge and expertise of former hunters, with up to 80% of nests being found.	

Supporting Statement (SS)	Additional information
B) Restricted area of distribution **(i) Fragmented or localised population; (ii) large fluctuations in distribution or sub-populations; (iii) high vulnerability; (iv) decrease in distribution, population, area or quality of habitat, or recruitment**	
The perimeter of the Integrated Management District (protected area) delimits the area of distribution of the crocodiles in the bay (10 coordinates around the boundary are provided in the proposal), which are the focus of this proposal. Cispata Bay mangroves extend over a total area of around 115 km^2. Only 14 km^2 of this area was identified as suitable crocodile habitat (area of occupancy).	
C) Decline in number of wild individuals **(i) Ongoing or historic decline; (ii) inferred or projected decline due to decreasing area or quality of habitat, levels of exploitation, high vulnerability, or decreasing recruitment.**	
Based on monitoring data for the last ten years, the population appears stable or possibly increasing due to management and re-introduction of juvenile specimens hatched from eggs taken from the wild.	*According to tables in the proposal summarising total numbers of eggs counted/collected from nests, hatchling success and released individuals, a large quantity of eggs appear to be have been lost to the natural system due to low release percentages. It is unclear whether the lack of releases is related to low hatchling success or survival or alternative uses of these eggs/juveniles by the community.*
Trade criteria for inclusion in Appendix I	
The species is or may be affected by trade	
There is an international market for *Crocodylus acutus* skins, with predominantly raw and salted products being exported from Colombia. Bones, bile, gallbladders and teeth are also internationally traded for medicinal purposes.	*Since 1975, when* Crocodylus acutus *was included in CITES Appendix II, over 80 000 items/specimens composed of this species have been traded, according to the CITES Trade Database. The majority of trade in this species over that last 40 years has been composed of skins and various leather products. The principal range State exporters have been Paraguay, Panama, Colombia and Honduras and the main importers Italy, Germany and Switzerland.*
There are currently six *Crocodylus acutus* captive-breeding facilities registered with the CITES Secretariat, authorised to produce and export skins. In total they have exported 647 skins, with principal destinations being France, Italy, Japan and Singapore. According to the proposal, there are no wild populations that would be “able to support an illegal market”. There are records of low quantities eggs and meat traded illegally; however, subsistence hunting is legal in Colombia.	*According to CITES trade data extracted in November 2012, between 2001 and 2010, Colombia reported exporting 1624 skins for commercial purposes and under source code D (animals bred in CITES registered operations). Importers reported importing just under 1500 skins from Colombia in same period. In 2011 France reported import of just under 1400 skins from Colombia and Italy just under 700. Colombia has yet to submit its annual report for that year.* *In addition to the four principal destinations, small quantities were also exported to Austria, Belgium and Spain.*

Supporting Statement (SS)	Additional information
The Cispata Bay population is considered small and potential skin production and export would be a negligible proportion of the global crocodile skin trade. It would be important, however, to local communities and it is projected that once wild populations recover, they could harvest from 50 to150 nests per year, resulting in the production of 1500 to 4500 skins per year.	*Reported trade in other* Crocodylus acutus *products from Colombia includes two skulls exported to the US in 1996 for scientific purposes (this is the first reported export of this species from Colombia in the CITES database), 20 units of large leather products imported into Belgium in 2007 and 2009 and nine small leather products exported to Bahrain, the latter reportedly derived from ranching.* *In addition, for this period the CITES trade database contains 182 records of re-exports of* Crocodylus acutus *with Colombia reported as the origin of the specimens. The majority of these are of skins and leather products and occurred between 1977 and 1984, after which there was a break until 2001. From 2001 onwards, according to re-exporter records 74 skins, 485 small leather products and 45 garments were re-exported, and according to importers 11 skins, 53 small leather products and seven garments. The majority were for commercial purposes (source code D) and were re-exported from the four principal destinations for skins exported from Colombia – namely Japan, Singapore, Italy and France.* *Tables 4 and 5 provide numbers of nests surveyed between 2003 and 2012, and the maximum was 67 during this period. The number of eggs derived from these nests averaged ~1400 per year, however, only 65% of these hatched (and in recent years significantly less). Therefore, it is unclear how proponents have reached the estimate for potential skin production, which suggests that every egg would result in a skin for sale and that all nests and eggs would be exploited every year.*
Precautionary Measures	
The proponent states that the State of Colombia will help communities and ensure provisions are implemented correctly, and that the responsibility is totally with the Colombian State. At the international and national level, Colombia implements CITES and all the specific requirements for management and trade in crocodile species. It counts on the support of INTERPOL when dealing with cases of illegal trade. Rights, duties and obligations of the local community are outlined in the Cispata Bay Management Plan, ensuring local control measures are also in place. The national police and various local, regional and national authorities provide control and monitoring support in the area.	*Importers records suggest larger quantities of skins have been exported from Colombia than reported by Colombia. Therefore, verification of these records would be recommended to ensure illegal trade is not currently occurring.* *Colombia restricts the commercial use of* Caiman crocodilus *to production by captive-breeding and rearing. Due to concerns over illegal harvesting from the wild, Colombia uses skin size limits as a regulatory measure to exclude illegal wild-caught adults of* Caiman crocodilus *entering "legal" trade. Trimming and cutting of skins has made compliance with the limits problematic to enforce, however, and Webb* et al. *(2012) researched predicting total lengths of caiman from skin measurements in an attempt to provide a tool for authorities to establish meaningful skin limits and a better mechanism for CITES Parties to assist Colombia with compliance. With* Crocodylus acutus *being a more threatened and valuable species than* Caiman crocodilus, *details on measures to ensure compliance with Government regulations for this species*

Supporting Statement (SS)	Additional information
	would be an essential component to any down-listing proposal (C. Manolis, in litt*., 2012).*
The current proposal for transfer to Appendix II is accompanied by an annotation stating: "although the project is for conservation…if there is a surplus of animals in the immediate future it could be used for commercial issues, with international projections. Later, when the amendment of the Appendices is achieved, a ranching of eggs and community farm breeding will be consolidated". The proponents indicate the possibility of putting forward a ranching proposal for this population at CoP17.	*The proposal does not state what would be considered an appropriate "surplus" in order to initiate commercial trade, nor is there a mention of a quota or another "special measure" as an integral part of the proposal, as per the precautionary measures outlined in* Res. Conf. 9.24 (Rev.CoP15) *Annex 4 A 2c.*

Other information

Threats

Indirect threats to the species include rising sea levels and increasing temperatures, which could cause flooding of nests and lead to higher proportions of males being born, respectively. Hunting and collection of eggs are also still possible threats. Commercial hunting of *Crocodylus acutus* has been banned since 1965, however, subsistence use is still permitted. Meat and eggs are consumed, abdominal fat is considered a medicinal and teeth and bones are used for traditional rituals.	Crocodylus acutus *was hunted and overexploited for its skin across its range until it was protected in the 1970s, however, illegal hunting is still believed to occur. It is also threatened by habitat degradation from coastal development, including destruction of nesting grounds and the destruction of mangrove swamps for shrimp aquaculture. When young, individuals of this species may also be predated by birds, raccoons, coati, dogs, and by adult crocodiles (Ponce-Campos* et al., *2012).*

Conservation, management and legislation

Commercial hunting of *Crocodylus acutus* has been banned in Colombia since the late 1960s. Articles 250-252 of Decree Law 2811 of 1974 establish rules on the use of wildlife (hunting), and this law in turn is governed by the national code of natural resources outlined in Articles 142-155 of Decree 1608 of 1978. Law 99 of 1993 has resulted in the update of a number of the provisions of these laws. In 2012 Colombia introduced a new policy for the integrated management of biodiversity (PNGIBSE) which aims to ensure the conservation and equitable sharing of benefits derived from use of biodiversity. In 2006, Cispata Bay mangrove forests and surrounding areas were declared a protected area in the category IMD (Integrated Management District of natural resources), regulated by Colombian law. A management plan for the conservation of *Crocodylus acutus* in the Cispata Bay IMD was drawn up, including activities such as monitoring, research, practical conservation and environmental education. There are plans to use this as a pilot for developing national conservation of the species in the future. Consequently, once the status of additional sub-populations and/or the entire national population has improved, and there are at least five years worth of monitoring data supporting this, they may be proposed for down-listing to	*The Colombian population of* Crocodylus acutus *have been listed in Appendix II of CITES since 1975 and in Appendix I since 1981.* *The autonomous region of the Magdalene Valley and Sinu banned commercial hunting of the species in 1965 (Resolution 125) and in 1968 a national ban was implemented by Resolution 411 of the Ministry of Agriculture (Barrera, 2004).* *The species was recorded in the Tayrona National Natural Park for the first time in 2006, and since then ten individuals have been spotted in the area (Balaguera-Reina, 2012).*

Supporting Statement (SS)	Additional information
CITES Appendix II in the future. Community participation is a major component of the Cispata Bay conservation programme, including ex-hunters of crocodiles, which have formed a conservation co-operative ASOCAIMAN. Management has included the creation of artificial nesting mounds of 60-80cm. Eggs have been collected from 505 nests in the last 10 years and 65% were collected from artificial platforms. 30-40% of platforms were used every year by nesting females. From 2003, eggs have been collected and juvenile crocodiles re-released into areas of the bay where population imbalances were most apparent from survey work. All released individuals are marked by removing their caudal peduncle scales and in some cases also with a microchip. Since 2003 approximately 3500 "individuals" (including eggs, hatchlings and animals at various stages of development) have been released. In 2011 and 2012 eggs were weighed and measured and returned to their nests, due to lack of husbandry facilities. Monitoring of populations has been running since 2002 and from 2004 both the perimeter and total area of the survey area has been consistent – 112 km and 14.4 km^2, respectively.	*According to Table 6 provided in the proposal, it appears that animals of different ages have been raised and released into the wild. For example of the 151 eggs collected in 2003, 36 hatchlings were released into the wild in 2004, and then 60, 5, 6, 15 and 24 animals of increasingly larger sizes were released between 2006 and 2010. Of the ~8000 reportedly successful hatchlings between 2003 and 2012, only ~3000 appear to have been released back into the wild – the proposal does not provide any indication on what happened to the remaining hatchlings.* *Bergen (2010) reported that eggs are incubated, hatched and raised in captivity until the animals reach one to one-and-a-half years of age, at which point they are released into the wild and that so far the programme had released over 1700 crocodiles into the wild.*
Similar species	
The only closely related species found in Colombia is the Critically Endangered *Crocodylus intermedius.* This species is only found in the Orinoco region.	
Artificial Propagation/Captive breeding	
Close-cycle captive-breeding of *Crocodylus acutus* occurs in Columbia. In 1994 there were 43 experimental captive-breeding programmes in place; however, only 8 are still operating. There are currently six farms registered with the CITES Secretariat authorised to produce and export skins. In total they have reportedly exported 647 skins.	*According to CITES data extracted in October 2012, Colombia reported exporting 1624 skins for commercial purposes and under source code D (animals bred in CITES registered operations) and importers records suggest even more skins were exported – 3501.*
Other comments	
The species was recorded in large quantities, along the Valley of the Magdalena, at the Sinú, San Jorge and Cauca rivers, and some of its tributaries and wetlands complex of the Caribbean coast, especially in mangroves at the deltas of large rivers. Its distribution is discontinuous in the Pacific coast but it also commits to the	*The proponents note that the species has been recorded in large quantities within Colombia; however, the information provided in the proposal does not support this statement. This may, however, relate to the recent discovery of a large population by Ulloa-Delgado (2011), see below.*

Supporting Statement (SS)	Additional information
mangrove swamps and rivers deltas. In the census conducted between 1994 and 1997, there were 5 small populations as the most important and 70 Sites were also identified with isolated individuals or small and fractional groups.	*A review of the status and distribution of* Crocodylus acutus *throughout its range was carried out in 2006 by Thorbjarnarson* et al*. and although they found that the species was recovering in most parts of its historic range, recovery in Colombia appeared to be limited.* *The Colombian population is considered critically endangered. It is estimated to be composed of less than 250 adults, severely fragmented sub-populations and these sub-populations do not contain more than 50 adults (Rodriguez, 2000).* *Barrera (2004) carried out a survey of a* Crocodylus acutus *population in the Magdalene River Valley, and found 1.07 animals per km surveyed (14 animals in 13 km). From this and interviews with local communities, it was estimated that a total of 38 animals inhabited the area. They were predominantly juveniles and sub-adults. The author noted their concern over this low population density.* *Population structure, density and habitat of* Crocodylus acutus *were studied by Balaguera-Reina and Gonzalez-Maya (2008) in 2006 in the Via Parque Isla de Salamanca (VIPIS), Magdalena Department, Colombia. A total of 14 individuals were sighted in one creek and one lagoon complex out of the 14 marshes, 10 creeks, and one lagoon complex surveyed that comprise 8% of total of flooded and aquatic habitats in the VIPIS. An estimated density of 7.78 ind/km was calculated for creeks and 2.56 ind/ha for lagoons. The population structure was eight individuals (61.54%) of Class I (total length <60 cm), one individual (7.69%) of Class II (TL 61-120 cm), four (23.08%) of Class III (TL 121-180 cm), none of Class IV, and one (7.69%) of Class V (TL >241 cm).* *In 2010 and 2011, Colombian scientists identified what is believed to be the most important population of* Crocodylus acutus *in Colombia in the Sardinata River basin. 196 crocodiles were found during a 132 km survey of the Sardinata, San Miguel, New President and Tibú Rivers (total density of 1.48 animals/km), and it was estimated that there are several thousand crocodiles in the basin (Ulloa-Delgado, 2011).* *This species is hybridizing with* Crocodylus moreletii *in Belize and the Yucatan of Mexico and with* Crocodylus rhombifer *in Cuba, a factor that has not yet been factored in to conservation efforts (Ponce-Campos* et al., *2012).* *It is unclear whether any other* Crocodylus acutus *range States were consulted concerning this proposal.*

Reviewers: C. Manolis.

Transfer of the Thai population of Salt-water Crocodile *Crocodylus porosus* from Appendix I to Appendix II (with a zero quota for wild specimens)

Proponent: Thailand

Summary: The Salt-water Crocodile *Crocodylus porosus* is a very large species formerly widespread in South and Southeast Asia and Australasia. It is extinct or nearly so in some range States, strongly depleted in most, but retains good populations in the island of New Guinea and Australia. It is not considered threatened at the global level.

The Thai population of Salt-water Crocodiles used to be found in estuarine and coastal areas adjoining the Andaman Sea and the Gulf of Thailand. Once feared extinct in Thailand, sightings and reports in recent years have shown that the species persists in low numbers at scattered locations, almost all within protected areas. It has been suggested that the population may number 200 or more, but it is not known what the basis for this estimate is. Depletion in Thailand and elsewhere was caused mainly by excess hunting for skins, and also by habitat loss or modification. The species is also persecuted as a danger to people and individuals were in the past taken from the wild to stock farms.

The entire species was listed in CITES Appendix I in 1985 except for the populations of Australia, Indonesia and Papua New Guinea, which were included in Appendix II at that time. Thailand's captive population of *Crocodylus porosus* could number in the thousands. Registered captive-breeding crocodile farms are permitted to export specimens of species listed in Appendix I as if they were of species included in Appendix II. As of late 2012 there were 14 farms in Thailand registered with CITES as breeding *C. porosus*. Thailand reported an average of 1850 skins exported per year from captive sources between 2006 and 2010.

The proponent proposes the transfer of the Thai population of *Crocodylus porosus* from Appendix I to Appendix II (with a zero quota for wild specimens), on the basis of Article II, Paragraph 2 (A), and in accordance with the preventative measures of the appropriate management controls included in Annex 4 (2B) of the *Resolution Conf. 9.24 (Rev. CoP 15).*

Analysis: Available evidence confirms that the species is not extinct in Thailand but persists at a handful of sites. Although most or all of these sites are within protected areas, the population evidently remains extremely small and fragmented and would appear still to meet the biological criteria for inclusion in Appendix I. There are clearly high levels of international demand for skins from this species, currently met by long established captive-breeding facilities, of which there are currently 14 registered in Thailand as breeding *C. porosus*. Specimens originating in these facilities are already treated as if they were specimens of species included in Appendix II.

Supporting Statement (SS)	Additional information
	Range
Proposal only concerns population of Thailand.	*Recent global range: Australia, Bangladesh, Brunei, Cambodia, India, Indonesia, Malaysia, Myanmar, Palau, Papua New Guinea, Philippines, Singapore, Sri Lanka, Solomon Islands, Thailand, Vanuatu, Vietnam (Webb* et al*., 2010).* *Historically present in Seychelles, possibly China (Webb* et al*., 2010).*
	IUCN Global Category
Lower Risk/ least concern.	*Assessment needs updating; originally published 1996 using version 2.3 of Categories and Criteria (CSG, 2012).*

Biological criteria for inclusion in Appendix I

A) Small wild population
(i) Population or habitat decline; (ii) small sub-populations; (iii) concentrated geographically during one or more life-history phases; (iv) large population fluctuations; (v) high vulnerability

	The species is considered to be extinct in most parts of Thailand (Webb et al., *2010).There is no evidence to indicate that the current population is viable in the long-term, and for all intents and purposes the species is considered virtually extinct in Thailand (Jelden* et al., in litt., *2012).*
In Thailand individuals are occasionally reported in coastal wetlands. There is no count of total population size, but it is estimated to number around 200 individuals, and possibly higher (SS). *C. porosus* populations are now fragmented or locally extirpated in most of the former range in lowland Southeast Asia. The total wild population in Thailand could be around 200 but given the inaccessible nature of much *C. porosus* habitat, it may be greater than this (SS). According to the SS, current breeding populations are small and their long-term viability is not secure but the residual wild population is thought to provide a basis for recovery. At some locations re-introduction or augmentation may be needed to increase viability.	*Jelden* et al. *(*in litt., *2012) note that there have been no systematic surveys of the species since 1994 and there is no supporting information on how the estimate of 200 was derived. A country-wide monitoring programme is being developed but has yet to be completed or implemented.*

Supporting Statement (SS)	Additional information
B) Restricted area of distribution **(i) Fragmented or localised population; (ii) large fluctuations in distribution or sub-populations; (iii) high vulnerability; (iv) decrease in distribution, population, area or quality of habitat, or recruitment**	
It is likely that several small wild populations persist in Thailand (SS). Surveys since the early 1990s have confirmed a fragmented and scattered remnant population mostly within protected habitats. Around the 1990s a few *C. porosus* were recorded in Tarutao NP and Sirindhorn WS; small numbers probably occur at Ao Bandon, and two females were found at Samaesarn Island in 2012. Occasional reports of crocodiles by local fisherman in the Ranong River, adjacent to the Myanmar border, and a report of a newly hatched clutch in 2007 suggest a few individuals may still exist in this area.	*Crocodile surveys undertaken in Thailand in the early 1990s (Ratanakorn* et al., *1994) revealed sightings of one or two* C. porosus *on Phuket Island, but the majority of suitable habitat in this area has been destroyed or occupied by people, and no viable population exists there.*
C) Decline in number of wild individuals **(i) Ongoing or historic decline; (ii) inferred or projected decline due to decreasing area or quality of habitat, levels of exploitation, high vulnerability, or decreasing recruitment.**	
The species was virtually extirpated from Thailand by over-hunting for skin, particularly in the 1960s. There are no historical data to allow quantitative assessment of population trends. Anecdotal evidence suggests some possible recovery. Crocodiles have been seen more regularly by fishermen since the government of Thailand established 32 marine national parks.	
Trade criteria for inclusion in Appendix I **The species is or may be affected by trade**	
According to the CITES Trade database 2007 - 2011, the major exporter were Papua New Guinea (57 991 skins) and Australia (66 930 skins). The major importing countries were France, Japan and Singapore.	*Thailand reported exports of around 1385 skins annually from captive breeding operations over the decade 2002-2011; reported export volume was low during the first half of the decade and generally rising in the second half, to a maximum of 3151 in 2007 (UNEP-WCMC CITES Trade Database). The reported trade in skins is far lower than the potential annual farm production of 20 000 given in the SS (p8), which also indicates a stock of 20 000 (p5) or around 60 000 (p6)* C. porosus. *Possibly a large proportion of output is used domestically.* *Historical decline of the species has been attributed largely to hunting for the skin trade, mainly in the latter half of the 20th century. Sustainable use projects based on captive breeding and some wild collection, the most sophisticated of which are in Australia and New Guinea, have economic benefits and have contributed to increased security of crocodile populations.*

Supporting Statement (SS)	Additional information
Precautionary Measures	
According to the SS, all extant wild *C. porosus* in Thailand occur in national parks which, being protected areas, will ensure they are not exploited.	
Other information	
Threats	
The main threat to the species is habitat degradation, especially if it involves a reduction in prey availability and possible pollution of water bodies.	*Habitat degradation is a key threatening process and the persistence of* C. porosus *in the wild in Thailand will ultimately rely on protected areas (Jelden* et al., in litt., *2012).*
Conservation, management and legislation	
C. porosus became protected under Thai law in 1975. However, illegal hunting was widespread. Following the adoption of *Resolution Conf. 5.21* by the Conference of Parties to CITES in 1975, Thailand was permitted to trade internationally in *C. porosus* skins derived only from captive-breeding. Under the Wild Animal Reservation and Protection Act 1992, *C. porosus* and its habitat are protected from any activities (other than scientific use). Thus there is currently no legal trade in wild Salt-water crocodile, but an exemption in the Act allows *C. porosus* to be captive-bred in captivity and traded in domestic and international markets. CITES listings: Appendix II: Australia and Papua New Guinea Appendix II: Indonesia (Ranching *Resolution Conf. 3.15*, with special conditions applying to Papua Province pursuant to *Resolution Conf. 8.22*) Appendix I: All other countries including Thailand	
Efforts are being made by Crocodile Management Association of Thailand, CMAT, to design and implement a country-wide monitoring program for the populations and habitat of *C. porosus.* The Thai crocodile farmers have set up the association in 1990. Its main objective is to provide purebred *C. porosus* for re-introduction and channel funding from commercial to run conservation programs.	*Jelden* et al*. (*in litt., *2012) note that a country-wide monitoring program is being developed, but has yet to be completed or implemented. The proposed reintroduction of* C. porosus *into wild habitats does not appear to have been implemented yet. That large numbers of captive* C. porosus *are available for restocking is certainly advantageous, as is the ability to distinguish hybrids (with* C. siamensis*).*

Supporting Statement (SS)	Additional information
	Artificial Propagation/Captive breeding
Some 60 000 *C. porosus* are currently housed on crocodile farms. Currently, all commercial use of *C. porosus* in Thailand is based on captive-breeding. There are 61 837 *C. porosus* from 836 operations including 13 Thai *C. porosus* farms registered under *Resolution Conf. 12.10 (Rev. CoP15).* Total annual production of the registered farms is around 20 000. A number of crocodile farms that met qualification criteria are preparing to register. *Crocodylus porosus* is traded in national and international markets.	*Thai farms contain mainly* C. siamensis*, and hybridization between* C. siamensis *and* C. porosus *is well established. (Webb* et al., *2010).* *Farming of* C. porosus*, based on captive breeding is undertaken in Bangladesh, China, Thailand, Singapore, Malaysia, Myanmar, Philippines, Indonesia, Papua New Guinea and Australia. Stocks produced through captive breeding are added to significantly through ranching programs (eggs, hatchlings and/or juveniles) in Indonesia, Papua New Guinea and Australia (Webb* et al., *2010).* *As of late 2012 there were 14 captive-breeding operations for this species in Thailand registered under* Resolution Conf. 12.10 (Rev. CoP15).
	Other comments
	Further development of the existing re-introduction scheme, combined with rigorous habitat and species protection, may generate recovery of the highly threatened wild population that is a prerequisite for transfer from Appendix I to II. *Seriously depleted in most range countries. Extinct in Singapore and nearly so in Cambodia, Thailand, Vanuatu, and Vietnam (where now only represented by a small re-introduced population) (Webb* et al., *2010). Current global status assessment is based on the existence of widespread healthy populations in Australia and Papua New Guinea and to a lesser extent Indonesia (Papua). Total wild population estimated in excess of 400 000 non-hatchlings. (Webb* et al., *2010).*

Reviewers: D. Jelden, C. Manolis, W. Schaedla, B. Simpson, G. Webb.

Transfer of the Thai population of Siamese Crocodile *Crocodylus siamensis* from Appendix I to Appendix II (with a zero quota for wild specimens)

Proponent: Thailand

Summary: The Siamese Crocodile *Crocodylus siamensis* is among the most threatened crocodilians with a global wild population almost certainly comprising fewer than 1000 mature individuals. It was formerly widely distributed in Southeast Asia and apparently common in some areas until the mid 20th century when brought to the verge of global extinction mainly by hunting for skins. Recent surveys have shown that the species persists in parts of the former world range, with remnant populations in Cambodia, Indonesia (Kalimantan), Lao PDR and Thailand. There is a reintroduced population in Viet Nam. It is currently classified by IUCN as Critically Endangered.

The species was formerly widely distributed in suitable habitat in Thailand. The current population is estimated at up to 200 individuals in a small number of scattered localities in central and western Thailand, most notably in Bueng Boraphet Non-hunting area, which may hold around half the total. Fewer than five wild nests have been located in Thailand during the five years up to 2012.

Very large numbers (~ 600 000) are held in captive breeding farms in Thailand. Twenty-four registered captive-breeding operations are permitted to export specimens as if they were specimens of species included in Appendix II. Thailand reported an average of almost 33 000 skins exported per year from captive sources between 2006 and 2010. Very large numbers of live animals are also exported from Thailand and there is concern that this trade is more difficult to regulate than the skin trade. Some individuals have been released in the wild in Thailand although with no evidence as yet of expanding populations.

The proposal to transfer the Thai population of *Crocodylus siamensis* from Appendix I to Appendix II with a zero quota for wild specimens is on the basis of Article II, paragraph 2 (a), and in accordance with the preventative measures of the appropriate management controls included in Annex 4 (2b) of the *Resolution Conf. 9.24 (Rev. CoP15*).

Analysis: The Thai population of the Siamese Crocodile remains extremely small and fragmented. The viability of existing groups is poorly known and recorded breeding success is extremely low. The species would therefore appear still to meet the biological criteria for inclusion in Appendix I. Skins from this species are in demand for international trade, currently met by skins from long established captive-breeding facilities, of which there are at present 24 registered in Thailand as breeding *C. siamensis*. Specimens originating in these facilities are already treated as if they were specimens of species included in Appendix II.

Supporting Statement (SS)	Additional information
Range	
Proposal only concerns population of Thailand.	*Global range: Cambodia, Indonesia (Kalimantan), Laos, Thailand, Viet Nam, (Malaysia, Myanmar (unconfirmed)).*
IUCN Global Category	
Critically Endangered A1ac .	*Critically Endangered A2cd (Bezuijen* et al., *2012).*

Biological criteria for inclusion in Appendix I

A) Small wild population
(i) Population or habitat decline; (ii) small sub-populations; (iii) concentrated geographically during one or more life-history phases; (iv) large population fluctuations; (v) high vulnerability

Surveys in Thailand since the early 1990s have confirmed a highly fragmented remnant population largely within marginal habitats. The viable population persisting in Bueng Boraphet Non-hunting Area may comprise fewer than 100 individuals. The overall wild population in Thailand may be under 200. Extant populations are in a small number of scattered localities in central and western Thailand. Confirmed sites include Pang Sida and Kaengkrachan National Parks.	*Simpson and Bezuijen (2010) confirm that most populations have been extirpated from Thailand, although historically common and widely distributed (Smith, 1919; Platt* et al., *2002). One to several individuals persist in a small number of scattered localities, and nests are sometimes documented; fewer than five wild nests and few hatchlings have been recorded in Thailand over the past five years, suggesting low clutch fertility (Bezuijen* et al., *2012).* *The smallest of the five known sub-populations is estimated to consist of one individual, and the largest is estimated to comprise less than 100 individuals (Jelden* et al., in litt., *2012) . Nesting has been reported in the wild.*

B) Restricted area of distribution
(i) Fragmented or localised population; (ii) large fluctuations in distribution or sub-populations; (iii) high vulnerability; (iv) decrease in distribution, population, area or quality of habitat, or recruitment

Formerly widespread in low altitude freshwater wetlands of central and eastern Thailand. Extant populations in Thailand are in a small number of scattered localities in central and western areas. Confirmed sites include Bueng Boraphet, Pang Sida and Kaengkrachan National Parks, Phu Khieo and Khao Ang Rue Nai Wildlife Sanctuaries.	*Formerly widely distributed (Smith 1919; Platt* et al., *2002). Surveys since the early 1990s have confirmed a highly fragmented and scattered population persisting in marginal habitats (Kreetiyutanont, 1993; Ratanakorn and Leelapatra, 1994; Ratanakorn* et al., *1994; Platt* et al., *2002; Temsiripong, 2003). One hatchling was discovered at Pang Sida National Park in 2002 (Temsiripong, 2003).*

Supporting Statement (SS)	Additional information
C) Decline in number of wild individuals **(i) Ongoing or historic decline; (ii) inferred or projected decline due to decreasing area or quality of habitat, levels of exploitation, high vulnerability, or decreasing recruitment.**	
Historically "commonly sighted" and fairly common in at least four river systems in Thailand. Hunting for the skin trade, primarily in the latter half of the 20th century, reduced the Thailand population to a few vulnerable remnant populations.	*Historically,* C. siamensis *was widely distributed in some parts of Thailand (Platt* et al., *2002), but most populations have been extirpated. The extremely threatened national status of the species appears unchanged since the 1992 CSG review.* *Current trends are not known (Jelden* et al., in litt., *2012).*
Trade criteria for inclusion in Appendix I **The species is or may be affected by trade**	
Commercial hunting in the mid-twentieth century for the skin trade is considered to be the principal cause for the historical decline of *C. siamensis* in Thailand. Currently, all commercial use of *C. siamensis* in Thailand derives from captive breeding operations.	*Thailand is a major centre in the world crocodile trade with a reported average annual export volume of around 21 000 captive-bred Appendix I* Crocodylus siamensis *skins during the period 2000-2011 (CITES trade statistics derived from the CITES Trade Database, UNEP World Conservation Monitoring Centre, Cambridge, UK). Thailand was by far the major exporter of* C. siamensis *skins in this period, followed by Viet Nam.* *The CITES trade database also indicates substantial trade in live* C. siamensis *reported as exported from Thailand to China, averaging around 27 000 annually for 2000-2009. In the absence of the standard marking protocols used in the skin trade, there are problems involved in attempting to ensure this trade (which may include hatchlings, food animals and breeding stock) is legal, accountable and verifiable (CSG, 2011).*
Precautionary Measures	
According to the SS, the precautionary measures required under *Resolution Conf. 9.24 (Rev. CoP15)*, Annex 4 (2b) would be satisfied by the commitment of the Thai government and CMAT to re-establish a viable wild population, in which case the species could be transferred to Appendix II in compliance with Article II paragraph 2 (a). The SS states that even though the species is likely to be in demand for international trade, its management in Thailand, with enforcement controls in place, is such that implementation of the Convention is secured. The proposal includes a zero quota to ensure that wild populations of the Siamese Crocodile do not become endangered by international trade.	

Supporting Statement (SS)	Additional information
Other information	
Threats	
Current and ongoing threats in virtually all range states include the illegal collection of eggs and crocodiles, habitat loss and degradation (often following hydroelectric dam construction), and incidental capture/drowning in fishing gear. The small size of known groups contributes to their vulnerability.	*Collection of crocodiles to stock farms was a factor leading to near extirpation in Thailand following the major hunting period 1945-1960 (CSG, 2011).* *Hybridisation with* Crocodylus porosus *and* C. rhombifer *has occurred in captivity. DNA markers now enable hybrids to be identified.*
Conservation, management and legislation	
Known crocodile groups in Thailand occur in protected areas (three National Parks, two Wildlife Sanctuaries). The species and its habitat are protected under the 1992 Thai Wild Animal Reservation and Protection Act. An exemption allows trade in captive-bred *C. siamensis* but trade in wild specimens remains prohibited. The Crocodile Management Association of Thailand (CMAT) was developed to be a linkage between trade and conservation.	
A re-introduction project has been initiated by the Royal Thai Forest Service and the Crocodile Management Association of Thailand with 20 crocodiles being released in a pilot project in Pang Sida National Park in 2005 and 2006. Monitoring by ranger patrols and camera trapping has detected few of the released animals. Further releases and sites are being considered.	*A reintroduction program has been underway in Pang Sida National Park, but results to date have not been encouraging. Recent widespread flooding in Thailand has stalled implementation of the reintroduction program in some areas. Nonetheless there are opportunities for re-establishment of the species in other protected areas. That large numbers of captive* C. siamensis *are available for restocking is certainly advantageous, as is the ability to distinguish hybrids (with* C. porosus*) (Jelden* et al., in litt., *2012).* *To achieve success, re-introduction programmes must first address the complex and extreme threats facing* C. siamensis *in the wild, but in principle the current re-introduction programme should be continued and strengthened, and outcomes monitored (Simpson and Bezuijen, 2010).* *Some regular population surveys are undertaken, and efforts are being made to develop a country-wide monitoring program, but it does not appear to have been completed or implemented at this time.*

Supporting Statement (SS)	Additional information
Artificial Propagation/Captive breeding	
Captive-breeding has been established in Thailand since 1937. Currently, all commercial use of *C. siamensis* in Thailand derives from captive-breeding. There are 601 548 *C. siamensis* in 836 establishments including 23 Thai crocodile farms registered under CITES *Resolution Conf. 12.10 (Rev. CoP15)*. A number of crocodile farms that met qualification criteria are preparing to register.	*As of late 2012 there were 24 captive-breeding operations for this species in Thailand registered under* Resolution Conf. 12.10 (Rev. CoP15)*.*
Other comments	
	Thought in the 1990s to be virtually extinct in the wild throughout its world range but more recent surveys have confirmed presence at a few scattered localities (Simpson and Bezuijen, 2010). The global wild population of C. siamensis *may comprise fewer than 1,000 adults. Between 100 and 300 wild adults may remain in Cambodia, based on footprints and other evidence, and a similar number in Laos.*

Reviewers: D. Jelden, C. Manolis, W. Schaedla, B. Simpson, G. Webb.

Inclusion of all species of New Zealand geckos in the genus *Naultinus* in Appendix II

Proponent: New Zealand

Summary: *Naultinus* is a genus of lizards in the family Diplodactylidae endemic to New Zealand comprising eight described species, and an additional species, *Naultinus* "North Cape", which is yet to be formally described. *Naultinus* spp. are characterized by ovoviviparity (live birth of young), low reproductive output (1-2 offspring per adult female per year), delayed maturity (2-4 years) and likely extreme longevity. Once widespread, their ranges are now highly fragmented due to habitat loss and modification. *Naultinus* populations continue to be affected by clearance of secondary shrublands for grazing and plantation forestry, predation from introduced mammals, illegal collection (at least in part to supply the international pet trade) and competition from introduced species for favoured food sources. Population sizes are extremely difficult to estimate, due in part to the geckos' arboreal and cryptic behavior, extremely good camouflage and weather-dependent activity, although it has been suggested that most species probably have a global population somewhere between 5000 and 30 000. Difficulties in assessing population sizes and trends may mean species are less threatened than they appear. Conversely, declines may not be noticed until they are very advanced. Studies have found local population densities of up to 40 and, exceptionally, 500 individuals per hectare; however, it is thought that most populations are at much lower densities. As of 2012, all *Naultinus* species except *N. rudis and N. tuberculatus* were considered "At Risk" under the New Zealand Threat Classification System, with populations assessed as declining at a rate of at least 10% over three generations. *N. rudis* and *N. tuberculatus* were considered Nationally Vulnerable based on an estimate of 15 or fewer populations each with 500 or fewer individuals and an expected continued decline of 10-50% over the next three generations.

The species that features most frequently in international trade is *N. gemmeus*. This has a wide extent of occurrence (over 50 000 km²) but its distribution within this area is severely fragmented, with two main known populations, on the Otago and Banks Peninsulas, the former estimated at around 1400 individuals. An overall population estimate of 12 000-20 000 has been suggested; however, its status in tall forest canopies towards the western edge of its range is largely unknown. One *N. gemmeus* population on the Otago Peninsula has been well-studied; a severe decline with a 95% reduction in 14 years from 1994 to 2008 is estimated, attributed to mammalian predation, habitat loss and poaching. The species was assessed as Near Threatened by IUCN in 2010.

Both the Otago and Banks Peninsulas have apparently been targeted by poachers in recent years. It is estimated that 100-200 specimens of *N. gemmeus* were harvested from the Otago Peninsula in one year, corresponding to a 7-14% of the estimated population there. Between 2009 and 2012 New Zealand border control agencies intercepted 24 live *N. gemmeus* being smuggled from the country. Specimens intercepted, photographed and returned to the wild at their original location have since been identified as advertised for sale on internationally-hosted reptile websites, indicating repeated illegal collection at the same site. Gravid females have been disproportionately represented in consignments seized from poachers (likely due to greater value, larger size and emergence behaviour). The geckos evidently command high prices in consumer countries.

Other species have been offered for sale on internet sites including *N. elegans*, *N. grayii*, *N. manukanus, N. rudis* and *N. stellatus*, although it is not clear whether these are from captive sources. *N. manukanus* was assessed as Data Deficient by IUCN in 2010; *N. rudis* was assessed as Lower Risk/least concern in 1996 by IUCN although the assessment is noted as in need of updating.

All *Naultinus* species share characteristics that make them desirable among enthusiasts. Distinguishing between the different *Naultinus* species is also problematic, with field identification commonly based on location rather than morphological features.

The entire genus *Naultinus* has been protected under New Zealand's Wildlife Act 1953 since 1981, prohibiting collection from the wild and commercial use. All endemic New Zealand gecko species were listed in CITES Appendix III on 28 May 2003. While legal trade in *Naultinus* has been minimal since CITES listing, illegal trade in *Naultinus* spp. is a concern.

The genus *Naultinus* is proposed for inclusion in Appendix II. *Naultinus gemmeus* is proposed under the criteria in Annex 2 a paragraph B of *Resolution Conf. 9.24 (Rev. Cop15)*, with the other members of the genus proposed under look-alike criteria (Annex 2 b) on the basis that enforcement officers are unlikely to be able to reliably distinguish between the various *Naultinus* species, especially between the uniformly green morphs of *N. gemmeus* and other species. The Proponent suggests that some other species may also meet the criteria in Annex 2 a paragraph B of *Resolution Conf. 9.24 (Rev. CoP15)*.

Analysis: *Naultinus* species are endemic to New Zealand where they are fully legally protected. The species, especially, *N. gemmeus,* are sought after in the international hobbyist trade and can command high prices in consumer countries. There is evidence of ongoing illegal trade in wild-caught animals. All species are believed to have fragmented distributions and populations that are slowly declining. The species have low productivity and there are some indications of at least local impacts from illegal collection. However, it is not clear what proportion of the population of any species is subject to such collection. Overall, there is insufficient information to determine whether regulation of trade (which is in any event illegal) is required to prevent any of the species becoming eligible for inclusion in Appendix I in the near future or whether harvest for trade is reducing any species to a level at which its survival might be threatened by continued harvesting or other influences.

The species resemble each other, and appear to be relatively easily distinguishable as a group from other geckos. If it were considered that any one of the species met the criteria for inclusion in Appendix II under Annex 2 a of *Resolution Conf. 9.24 (Rev. CoP15)* then the other species in the genus would appear to meet the look-alike criteria in Annex 2 b.

Supporting Statement (SS)	Additional information
Taxonomy	
Naultinus consists of eight described species and an additional species, *Naultinus* "North Cape", which is yet to be formally described.	
Range	
New Zealand.	
IUCN Global Category	
Naultinus gemmeus: Near Threatened. *Naultinus manukanus*: Data Deficient. *Naultinus rudis*: Lower Risk/least concern.	*Assessed 2010 (ver. 3.1).* *Assessed 2010 (ver. 3.1).* *Assessed 1996 (ver. 2.3) (needs updating).*

Supporting Statement (SS)	Additional information

Biological and trade criteria for inclusion in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)

B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences

The nine *Naultinus* species have ranges which abut but do not overlap. Once widespread throughout New Zealand, their ranges are now highly fragmented due to habitat loss and modification. They are found only on the mainland and a few of the largest, inhabited offshore islands, thus lacking the protection that remote and pest/mammal-free islands provide for many other New Zealand lizards.

The distribution of Naultinus *species is considered to be less than 20% of their former range (Hitchmough, 2012). According to Knox* in litt. *(2012), all* Naultinus *species are sparsely distributed, very rare or extinct in many parts of the country (including many areas with suitable habitat), with populations generally small and probably in decline. Many* Naultinus *species do not have populations in protected areas with mammalian predator control, therefore long-term viability is uncertain. Populations of most* Naultinus *species are thought to be in the range of 5,000-30 000 individuals (Knox* in litt., *2012). Jewell (2008) believes that the* Naultinus *populations of the Southland mainland have suffered a catastrophic decline and may be critically endangered, if not already functionally extinct.*

Population size is extremely difficult to estimate. Population monitoring has only occurred on a very local, short-term basis, and is made difficult by the geckos' arboreal and cryptic behaviour, extremely good camouflage and weather-dependent activity. Population status and trend estimates are typically provided with very large confidence intervals.

The lack of information on population sizes and trends is a key problem for New Zealand gecko conservation. The geckos' cryptic behaviour means that numbers and distribution are often underestimated, so species may be less threatened than they appear. On the other hand, declines may not be noticed until they are very advanced (Hitchmough, 2010).

The populations of all *Naultinus* species have been assessed as declining at a rate of >10% over three generations by a panel of herpetological experts as part of the New Zealand Threat Classification of reptiles.

The 2012 revision of the New Zealand Threat Classification for reptiles assessed all Naultinus *species, other than* N. rudis *and* N. tuberculatus*, as "At Risk: Declining".* N. rudis *and* N. tuberculatus *were afforded the higher threat status of "Threatened: Nationally Vulnerable" based on ≤15 populations of ≤500 individuals and an expected continued decline rate of 10-50% over the next three generations (Hitchmough* et al., *in press).*

Studies have found local *Naultinus* population densities up to 40 and even 500 individuals per hectare. Given the relatively large ranges of most species, this would suggest populations of thousands to tens of thousands of individuals. However, the populations studied were in fragments of remnant habitat, which likely resulted in inflated population densities due to in-migration from surrounding areas. It is thought that most populations are at much lower densities. *Naultinus* species are at unknown but presumably low densities in the canopy of at least some types of tall forest.

Whitaker in litt. *(2012) considers population densities of 40-500 individuals per hectare to be exceptional, highly-localised, and driven by features of the habitat alone. Densities in tall forest canopies are unknown due to a lack of sampling effort/ available sampling methodologies (Whitaker* in litt., *2012).*

Illegal harvesting of *Naultinus* species, and especially *N. gemmeus*, for international markets constitutes a serious additional threat (particularly for species with small

According to Hitchmough (2012), virtually all international trade in Naultinus *species is in illegally-caught wild animals. Whitaker* in litt. *(2012) states that all* Naultinus *species*

Supporting Statement (SS)	Additional information
populations and ranges). All *Naultinus* species share characteristics that make them desirable among collectors. As well as being extremely colourful and attractive (often predominantly bright green, uniformly coloured or with contrasting coloured stripes or spots), they are diurnal, long-lived and have unusual features such as bearing live young. In the past four years, there have been several incidents of poaching and smuggling involving *Naultinus* species, some of which have targeted gravid females.	*are targeted by illegal collectors, but some (e.g.* Naultinus stellatus *and* N. gemmeus*) more so than others.* Naultinus *are slow-moving and may be particularly vulnerable to collection at certain times of the day, e.g. when basking openly on cool but sunny mornings (Hitchmough, 2012).*
Illegal harvesting is known to have had a serious local impact on one well-studied population of *N. gemmeus.* Other *Naultinus* populations are not being monitored so closely, making it difficult to determine impacts at the species level. The SS suggests that, with rates of detected poaching incidents accelerating in recent years, impacts are likely to spread rapidly to other *Naultinus* populations and become a major agent of decline.	*The desirability of* Naultinus *geckos is discussed amongst reptile enthusiasts in online forums. In November 2012, specimens of* N. grayii *were being advertised for sale by several apparently EU-based sellers on two gecko trading websites (TRAFFIC Europe* in litt., *2012).*
All *Naultinus* species are characterised by delayed maturity (2-4 years) and low reproductive output (1-2 live offspring per adult female per year). These characteristics limit the ability of *Naultinus* populations to recover from poaching. Even low levels of trade may have significant effects on wild populations.	*Some members of the New Zealand nocturnal gecko genus Hoplodactylus, which are the closest relatives of* Naultinus *geckos, have extreme longevity, e.g. up to 42 years in H. maculatus aff. Maculates 'Canterbury' (Lettink and Whitaker 2006).*
Natural recolonisation is extremely unlikely at isolated sites where populations have been extirpated. Increased levels of localised inbreeding are also likely where populations have been fragmented by agricultural development.	
There has been minimal legal trade in specimens of New Zealand geckos, involving a maximum of 21 individuals of two species (*N. elegans* and *N. grayii*) since the Appendix III-listing. Since 2003, only 11 *Naultinus* geckos have been exported from New Zealand for scientific and law enforcement purposes, and up to 10 individuals have been legally traded elsewhere (between Canada, China, Germany and the USA).	
Over the past few years, New Zealand border control agencies have intercepted several individuals attempting to leave the country carrying illegally-harvested gecko specimens. Since 2009, seven individuals have been successfully prosecuted for attempting to smuggle New Zealand geckos and skinks. In a number of these cases, the geckos were destined for the European Union. Annex 1 to the Proposal shows that *Naultinus* geckos are available for Internet purchase in Europe, from between EUR1000 and 8500 per individual.	
Naultinus gemmeus (specifically the populations of the Otago Peninsula and Banks Peninsula) has been particularly targeted by poachers in recent years.	*Range and population status:* N. gemmeus *is endemic to the southeast of the South Island of New Zealand. Two main populations exist, on the Otago Peninsula and Banks Peninsula, but specimens*

Supporting Statement (SS)	Additional information
	may be found in the region linking these two areas (New Zealand Herpetological Society, 2006) and beyond these areas to the north and south (Whitaker in litt., *2012).The extent of occurrence is over 50 000 km² but its distribution within this area is severely fragmented, giving a much smaller inferred area of occupancy (IUCN Red List Assessment; Hare and Hitchmough, 2010).* *In the 2012 revision of the New Zealand Threat Classification System,* N. gemmeus *was assigned the status of "At Risk: Declining" (i.e. no change from the previous 2009 assessment). Area of occupancy was estimated at >100 000 hectares, with unknown population density in much of this range and ongoing population decline (rate of >10% over the next three generations) (Hitchmough, 2012; Whitaker in litt., 2012).* N. gemmeus *was also assigned the qualifier of "Sparse" owing to its small and isolated populations (Whitaker in litt., 2012).*
The best-studied population of *N. gemmeus* (on the Otago Peninsula) is considered to be in severe decline: an estimated 95% reduction in 14 years from 1994 to 2008. Part of this decline results from mammalian predation; populations nearest to Dunedin city have disappeared progressively, with grazing concentrating rodents and geckos into the same remnants of high quality habitat. Poaching is also believed to have had serious impacts on this population (New Zealand herpetologists observe that illegal collection "appears to have been a major factor in the decline and imminent extinction of at least one gecko population on the Otago Peninsula"). Gravid females have been disproportionately represented in consignments seized from poachers, presumably because these animals are more valuable, larger and need to bask frequently to maintain high body temperature for foetal development. The loss of breeding females further exacerbates the deleterious effects of poaching and predation on this (and other) populations. An impact report submitted by a herpetofauna expert for a successful prosecution of an apprehended smuggler noted that an estimated 100-200 specimens of *N. gemmeus* may have been taken from the Otago Peninsula. At the regional scale, the removal of 100-200 geckos would correspond to a decline of 7-14% in the known *N. gemmeus* population.	*Knox in litt. (2012) estimates the total* N. gemmeus *population at between 12 000 and 20 000 individuals. Populations away from the strongholds on the Otago Peninsula and Banks Peninsula tend to be small and localised (Whitaker in litt., 2012). Surveys carried out on the South Island mainland found populations numbering in the tens, or occasionally in the low hundreds of individuals, generally confined to tiny, poor quality habitat fragments subject to ongoing degradation (Hitchmough, 2012). Recent surveys at inland sites in Otago and Canterbury have found occasional geckos at a small number of sites, indicating very sparse distributions and low numbers (Knox in litt., 2012). Low population densities at these sites may be related to thermal limitations (severe winter frosts, 500-1000 m above sea level), in contrast to the milder maritime climate of the Otago Peninsula (Lettink in litt., 2012).* *All* N. gemmeus *populations are known from a small number of individual sightings spread over the last 30 years (Knox in litt., 2012). Across large areas,* N. gemmeus *has not been recorded in recent times despite historical records and the continued presence of apparently suitable habitat, e.g. the Southland region (Whitaker in litt., 2012). Several unsuccessful searches carried out on the South Island mainland indicate extinction of some populations (Hitchmough, 2012). There are no known populations of* N. gemmeus *on the mainland of the Southland region; in the central Otago region; or on Stewart Island (Knox in litt., 2012).* *Estimation of* N. gemmeus *populations is currently impossible in tall kānuka, broadleaf, podocarp, beech or other forest (Knox, 2011).*
Specimens intercepted at the New Zealand border, photographed and returned to	*Trade:* *According to Lettink in litt. (2012), 100-200* N. gemmeus *specimens were taken from*

Supporting Statement (SS)	Additional information
the wild have since been identified as advertised for sale on an internationally-hosted reptile website. This indicates they had been poached for a second time at the same site and that the poachers successfully avoided detection at the New Zealand, and offshore, borders. At least two other *N. gemmeus* populations on the Otago Peninsula are known to have been targeted by poachers, in some cases repeatedly.	*the Otago Peninsula during a one-year period from a regional population of approximately 1400 individuals.* *The impacts of illegal collection are localised (not all populations are targeted) but can be severe, with some small populations apparently wiped out by illegal collection (Whitaker in litt., 2012). A scientific reserve set up for the protection of* N. gemmeus *in Otago was neglected, mismanaged and targeted by poachers, apparently resulting in the disappearance of the entire population (Muller, 2010). The extent to which poaching contributed to this decline is difficult to assess; however at least 6 jewelled geckos are known to have been taken by poachers (Knox, 2009). These geckos were later found in Hamburg, Germany, and identified as being from the reserve due to their unique toe clips. Poaching is suspected to have occurred at the reserve due to the identification of the site in a published book (Knox, 2009).* *Reports from local residents on the Banks Peninsula, a reputed stronghold for* N. gemmeus, *suggest that the number of individuals is declining. Some are convinced that poaching is an issue on the peninsula, with reports of several people seeking precise locality data for the species (Jewell, 2008).* *Jewell (2008) considers that poaching is likely to be an ongoing problem, as* N. gemmeus *fetch as much as USD9000 each on the overseas black market.* *Threats:* *Introduced predators, exploitation for international trade and habitat degradation are having a detrimental effect on* N. gemmeus *populations (Hare and Hitchmough, 2010).* *Contrary to the information in the Supporting Statement, Knox* in litt. *(2012) states that it is the concentration of high densities of mammalian predators in rank grasses surrounding habitat fragments (e.g. following land-use changes such as the removal of livestock grazing) that is likely to result in unsustainable levels of predation and, therefore, continued population declines in* N. gemmeus *populations.*

Inclusion in Appendix II to improve control of other listed species

A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I

Identification of *Naultinus* species can be difficult for non-experts. As species have largely parapatric distributions, field identification is commonly based on location	*Even specialists may find it difficult to distinguish between the different colour morphs of the various* Naultinus *species (Towns* in litt., *2012).*

Supporting Statement (SS)	Additional information
rather than morphological features. There is also considerable colour variation between individuals. Domestic experience has indicated that enforcement officers who encounter specimens of CITES-listed species at the border are unlikely to be able to reliably distinguish between the various species of *Naultinus* geckos, especially between the uniformly green morphs of *N. gemmeus* and other species.	*Nearly all* Naultinus *species have been shown to hybridise to produce fertile offspring (Whitaker* in litt., *2012, citing Meads, 1982). This compounds the problem of identification. Some animals offered for sale in Europe appear to be hybrid stock (Whitaker* in litt., *2012).*

Other information

Threats

Habitat loss/degradation and introduced mammalian predators are believed to be the key causes of declines in *Naultinus* populations. Clearance of New Zealand's primary forests largely ceased in the early 1990s; however, secondary shrublands are threatened by agricultural intensification, coastal development and exotic plantation forestry. New Zealand geckos also suffer from competition for favoured food sources from rodents, possums and introduced vespulid wasps. Illegal collection for international trade poses a significant additional risk for many species which has accelerated dramatically in the last few years.	Naultinus *geckos primarily inhabit mainland rather than island sites (only five of the nine species have island populations and, for* N. stellatus, *there is only one small island with a sparse population) (Whitaker* in litt., *2012). Numbers have therefore continued to decline through the combined effects of introduced predators, habitat loss and illegal harvest (Towns* in litt., *2012).* *Knox* in litt. *(2012) attributes declines in* Naultinus *populations to the combined effects of habitat loss and modification, predation from introduced mammals, the genetic effects of isolation and poaching. While much attention has been given to the impact of larger mammals such as rats, cats and stoats on New Zealand lizards, Jewell (2008) notes that smaller mammals (mice, weasels, etc.) could have an even worse effect. For example, lizard numbers increased dramatically after mice were removed from Mana Island.*

Conservation, management and legislation

All eight described *Naultinus* species, and the undescribed *Naultinus* "North Cape", are considered "At Risk" under the New Zealand Threat Classification System. All *Naultinus* species have been absolutely protected under New Zealand's Wildlife Act 1953 since 1981. Before this date, both domestic and international trade were regulated but not prohibited. Herpetologists, collectors and hobbyists within New Zealand could legally take geckos from the wild; trade these with other hobbyists within New Zealand; and submit an application to the then Wildlife Service of the Department of Internal Affairs for authority to export to other countries. Nationally, geckos could be sold from pet shops. Since 1981, it has been illegal for live geckos of the genus *Naultinus* to be traded, or	*Prior to 1981, wild collection of* Naultinus *geckos was still prohibited in certain circumstances, e.g. removal from national parks or reserves. Since 1981, trade in both live and dead* Naultinus *geckos has been prohibited (Whitaker* in litt., *2012).* *New Zealand's Wildlife (Smuggling Deterrence) Amendment Bill will increase the maximum penalty for smuggling of native animals such as geckos from 6 months' imprisonment or a USD100 000 fine to up to five years' imprisonment and/or a USD300 000 fine (Wilkinson, 2012).* *It appears that certain traders in the EU may be under the misapprehension that legal exports of* Naultinus *species were possible between 1994 and 1996 and that it is from these legal exports that a few breeding colonies were established in the EU (e.g. in Belgium and Germany) (Anon., 2012). Legal exports between 1994 and 1996 were*

Supporting Statement (SS)	Additional information
for them to be collected from the wild. Collection may be carried out only under permits issued by the Department of Conservation, but such permits have been issued rarely since 1981 and almost all were issued for research purposes. Export of captive-bred animals is a rare occurrence, such as for law enforcement and scientific purposes.	*only possible for the species* Hoplodactylus maculatus *and* Hoplodactylus granulatus*, to which full protection from domestic exploitation was only extended in 1996.*
New Zealand geckos (*Hoplodactylus* spp. and *Naultinus* spp.) have been listed in Appendix III of CITES since 28 May 2003. While the Appendix III listing has been adequate for controlling the legal trade of New Zealand geckos (which has been minimal), the level of protection has proven to be inadequate for addressing their illegal trade. For example, not all countries have domestic legislation that penalises international trade in specimens in Appendix III that have been exported or re-exported in violation of the laws of the country of origin.	*As in the case of most CITES Appendix III-listed species, all species of* Naultinus *are currently listed in Annex C to* Council Regulation (EC) No 338/97 of 9 December 1996 on the protection of species of wild fauna and flora by regulating trade therein*.* Regulation (EC) No 338/97 *regulates the import and export of specimens of Annex C-listed species, but does not regulate any further activity inside the European Union. The listing of the genus* Naultinus *in Appendix II and in Annex B of* Regulation (EC) No 338/97 *would change the legal situation in the EU as intra-Community trade would be regulated by Article 8(5) of* Regulation (EC) No 338/97*. Consequently, EU enforcement bodies would be enabled to initiate further actions to check the legality of such trade (Böhmer* in litt., *2012).*
Active reintroduction of endemic New Zealand lizards onto pest/mammal-free offshore islands has been used to mitigate declines. The gradual eradication of introduced mammals on many offshore islands has allowed some populations to recover naturally. Benefits to *Naultinus* populations are, however, limited as they are naturally absent from most small islands with seabird dominated ecologies. Predator-free offshore islands are also not available for some species (e.g. *N. rudis*, *N. tuberculatus*). Benefits of intensive predator management/pest eradication on the New Zealand mainland and offshore islands have not yet been demonstrated for *Naultinus*, mainly due to the difficulties associated with monitoring its populations. Detailed long-term regional lizard conservation work plans have been formulated for most areas of New Zealand.	*Whitaker* in litt. *(2012) considered that* Naultinus *population increases resulting from the removal of predators have been restricted to infinitesimal areas in relation to the widespread trend of habitat loss and degradation, and the impacts of introduced predators and competitors.*
<u>Captive Breeding/Artificial Propagation</u>	
Before New Zealand gecko species became absolutely protected under national legislation, domestic export permits were available upon application. Small captive populations of New Zealand geckos were established at this time, for example in Europe, and some may still exist today. However, if they do exist, the genetic diversity of these populations may be limited.	*There are records of a number of professional institutes within New Zealand, the USA and the UK breeding various* Naultinus *species up until 1997 (Slavens and Slavens, 2002).*

Supporting Statement (SS)	Additional information
Within New Zealand, several hundred private individuals and some zoological gardens and similar institutions hold individuals or populations of *Naultinus* under permit on a non-commercial basis. For most species, reproduction only slightly exceeds mortality. The total captive population across all species is likely to be less than 1000 in New Zealand. The predominant species held are the North Island *Naultinus* species (*N. elegans, N. grayii* and *N. punctatus*). There are also smaller populations of some of the South Island *Naultinus* species. These species all have satisfactory reproductive rates if well-managed in semi-natural conditions in outdoor enclosures. However, species and even populations can vary widely in terms of the ease with which they can be kept and bred in captivity. In New Zealand, a captive population exists of *N. gemmeus* descended from Banks Peninsula animals collected before 1981. However, the morphologically distinct Otago Peninsula population on which most poaching has focussed now has very few if any animals in captivity in New Zealand, despite a captive population existing in the 1970s-80s.	*Although not covering all holders, the most recent New Zealand Herpetological Society census (for 2010) lists fewer than 600 geckos across eight of the* Naultinus *species (Whitaker* in litt., *2012).*

Reviewers: K. Kecse-nagy, C. Knox, D. Towns, T. Whitaker.

Inclusion of the Mangshan Pit Viper *Protobothrops mangshanensis* in Appendix II

Proponent: China

Summary: The Mangshan Pit Viper *Protobothrops mangshanensis* is a snake endemic to south China. It has a small area of distribution in moist subtropical forest around Mt. Mang in the Nanling Mountains (Hunan-Guangdong border). It is known to occur in two protected areas: Mangshan and Nanling National Nature Reserves, and in adjacent unprotected areas. It is thought to have a very small total population, of perhaps fewer than 500 individuals and likely to be decreasing. The species is a large, attractively patterned, and only recently described (1990) venomous snake, and as such is much in demand amongst specialist hobbyists. Collection for the live animal trade is considered a major threat to the population, which has also been affected by habitat changes and extreme weather events. Collection is prohibited within the two National Nature Reserves, but there are apparently no national level trade restrictions or national protection. Several zoos and private individuals outside China hold this species. In 2010 it was reported that around 100 had been raised in captivity to date. It was assessed by IUCN in 2012 as Endangered and is listed as critically endangered in the Chinese national red data book.

Analysis: The endemic Mangshan Pit Viper has a restricted range in southern China and is believed to have a very small (estimated at fewer than 500 individuals) and probably decreasing global population. It is known to be in international demand for the hobbyist trade. A proportion of the population occurs in protected areas, but there are no national level trade restrictions or national protection. The species may already meet the biological criteria for inclusion in Appendix I and therefore would appear likely to meet the criteria for inclusion in Appendix II in paragraph A of Annex 2 a *Resolution Conf. 9.24 (Rev. CoP15).*

Supporting Statement (SS)	Additional information
Taxonomy	
Protobothrops mangshanensis (formerly assigned to genera *Trimeresurus,* and *Zhaoermia*).	
Range	
China.	
IUCN Global Category	
Endangered.	*B1ab (v)+2ab(v) (Assessed 2012, criteria* ver 3.1).

Biological and trade criteria for inclusion in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)

A) Trade regulation needed to prevent future inclusion in Appendix I

Restricted to 105 km^2 of moist subtropical forests around Mt. Mang, Nanling Mountains, southern China. Several population surveys were conducted and the population was estimated at 300-	*The stated area of 105 km^2 apparently refers to the area within the two protected areas (see below) but the species also occurs in an area of unknown size outside the reserves. The current IUCN Red List account gives an estimated total range of 300 km^2 (Zhou, 2012).*

Supporting Statement (SS)	Additional information
500 individuals in 2000. In 2010, it is estimated that the species in the wild has a population size of no more than 500 individuals. Surveys have been conducted in the Mangshan National Nature Reserve from 1990 to 1997, and in 2007-2010. More recent field study has recorded several specimens in the wild, as well as in villages, a restaurant and in markets. Based on field surveys and community interviews from 1990 to 2010, the density of the Mangshan Pit Viper is estimated at about 3-5 individuals per km^2. The population trend of the pit viper is unclear due to a short observing period. A decline in the population size inferred from high levels of harvesting for terrarium keeping and pet trade and extreme cold spells in 2008. Quantitative data on biological characteristics and population status of Mangshan Pit Viper are vague. Based on the records from captive breeding in southern China, the pit viper produces clutches of 20-31 eggs. There are no data on age at maturity or life expectancy of the species.	*The Nanling mountains run along the border between Hunan and Guangdong Provinces. It is not clear if the species occurs in two separate small areas or if there is a single distribution that straddles the provincial boundary.* *Between the 1950s and the 1980s, deforestation within the species's range significantly reduced its distribution (Zhou, 2012).* *Has been (1998, 2009) categorised as critically endangered in the Chinese Red Data Book.*
B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences	
The wild population is reportedly decreasing because of over-collection (and is at risk from extreme weather events and habitat modification). The Mangshan Pit Viper is desired for rare zoological collections or for pets. Much in demand by terrarium-keepers because of its rarity, large size and attractive appearance. Sometimes used locally for food or medicinal purposes, More than 30 Mangshan Pit Vipers were illegally harvested and sold in 2007-2012 and prices have reached USD1000 per kilogram. Live individuals have been traded internationally for some time but the scale is hard to estimate. It has been made available through online forums by terrarium keepers in Hong Kong and Germany. One trader reported that 30 to 40 Mangshan Pit Vipers had been traded. So far, no legal trade of wild caught *Protobothrops mangshanensis* authorised by national or local forest administrative agencies has been recorded, and snakes traded to Hong Kong and overseas are believed to have been collected outside Hunan National Nature Reserve and outside Nanling National Nature Reserve.	*At one time said to be regularly encountered by local villagers, although in low numbers; altitudinal range 700-1300 m (Chen* in litt., *cited in David and Tong, 1997).* *A local researcher (Chen Yuanhui) reportedly noted that smugglers offer 6000 yuan (USD910) to 7600 yuan per kilogramme for Mangshan Pit Vipers, and many local villagers keep traders' contact numbers because the price is greater than could be earned from a year's crops. Forest rangers deter poachers from entering Mangshan National Nature Reserve but other areas can be accessed. Smuggling of snakes to destinations including the USA and Germany is reportedly flourishing. A Mangshan Pit Viper was stolen from the museum of the Mangshan Forestry Administrative Bureau in 2005 (Chen, cited in Yan, 2011).* *Online forums (e.g. www.venomland.net and www.venomousreptiles.org) confirm very high interest in this species among terrarium keepers in North America, Europe, and South Africa; this is supported by the high prices (USD1800 to 3250 in recent years) asked by dealers. Animals offered for sale are frequently advertised as captive-bred. The extent of second generation captive-breeding is not clear from readily available information but appears to be minimal at best.*

Supporting Statement (SS)	Additional information
	The species is held in private collections in Scandinavia and other parts of Europe, and in institutions in Russia; breeding is very difficult and typically is not sustained; the species is much in demand and at risk of over-collection (Paasikunnas, T. in litt., *2012).*

Other information

Threats

Occasionally killed because it is venomous. Also affected by habitat modification and at risk from extreme weather events (such as the exceptional cold wave that reportedly led to mortality in 2008). Parts of the range have been logged prior to 1999, and hydroelectric plants installed.

Conservation, management and legislation

Most of the known range is within two protected areas: Mangshan National Nature Reserve and Nanling National Nature Reserve, within some 70 and 35 km^2 respectively.

The species is not included in the list of Wildlife under Special State Protection of China but is given lower priority protection by listing among species that are Beneficial or of Important Economic or Scientific Value. In 2002, the species was put on the revised List of Wild Animals under Special Local Protection in Hunan Province; not similarly listed in Guangdong. Subject to the 1994 Regulations of the People's Republic of China on Nature Reserves, under which hunting without a permit is banned.

It seems there is no legal impediment to collection of snakes outside the two relevant National Nature Reserves, nor to trade and international export of snakes reported to have been collected outside the Reserves.

About 80 forest rangers keep poachers away from the Mangshan National Nature Reserve, but smugglers still enter the snake's habitat through the other side of Hunan's border with northern Guangdong province (Yan, 2011).

Captive Breeding/Artificial Propagation

Zoos and terrarium keepers have had some success in captive breeding, but it is feared that sale of captive-bred snakes would increase interest among pet keepers and stimulate further collection of snakes from the wild.

The Mangshan Forest Administrative Agency began work on captive breeding of the Mangshan Pit Viper in 1994 and has produced more than 100 young, most of which were released to the wild. To date no second generation (F2) stock has been generated. Around 60 individuals are in zoos in China, Europe and USA, some breeding has occurred. A significant number are held in private collections, with some successful hatching of eggs, but it is not clear if any second generation snakes have been raised.

Captive breeding has been successful in Germany, China and the USA. Captive breeding started in 1994; by 2010, about 100 individuals had been born in captivity (Zhou, 2012).

San Diego Zoo reported the successful hatching of a clutch of eight eggs laid by a wild-caught pregnant female in 2002 (San Diego Zoo Global, 2011).

A specimen was recently offered for sale through a site based in Sweden, at 20 000 Kr (c. USD3500) http://www.repti.net/modules/5/Item.aspx?portal=reptinet&PortalsModulerID=125736&CatID=5&PostID=4202 and the same source advertised a number of specimens claimed

Supporting Statement (SS)	Additional information
	to be captive-bred at http://www.venomland.net/t3029-zhaoermia-mangshanensis-cb-2010
Other comments	
	A popular account of the species from China Central Television is available in video: http://english.cntv.cn/program/natureandscience/20101105/104838.shtml

Reviewers: C. Jenkins, C. Shepherd.

Transfer of Roti Island Snake-necked Turtle *Chelodina mccordi* from Appendix II to Appendix I

Proponent: United States of America

Summary: The Roti Island Snake-necked Turtle *Chelodina mccordi* is a small to moderate-sized, side-necked freshwater turtle in the family Chelidae, known from Roti Island, Indonesia and the Democratic Republic of Timor-Leste. It is almost entirely nocturnal and on Roti Island inhabits permanent and semi-permanent shallow eutrophic inland lakes and swamps as well as adjacent rice paddies and irrigation ditches on the inland highland plateau areas. According to the local people of Timor-Leste, it may also be found in seasonal wetlands. Average clutch size in captivity is 10–12 eggs.

The species has a very restricted range. The estimated extent of suitable habitat on Roti Island is 200 km^2, however, much of the area has evidently been depleted of turtles and the total area of occupancy with relatively intact sub-populations and good habitat might be as small as 20 km^2. The primary area of distribution on Timor-Leste is the 400 km^2 highland plain around Lake Iralalaro, which itself has a surface area between 10 and 15 km^2.

Historically, this species was not used or traded; it was introduced into international trade in the1980s, since then it has reportedly suffered a dramatic population decline on Roti Island ascribed very largely to collection for the international pet trade. When first entering trade, Roti Island Snake-necked Turtles were considered to belong to *Chelodina novaeguinae* (a more widespread species occurring in Australia and New Guinea), but were described as a distinct species in 1994. Targeted collection reportedly then increased to meet international demand. It is now considered to be effectively commercially extinct in Indonesia. The sub-population in Timor-Leste was not discovered until 2003 and was reported in 2008 as not apparently having been subject to collection pressure up to then. The species is also reportedly affected by habitat degradation, predominantly as a result of agricultural conversion and use of chemicals in agriculture, although it is known to use modified habitats. It is currently classified as Critically Endangered by IUCN. This assessment was made in 2000, before the discovery of the Timor-Leste population.

The species was included in Appendix II in 2004. It is not protected under Indonesian legislation. However, in 2002 the Indonesian Management Authority issued a zero export quota, owing to concerns that the species was on the brink of extinction in Indonesia. Records from the CITES trade database indicate that in the period 2008–2011 some 100–200 specimens of the species were reported exported from Indonesia, declared as raised in captivity. It is noted that as recently as 2005 there were no registered captive-breeders of this species in Indonesia and it is thought likely that a high proportion, if not all, of the specimens in question may have been wild-caught. There are indications that wild specimens are preferred by some hobbyists as some captive stock of the species has resulted from interbreeding between this species and *Chelodina novaeguineae.* If the specimens were indeed wild-caught, it is not known what their origin was, but given the apparent virtual extinction of the species in Roti, it is at least possible that they originated in Timor-Leste.

Timor-Leste is not currently a Party to CITES and has not informed the CITES Secretariat of a competent authority able to issue comparable documentation. The country is in the process of drafting a Biodiversity Decree Law that is likely to give full protection to *Chelodina mccordi* as an internationally recognised threatened species.

Analysis: *Chelodina mccordi* has a restricted range in two States and is known to be in high demand internationally amongst hobbyists. The population in one range State (Indonesia) is believed to have suffered a severe decline as a result of harvest for international trade. Given the extreme depletion of this population, it is believed likely that collection pressure may shift to the other population if it has not already done so. It may be expected to drive a similar decline there, so that it is possible that the species meets the criteria for inclusion in Appendix I set out in Annex 1 to *Resolution Conf. 9.24 (Rev. CoP15)* on the basis of a marked observed and projected decline in the wild population.

Supporting Statement (SS)	Additional information
Taxonomy	
	The Timor-Leste population of Chelodina mccordi *was described as a new species,* Chelodina timorensis, *by McCord* et al. *(2007), but Kuchling* et al. *(2007) argued that this taxon had only subspecific status,* Chelodina mccordi timorensis*. However, Georges and Thomson (2010) did not recognise any subspecies of* Chelodina mccordi*.*
Range	
Democratic Republic of Timor-Leste (hereafter Timor-Leste); Indonesia (Roti Island).	
IUCN Global Category	
Critically Endangered (Assessed 2000).	*Critically Endangered A1d, B1+2e* ver 2.3. *Assessment needs updating.*

Biological criteria for inclusion in Appendix I

A) Small wild population

(i) Population or habitat decline; (ii) small sub-populations; (iii) concentrated geographically during one or more life-history phases; (iv) large population fluctuations; (v) high vulnerability

There are no data available on population size; however, the species has small sub-populations within a very restricted area of habitat. The two Roti Island sub-populations are now considered commercially extinct. The species is rarely seen, however, there is ongoing trade where individuals are found. *C. mccordi* appears to be less rare within Timor-Leste although it is still restricted by suitable habitat.

Captive breeding reproduction has documented clutch size averages of 9.9 to 12.2 eggs.

Supporting Statement (SS)	Additional information
B Restricted area of distribution **(i) Fragmented or localised population; (ii) large fluctuations in distribution or sub-populations; (iii) high vulnerability; (iv) decrease in distribution, population, area or quality of habitat, or recruitment)**	
C. mccordi has a very small and fragmented area of distribution. On Roti Island the area of distribution is approximately 200 km^2 although the area of suitable habitat actually supporting intact sub-populations may be as little as 20 km^2. The subpopulation in Timor-Leste is known from Lake Iralalaro plain, which has an approximate surface area of 10-15 km^2 and a plateau area of 400 km^2. Habitat in both areas is being reduced largely through agricultural practices and modification of the swamps and wetlands. There is continuing habitat decline including habitat modification, use of agricultural chemicals and pesticides and predation by pigs. Although *C. mccordi* will inhabit modified landscapes, this makes them more vulnerable to collectors. The loss of wetlands through erosion and decreasing precipitation due to climate change is also reducing potential habitat for this species.	*Although the IUCN category of Critically Endangered given in 2000 was based on decline (see below) the species was also considered to qualify under criterion B1+2e based on an extent of occurrence estimated to be less than 100 km^2 or area of occupancy estimated to be less than 10 km^2 and estimates that it was severely fragmented or known to exist at only a single location and that there was a continuing decline in the number of mature individuals. However, this assessment was based on a calculated area of occupancy of 70 km^2 (Rhodin, 1996) which has since been updated to approximately 200 km^2 (Rhodin* et al., *2008), and before the sub-population on Timor-Leste was known.* *A survey was conducted on Roti Island to investigate the remaining habitat for* C. mccordi*. Of 105 locations investigated, 35 were deemed to be suitable habitat for this species. Interviews with locals concluded that it has been locally extirpated at 26 of these locations and at nine locations the species was reported to be occasionally seen. No individuals were found throughout the duration of this survey (Endarwin* et al*., 2005).*
C) Decline in number of wild individuals **(i) Ongoing or historic decline; (ii) inferred or projected decline due to decreasing area or quality of habitat, levels of exploitation, high vulnerability, or decreasing recruitment**	
Since its description in 1994 this species has been heavily targeted for the international pet trade leading to dramatic declines in population particularly on Roti Island. Indeed it is now considered commercially extinct by Indonesian traders, and is believed to be extremely rare or locally extirpated from some sites. This level of decline has been reflected in the IUCN Red List categorisation of Critically Endangered, where it was estimated that there has been a population decline of 80% or more within the last three generations. Harvesting continues on Roti Island, although only a handful of individuals are found each year. The sub-population in Timor-Leste was only discovered in recent years and therefore has not been as heavily affected. There is trade in the area, and the possibility of harvesting for local consumption. There is a high risk that the levels of exploitation will follow a similar trajectory to those from Roti Island. Both areas are affected by habitat loss due to agricultural conversion and chemicals.	*The IUCN category of Critically Endangered given in 2000 was based on an observed, estimated, inferred or suspected reduction of at least 80% over the last three generations based on actual or potential levels of exploitation (A1d). This assessment was made prior to the discovery of the Timor-Leste population.*

Supporting Statement (SS)	Additional information
Trade criteria for inclusion in Appendix I	
The species is or may be affected by trade	
The greatest threat to this species is over-harvesting for the pet trade, which is responsible for the near-extinction of the Roti Island sub-populations. This species has been heavily exploited for the pet trade. It was not used locally or nationally until collection for the pet trade started in the 1980s. Initially it was traded as part of *C. novaeguineae;* however, recognition as a distinct species in 1994 increased targeted trading, with the majority of demand coming from hobbyists in western Europe, USA and Japan. The level of trade is responsible for the rapid decline and near-extinction of wild populations of *C. mccordi*. By the late 1990s, the retail price for the species in the western pet trade had risen to USD2000 per animal. It was suggested that all specimens of *C. mccordi* exported from Indonesia since 1980 were not in accordance with the national laws. Although the species is now considered commercially extinct, exploitation continues, with *C. mccordi* being smuggled out of Indonesia, largely from Jakarta.	*The CITES trade database lists 127 live imports and 196 live exports, 2005–2011. All of these animals were recorded as being for commercial purposes, except for eight recorded as being for zoos, and none were recorded as of wild origin. Animals were reportedly exported from Indonesia in 2008, 2009 and 2010, all recorded as source code F—animals born in captivity that do not fulfil the definition of 'bred in captivity' in* Resolution Conf. 10.16 *(UNEP-WCMC, 2012).* *Nearly all specimens were imported by Japan for commercial purposes, apart from eight specimens imported into the Netherlands for zoo purposes. Exporters of captive-bred specimens (C) were Germany, Switzerland and the USA.* *Claims of captive breeding of this species in Indonesia are questioned. It is considered extremely unlikely that F2 offspring have been produced, if breeding exists at all, as there were no breeders registered with Indonesia's authorities to breed this species as recently as 2005 (Shepherd and Ibarrondo, 2005). It is suspected that wild-caught specimens are entering international trade after being laundered through captive breeding operations in Indonesia.* *According to one dealer in the reptile trade, prior to being described as a separate species,* C. mccordi *was sometimes unknowingly interbred with* C. novaeguineae*, as the two species were thought to be one. This dealer went on to say that collectors outside Indonesia, therefore, now prefer wild-caught specimens to ensure they have pure animals (Shepherd and Ibarrondo, 2005).*
Other information	
Threats	
Habitat degradation is also a threat both on Roti Island and in Timor-Leste. This is largely as a result of agricultural conversion and the use of agricultural chemicals and pesticides, as well as the burning of land in Timor-Leste. Although this species can inhabit modified land such as irrigation ditches, they are more vulnerable to being collected in these habitats. Reduced precipitation due to climate change is also listed as a threat in Timor-Leste.	

Supporting Statement (SS)	Additional information
Conservation, management and legislation	
It has been listed in Appendix II of CITES since 2004. Prior to it being described as a separate species in 1994, *C. mccordi* was exported illegally as *C. novaeguineae*, which has been protected since 1980. It is unclear what national legislation is in place in Indonesia for *C. mccordi* since its split from *C. novaeguineae*, however, in 2002, the Indonesian Management Authority issued a zero export quota for *C. mccordi* due to concerns that the species was on the brink of extinction. Records from the CITES trade database indicate animals have been imported from Indonesia since then. In 2011 the Conservation of Asian Tortoises and Freshwater Turtles Workshop discussed recommendations for *C. mccordi* as a Critically Endangered species. These included the need for monitoring and research in the basic biology of the species, as well as the establishment of protected areas within the species's range, habitat conservation projects within agriculturally impacted areas and intact suitable habitat, stricter legal protection and enforcement, embargo of all international export, and establishment of assurance colonies for captive breeding. The recommendations are also supported by other authors and reports. There has been an additional recommendation to pilot a reintroduction programme from captive stocks within the species's former range. Currently no suitable habitat within its range falls within a protected area.	*Timor-Leste is in the process of drafting a Biodiversity Decree Law which is likely to give full protection to* C. mccordi *as an internationally recognised threatened species (República Democrática de Timor-Leste, 2012). Timor-Leste is not currently a Party to CITES and has not informed the CITES Secretariat of a competent authority able to issue comparable documentation.* *The zero quota for Indonesia has not been posted on the CITES website.* *Although the species is not formally protected by law in Indonesia, there is no quota for harvest/trade: harvest, transport and trade (local or international) are not permitted (Shepherd* in litt*., 2012).*
Similar species	
Before its description the turtles from Roti Island were considered as *Chelodina novaeguineae*. However, *C. mccordi* differs from *C. novaeguineae* by having a wider carapace, a shallower and less robust head, and the neck skin tubercles on *C. novaeguineae* are more prominent and firmer.	*It is believed that* C. mccordi *is smuggled out of Indonesia under the name of, or mixed together with, non-protected species, as enforcement agencies are not able to differentiate between species, owing to a lack of training (Shepherd and Ibarrondo, 2005).* *The US Fish and Wildlife Service's trade database (LEMIS) for 2000–2012 does not show a large trade in* C. novaeguineae*—since 2004 only eight animals have been recorded in trade, all live and for personal collections. This does not support the notion that international trade of* C. mccordi *is being hidden in trade of* C. novaeguineae*.*
Captive breeding/Artificial propagation	
This species is successfully bred in captivity and assurance colonies have been	

Supporting Statement (SS)	Additional information
established. The majority of import sources listed for this species on the CITES Trade Database 2005-2011 were from captive-bred animals for commercial purposes.	
Most captive stocks are in the USA and Europe and AZA and EAZA have managed breeding programmes and studbooks. There are an estimated 150 animals currently in captivity and it is recommended that breeding programmes exchange animals in order to maintain genetic diversity.	*The population in captivity in Europe is currently 235 animals (Fontijne, 2012). The 150 animals mentioned by Horne* et al. *(2012) may refer to the numbers in captivity in the USA.*
Other comments	
	C. mccordi is listed 12th in order of extinction risk for tortoise and freshwater turtle species globally (Turtle Conservation Coalition, 2011).

Reviewers: G. Kuchling, W. Fontijne, C. Shepherd.

Inclusion of Spotted Turtle *Clemmys guttata* in Appendix II

Proponent: United States of America

Summary: The Spotted Turtle *Clemmys guttata* is a small, semi-aquatic turtle found in wetlands in eastern North America, in Canada and the USA. The species occupies a wide range of at least 200 000 km^2, but is reported to occur in generally small, scattered populations. The total population in Canada is estimated at up to 2000 individuals. There is no reliable assessment for the US. The US population has been categorised as between 10 000 and one million individuals, the lower figure based on an estimate of there being at least 500 populations, each with a minimum average population size of 20 individuals. Spotted Turtles are long-lived: females mature between seven and 15 years of age and produce one or two clutches, generally of three to five eggs, in a breeding year. Many females do not breed every year. Individuals aggregate to hibernate and breed. Habitat has declined in quality and extent over the past century. However, an overall assessment in the USA in 2005 concluded the species was nationally and globally secure. The species was classified in 2011 as Endangered by IUCN, on the basis of a long generation time and inferred population declines.

Clemmys guttata is collected predominantly for the pet trade and collection for this purpose has apparently resulted in local extirpation in some areas. It is not clear what proportion of harvest in the USA is destined for international trade and how much for the domestic trade. Between 1999 and 2010, just under 8000 individuals were recorded as having been exported from the USA. Exports have shown an increasing trend, from about 400 per year for 1999–2001, to approximately 1100 per year for the period 2008–2010, to 1600 in 2011 and around 2000 for 2012 (data incomplete). The great majority of exports are now reported as being captive-bred or farmed, with fewer than 400 specimens reported as wild-collected or with undeclared origin since 2006. Most exports are destined for Asia, and surveys have found this species for sale in pet stores and markets there. Regulatory requirements generally prohibit the commercial export of this species from Canada.

Analysis: The Spotted Turtle is a widespread species that occurs in scattered populations in eastern US and south-eastern Canada. There are no reliable overall population estimates. The species is not considered rare but is believed to be declining slowly. It has a long lifespan and generally low productivity. It is exported from the USA for the international hobbyist trade, particularly to Asia. Exports have shown a rising trend in the past decade, although the great majority of recent exports are declared as captive-bred, with fewer than 100 per year declared as wild-collected or of unknown origin. If this is accurate, then it seems very unlikely that the harvest of specimens from the wild for international trade would reduce the wild population to a level at which its survival might be threatened by continued harvesting or other influences, or at which it might become eligible for inclusion in Appendix I in the near future.

Supporting Statement (SS)	Additional information
Taxonomy	
Synonyms: *Testudo guttata, T. anonyma, T. Punctata.*	
Range	
Canada, United States.	

Supporting Statement (SS)	Additional information

IUCN Global Category

Endangered A2cde+4ce (Assessed 2011, Criteria version 3.1).	

Biological and trade criteria for inclusion in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)

A) Trade regulation needed to prevent future inclusion in Appendix I

The population in Canada is estimated at about 2000 individuals. *Clemmys guttata* currently occurs in moderate numbers in eastern and south-western Ontario. The species is known from only two records in Quebec; however, there are no records for the species in the province after 1992.	*The number of mature individuals in Canada is estimated at 1000–2000 and the total population is severely fragmented (COSEWIC, 2004).*
There is no population estimate for the entire US. *Clemmys guttata* generally occurs in small localised populations. Population sizes range from 30–1205 individuals, though most populations are believed to be small or tiny. One southern population was estimated to include 31-36 adults, at a density of 0.36 turtles per ha. Reported population densities vary widely across its range, from 0.05–79.1 per ha, though most populations average 1–10 turtle per ha. Despite the high variability in density across its range, *C. guttata* exhibits a lower overall density than other more common turtles.	*NatureServe (2012) categorised the population as somewhere in the range 10 000 to one million; the minimum figure was based on there being at least 500 populations range-wide, each with an assumed minimum population size of 20 individuals.* *The two records from Quebec are not reliable, thus it does not appear that the species occurs in this province (Litzgus,* in litt., *2012).* *A study which used population viability analysis to assess the risk of extirpation from a relatively pristine bay in Ontario projected an 18–60% probability of extirpation in 100 years (depending on which model was used). Extrapolating to all of Ontario, it was projected that the probability of six or more of the known nine populations becoming extirpated in 100 years was 26% (Enneson and Litzgus, 2009).*
Decreased genetic variability has already been documented in some populations. Increases in the size of *Clemmys guttata* populations occur only gradually and the species requires a lengthy period of time to recover from decline. Like most turtles, this species's life history traits of delayed sexual maturity, extended adult longevity, and high juvenile mortality make the species particularly vulnerable to the removal of even a few adults from the population. Juvenile survival is low, so populations contain few young turtles.	*Using data from Ontario, Enneson and Litzgus (2008) calculated that the average juvenile will contribute 2.3 times more to future generations as compared to eggs/hatchlings. In comparison, the average adult will contribute 28 times more to future generations as compared to eggs/hatchlings. This highlights the disproportionate impact the removal of adults will have on the population.* *Ernst (1976) estimated the average annual mortality for juveniles was 45%, whilst Enneson and Litzgus (2008) calculated annual juvenile survivorship to be 0.82.*
Males reach maturity between 7 and 13 years of age, and females between 7 and 15 years of age. Females produce one or two clutches of 3–5 eggs (with a range of 1–14). Up to half the female population may not be reproductive in a single breeding season and most females do not produce eggs every year. Generation time is in the order of 25–30 years. Longevity is at least 30 years, possibly as high as 65–110 years.	*Through most of the range, only one clutch per year is laid, not two (Meylan* in litt., *2012). Small clutch sizes contribute to the potentially low recruitment rate of this species (Litzgus* in litt.*, 2012). It seems unlikely a female would produce a clutch as large as 14 eggs (Litzgus,* in litt., *2012).*
The species is found in Canada (Ontario, Québec) and the US (Connecticut,	*NatureServe (2012) estimated the total range extent to be between 200 000 and*

Supporting Statement (SS)	Additional information
Delaware - Presence Uncertain, Florida, Georgia, Illinois, Indiana, Maine, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Vermont, Virginia, West Virginia).	*2.5 million km^2. The extent of occurrence in Canada is estimated at approximately 57 500 km^2 and is thought to be declining (COSEWIC, 2004). The total area of occupancy in Canada is likely to comprise less than 2000 km^2 of wetlands (COSEWIC, 2004).*
Though the species is found across a wide area, it is patchy in distribution and, where it does occur, is found in low densities. As *Clemmys guttata* populations become more isolated, they are more vulnerable to human exploitation, predation and chance disturbance.	*The range of Clemmys guttata appears to be discontinuous with isolated populations occurring in many States within the range (Meylan, 2006). Presence of the species in Delaware is well established (see, for example, www.flickr.com/photos/matt_pics/6221079149 and White, 2011). NatureServe (2012) notes that six US States have ranked the species as secure or apparently secure within their jurisdictions; 10 as vulnerable or probably vulnerable; two as imperilled; and four as critically imperilled. Nationally and globally, it was classified as secure. This classification was last reviewed in 2005.*
Clemmys guttata is assessed as Endangered on the IUCN Red List in 2011 because it has undergone a population decline of more than 50% over three generations due to habitat destruction, invasive species introductions, over-exploitation, and vehicular mortality.	*Occurrence data from 104 locations in Ontario suggest that there has been a >35% decline over the past three generations (75 years). Of the 104 locations, 35% are considered historic or extirpated and 50% are ranked as D quality (non-viable). Most known populations are isolated and no population is known to have more than 200 individuals (COSEWIC, 2004).*
Generalised population declines and local extirpations have occurred, especially in the Great Lakes portion of the range, and more recently in the eastern United States. The historic range of *Clemmys guttata* in Illinois likely included much of the Chicago metropolitan area (Cook County); no individuals have been discovered in Cook County since the early 1950s. In Maine, the species has disappeared (development) from historic range in southern Cumberland County. In New York, *C. guttata* was considered to be perhaps the most common turtle in the New York City area at the turn of the century, but today occurs in only a few isolated populations in protected areas. Of 104 populations documented in Ontario over the past 30 to 40 years, the species is now considered to be extirpated from 36 of these sites.	*Brodman* et al. *(2002) found that in the Jasper-Pulaski Fish and Wildlife Area (Indiana),* Clemmys guttata *had declined from "common" in the 1930s to just one individual in the 1990s.*
	Individuals show fidelity to certain habitat features and locations at certain times of the year, which causes individuals to aggregate in spring for mating and feeding (Litzgus, in litt., *2012). A study in Ontario found almost half of the individuals monitored returned to the same hibernaculum for more than one winter (Litzgus* et al., *1999). The characteristic of aggregating for hibernation and mating makes the species susceptible to exploitation by pet trade collectors (COSEWIC, 2004).*
The wetland habitat preferred by *Clemmys guttata* has been converted, degraded, or fragmented for agricultural, residential, and other human uses. Habitat trends are inextricably linked to this species' status. In Ohio, where 3–5% of original wetland habitat remains and the species is largely confined to marginal habitat, there are few remaining stable populations considered.	*Clemmys guttata is thought to be fairly specialised in its habitat requirements and is not able to disperse/colonise very easily. This means habitat degradation, fragmentation and loss can cause the total loss of a population, while new opportunities, if any, are rarely colonised (van Dijk, 2011).The species requires a wetland mosaic and the ability to move between permanent and temporary wetlands in order to prosper (Meylan,* in litt., *2012).*

Supporting Statement (SS)	Additional information

B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences

The overall population trend is decreasing due to habitat destruction, invasive species introductions, collection for the pet trade and vehicular mortality. The species is taken from the wild for international and national commercial trade, primarily destined for Asia. In Ontario, evidence suggests that this species is also harvested for the food industry and traditional medicinal uses. In Canada, declines are thought to be due to the deterioration of the habitat and the illegal collection of individuals.

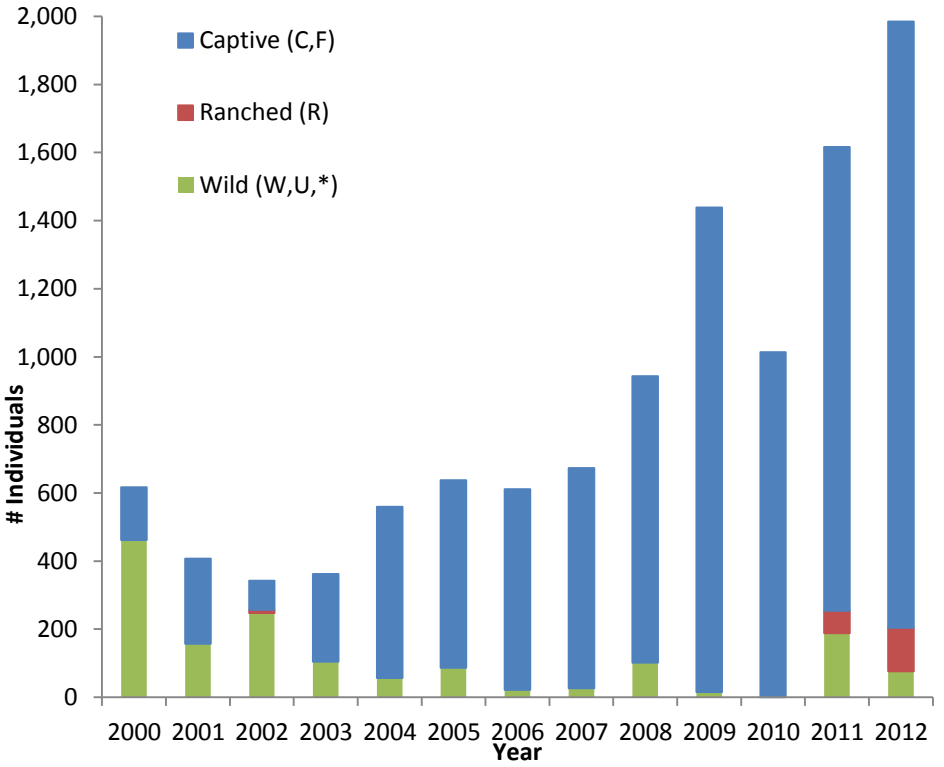
Available data show that US exports of this species have steadily increased from nearly 350 per year in 1999 to about 1000 per year by 2010 (Table below). Data for the five-year period from 1996 to 2000 reported that a total of 1848 individuals were exported. This equates to about 370 individuals per year. The total exports for the 12-year period in Table (below) were 7881 specimens which average to 657 specimens per year. Thus, overall, annual U.S. exports are increasing.

Table: US Exports of *Clemmys guttata;* 1999-2010

Year	#Individuals	#Shipments
1999	344	37
2000	617	66
2001	407	64
2002	342	52
2003	358	43
2004	537	74
2005	638	66
2006	611	61
2007	653	73
2008	943	64
2009	1442	72
2010	989	55

Exports from the US have shown an increase in 2011 and 2012, despite full records for November/December 2012 not being included (see figure below).Those importing the greatest number of Clemmys guttata were Hong Kong, Japan and Taiwan POC.

Figure: US Fish and Wildlife Service's trade database (LEMIS) Export Data for Clemmys guttata *2000–2012 for all purposes. Note data for 2012 are incomplete as they do not contain full records for November or December.*



Supporting Statement (SS)	Additional information
Between 1999 and 2010, approximately 16% of the exports in Table (above) were reported as wild and 80% were reported as captive-bred or farmed. This reportedly high level of captive breeding is quite different from an analysis of the 1996-2000 data; 57% of which were wild caught, 23% were unknown or undeclared, and 16% were captive born or bred. In a survey in 2002 of US internet sites, 5 dealers were selling *Clemmys guttata* for an average price of USD148 (ranging from USD100-240). Based on the descriptions and sizes of animals provided by the sellers, it was estimated that 60% of the animals were wild-caught. A web survey of five dealers in 2011 showed an average price for juvenile *Clemmys guttata* of USD169 (ranging from USD100-250) and adult *Clemmys guttata* selling for USD386.47 (ranging from USD200-500). Thus, market prices are rising. In Ontario, there have been several convictions for the collection, transport, sale, and illegal aquaculture of freshwater turtle species, including *Clemmys guttata*. Their market value is considerably higher than other turtles because of their ornate markings as well as their rarity and difficulty to acquire legally.	*Ernst and Lovich (2009) identified* Clemmys guttata *as one of the species "hardest hit" by the illegal harvest of turtles.* *In North Carolina, 543* Clemmys guttata *were known to have been removed in a single year (Buhlmann and Gibbons, 1998).* *In South Carolina, in the early 2000s, one collector was known to possess nearly 200 wild-caught* Clemmys guttata *(Litzgus,* in litt., *2012).* *Between 1998 and 2002, 982 wild-caught individuals were exported from the USA, and Schlaepfer* et al. *(2005) identified* Clemmys guttata *as a species expected to be particularly vulnerable to commercial take, on the basis of its life-history characteristics, geographic distribution and levels of US trade.* *Of 62* Clemmys guttata *sold in Florida 1990–1991, eight and 16 were reported to be destined for Japan and Switzerland, respectively (Enge, 1993). The same study found that between 1990 and 1992, 20* Clemmys guttata *were captive-bred in Florida for sale in the pet trade. In comparison, during the same two-year period, 122 wild* Clemmys guttata *from outside Florida were brought into Florida and sold.* Clemmys guttata *was found for sale in the pet trade in Hong Kong markets between 2000 and 2003 (Cheung and Dudgeon, 2006).* *Shiau* et al. *(2006) found* Clemmys guttata *for sale in pet shops in southern Taiwan POC during the period 2004–2005.* *Ten* Clemmys guttata *were found for sale in Jakarta in 2010, whilst none were found in 2004 (Stengel* et al.*, 2011).* *A study by Auliya (2003) found that* Clemmys guttata *was recorded on price lists of wholesalers and retailers in Europe 1977–1999. Similarly, Arena* et al. *(2012) reported* Clemmys guttata *on display at the International Herpetological Society (IHS) (UK) and Expoterraria (Spain) reptile pet markets.* *In the unsuccessful proposal for inclusion in Appendix II at CITES CoP11 (CoP11 Proposal 11.37, 2000), the SS stated the following examples of impact upon wild populations: Dr. Carl Ernst (George Mason University) knew of three formerly large, healthy populations that had been extirpated by pet trade collectors in the past 20 years. One in Lancaster County, Pennsylvania, had 300–400 individuals in 1980, but none were found at the site in 1999. The other two populations, both about the same size as the Pennsylvania population, were in northern Virginia. One had had no*

Supporting Statement (SS)	Additional information
	records of Clemmys guttata *since 1989, and the other had had only two since 1985. James Harding (Michigan State University Museum) had strong circumstantial evidence that collectors wiped out his study population of 20–25 Spotted Turtles in south-central Michigan in the early 1970s. Alvin Braswell (North Carolina State Museum) reported that Spotted Turtles were difficult to locate in Hyde and Tyrrell County, North Carolina, after a collector removed more than 1100 from the wild in 1993–94.*

Inclusion in Appendix II to improve control of other listed species

A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I

Clemmys guttata is a member of the Emydidae family. Similar species in this family that have overlapping ranges include the Bog Turtle *Glyptemys muhlenbergii*, which used to be considered the same genus as *Clemmys guttata*, and the Blanding's Turtle *Emydoidea blandingii*. Adult Blanding's turtles are substantially bigger than *Clemmys guttata*.	Glyptemys muhlenbergii *has been listed in CITES Appendix I since 1992.* Emydoidea blandingii *is also proposed for inclusion in CITES Appendix II (CoP16 Prop. 30).*

Other information

Threats

The overall population trend is decreasing due to habitat destruction, invasive species introductions, collection for the pet trade and vehicular mortality. Habitat destruction and degradation has led to fragmentation and isolation of remaining populations, and has increased their vulnerability to human exploitation. The wetland habitat preferred by *Clemmys guttata* has been converted, degraded, or fragmented for agricultural, residential, and other human uses. Habitat trends are inextricably linked to this' species status. The species's sensitivity to pollutants narrows the amount of available suitable habitat. Subsidised predators (that occur in unnaturally large populations near human population centres) such as raccoons, probably represent a further impact on eggs and juveniles, and likely reduce recruitment into existing populations.	*Primary threats to this species include grazing, draining and filling of wetlands, and artificial control of water levels (NatureServe, 2012).*

Supporting Statement (SS)	Additional information
Conservation, management and legislation	
In Canada, *Clemmys guttata* was designated as Special Concern in 1991 and Endangered in 2004, under Schedule 1 of the Species at Risk Act, which makes it illegal to possess, collect, buy, sell or trade an individual of a species. Provincially, in Ontario, which is the primary range jurisdiction for this species, *Clemmys guttata* is listed as Endangered under the Ontario Endangered Species Act. *Clemmys guttata* are also protected under Ontario's Fish and Wildlife Conservation Act of 1997. In Quebec, *Clemmys guttata* nests are protected from disturbance, destruction or alteration by the *Loi sur la Conservation et la Mise en Valeur de la Faune*. *Clemmys guttata* are protected to varying degrees in all USA range States. Commercial harvest is not allowed in some US States within this species's range, and is allowed but restricted in others (see SS for full details). The species occurs in a number of protected areas across its range, but those habitats may not be secure due to problems associated with pollution and illegal collection.	
Captive breeding/Artificial propagation	
Clemmys guttata is being bred by hobbyists but there have been no large scale breeding programmes. Headstarting of hatchlings is not recommended for this species, except in cases of severe species decline.	

Reviewers: J. Iverson, J. Litzgus, P. Meylan, C. Shepherd.

Inclusion of Blanding's Turtle *Emydoidea blandingii* in Appendix II

Proponent: United States of America

Summary: Blanding's Turtle *Emydoidea blandingii* is a medium-sized, semi-aquatic turtle that occurs in southeastern Canada and in the USA in the Upper Midwest and New England. The species uses a range of permanent and temporary wetland habitats and is highly mobile; individuals move extensively between wetlands, and to terrestrial nesting sites which are often well away from their resident wetlands. The range is extensive but has been reduced through habitat loss and fragmentation. An estimated 30–50% of suitable habitat in the Midwestern region of the USA has been lost in recent decades. Reductions in the number of known populations have been recorded in some US states but not in others; many remaining populations are believed to have declined. There is no estimate of the total US population, though the largest known (in Nebraska) is estimated to be over 130 000 individuals (excluding hatchlings and yearlings). The estimated population in Canada is around 10 000 adults. Individuals reach maturity late (12 years for males, 14–20 years in females); once mature, females generally breed every two to three years, producing one clutch of 8-15 eggs, and may remain reproductive for 40–50 years. The species was assessed as Endangered in the IUCN Red List in 2011, based on extensive slow population declines and long generation time.

Wild individuals are collected for the domestic and international pet trade. There may also be some harvest for traditional medicinal use in Canada. Some are caught as by-catch in the harvest of Snapping Turtles *Chelydra serpentina*. Demand in international markets does not appear high, possibly owing to similarity with the widely kept European Pond Tortoise *Emys orbicularis.* Exports from the USA recorded in US Customs data are at a low level, although have increased from an average of under 40 individuals per year in the period 1989–1997 to around 80 per year, 1999–2010. At the same time, the proportion of exports declared as wild-caught has declined from over 80% in the period 1989–1997 to less than 10% in 1999–2010. If these figures are reliable, they equate to an export of fewer than 10 wild animals annually. Canada generally prohibits the commercial export of this species. There are no indications of any non-commercial trade.

Analysis: *Emydoidea blandingii* is fairly widespread in the USA and Canada. The global population is believed to exceed 140 000, although is thought to be declining slowly through loss of habitat. The species is reported to be in low demand in international markets. Recorded international trade is at a low level, with fewer than 10 specimens recorded as wild-collected exported from range States in recent years. Even if all exports reported in fact originate from the wild it seems very unlikely that the harvest of specimens from the wild for international trade would reduce the wild population to a level at which its survival might be threatened by continued harvesting or other influences or become eligible for inclusion in Appendix I in the near future.

Supporting Statement (SS)	Additional information
Taxonomy	
Synonyms: *Cistudo blandingii, Emys blandingii, Emys twentei*, *Testudo flava, Testudo meleagris.*	*Synonyms:* Cistuda blandingii, Lutremys meleagris, Neoemys blandingii *(Congdon* et al.*, 2008).* *The species* blandingii *has generally been placed in* Emydoidea *in recent years, but has also been argued to belong in the genus* Emys*, based on molecular phylogeny results (van Dijk and Rhodin, 2011).*

Supporting Statement (SS)	Additional information
Range	
Canada, United States of America.	
IUCN Global Category	
Endangered A2cde+4ce (version 3.1). Assessed 2011.	

Biological and trade criteria for inclusion in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)

A) Trade regulation needed to prevent future inclusion in Appendix I

A crude estimate of the Canadian portion of the Great Lakes/St. Lawrence population is approximately 10 000 adults while the Nova Scotia population is estimated at 350 adults.

There is no total estimate for the number of *Emydoidea blandingii* in the United States but populations are often small and localized, with populations of a few dozen or hundred turtles. The largest known population is in Nebraska and is estimated at over 130 000 individuals, excluding hatchlings and yearlings.

Densities range from 0.02 individuals ha in Maine, to 28 per ha in Wisconsin, 55 per ha in Missouri, and up to 57 per ha in Nebraska.

Adult nesting females are often easily captured from their nesting sites and so are more vulnerable to collection.

Emydoidea blandingii life history traits of delayed sexual maturity, adult longevity, and high juvenile mortality make it particularly vulnerable to collection. Given its population dynamics, even slight increases in the rate of loss of juveniles or reproducing adults from a population can have a significant impact. Maturity is reached at about 12 years in males, and at 14–20 years in females. Longevity can be at least 77 years in the wild, and generation times vary between 36-47 years.

Females produce one or two clutches of 8–15 eggs (range 3– 22, substantial geographic variation) in a reproductive year, but only half the females in a population may reproduce in a given year. An individual female might only breed once every 2-3 years and females may remain reproductive for 40- 50 years.

Along with the Nebraskan population, the other population of note is in south-eastern Minnesota and has over 5000 adults (Pappas et al*., 2000 in Congdon* et al*., 2008). Nebraska contains the largest known population of* Emydoidea blandingii. *In this State, wetlands have decreased by 35%, from 2 910 000 acres to 1 905 000 acres between 1867 and 2006 (Congdon and Keinath, 2006).*

Congdon et al*. (2008) noted that the distances individuals moved varied across the species' range—in some areas, males travelled further than females on average, whilst in other areas the converse was true. Congdon* et al. *(2011) documented remarkable fidelity to residence wetlands extending over 40 years. In Nebraska, older females (which have a higher reproductive output than their younger counterparts) tended to occupy larger areas and travel greater distances than males (Congdon* et al*., 2008), which may mean they have a higher chance of encountering humans or predators, thus an increased vulnerability.*

Emydoidea blandingii *only produces one clutch per year. It is an overstatement to say that females only breed once every two to three years, though it is likely some will skip breeding for a year (Congdon,* in litt*., 2012).*

Nest depredation is high, but so is average juvenile survivorship (Congdon, in litt*., 2012). In order to maintain a stable population, annual survivorship between the ages*

Supporting Statement (SS)	Additional information
	of one year and maturity must be 72% (Congdon et al., *1993).*
Emydoidea blandingii is present in the Canadian provinces of Nova Scotia, Ontario and Québec, and the American states of Illinois, Indiana, Iowa, Maine, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, New Hampshire, New York, Ohio, Pennsylvania, South Dakota, and Wisconsin. This species requires a large home range and its habitat has undergone fragmentation and decline rangewide; often being intersected by roads and rural human habitations. There are no estimates of the amount of suitable *Emydoidea blandingii* habitat still remaining in Canada or the United States.	*Two moderately sized populations in Michigan and Minnesota demonstrated a female-biased sex ratio amongst adults, whilst another relatively large population in Ontario had a sex ratio that was either equal or slightly male-biased (Congdon* et al*., 2008). However, re-analysis of the Michigan population that excluded non-resident females resulted in an adult sex ratio close to 1:1 (Congdon,* in litt*., 2012). A biased sex ratio can reduce the effective size of the population, increasing instability and reducing population persistence (Congdon* et al*., 2008).*
Emydoidea blandingii was listed as Endangered in 2011 because it has experienced a population reduction of more than 50% over three generations, due to habitat decline, overexploitation, increased predation, and the associated mortality caused by these threats.	
It is estimated that 30–50% of suitable habitat and the populations present have been lost in recent decades, while many remaining populations have declined.	*The figure of 30–50% given in the SS is for the populations of the Midwestern region of the USA (Nebraska to Ohio) and "recent decades" refers to the past 30–40 years (van Dijk,* in litt., 2012*).*
Population decline has been noted in Illinois, Iowa, Michigan, Nebraska, Ohio, and Wisconsin and several U.S. States reported that at least portions of extant populations may not be viable. Populations in Illinois and Ohio are considered to be in decline, possibly associated with increased predation by raccoons.	*Populations have declined in many of the USA States (Table below). However, of the 100 known sub-populations in Nebraska, 60 are reportedly stable and 20 increasing, with 75% of the sub-populations believed to be viable. In Michigan, 50% of sub-populations are thought to be declining and the status of 30% is unknown, and under 20% of sub-populations are thought to be viable (MWPARC, 2010). Successful recruitment has reportedly occurred in over 90% of the Nebraska population, but only low numbers of juvenile turtles have been observed in the other States (MWPARC, 2010).*

Supporting Statement (SS)	Additional information

Change in number of Emydoidea blandingii *populations/metapopulations (MWPARC, 2010)*

State	*Estimated number of historical populations/ metapopulations*	*Number of known extant populations/ metapopulations (records <10 years old)*
Illinois	*134 (27 counties)*	*72 (19 counties)*
Indiana	*79*	*17*
Iowa	*45 counties*	*33 counties*
Michigan	*68 counties*	*68 counties*
Minnesota	*5 metapopulations*	*5 metapopulations*
Missouri	*7*	*3*
Nebraska	*32+ counties*	*50-100+ counties*
Ohio	*50 localities in 13 counties*	*19 localities in 9 counties*
Wisconsin	*67 counties*	*29 counties*

Brodman et al. *(2002) found that in the Jasper-Pulaski Fish and Wildlife Area (Indiana),* Emydoidea blandingii *had declined from 'very common' in the 1930s to just four individuals in the 1990s.*

B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences

All of the exports from the USA in Table (below) were reported as commercial trade in the LEMIS database. Overall, only 5% of the exports in the Table (below) were reported as wild, while 93% were reported as captive-bred or farmed. However, because these species are not CITES-listed, it is not possible to determine whether the animals are bred according to *Resolution Conf. 10.16* on *Specimens of animal species bred in captivity*, or whether and what level of wild material is being used as parental stock or are being collected from the wild and reared in captivity.

This reportedly high level of captive breeding is an abrupt shift from earlier analyses. Of the 284 individuals exported from the United States during 1996-2000, 64% were wild caught and almost 17% were some form of captive born or bred.

Overall, there appears to be an increasing trend in trade. In another analysis of LEMIS data between 1989 and 1997,total exports equalled 329 individuals, equating to 37 specimens per year for that 9-year period. Between 1996-2000, 284 individuals were exported from the United States averaging 71 individuals per year over a 5-year period. The total exports for the 12-year period in the Table (below) were

According to export data obtained from the US Fish and Wildlife Service, the number of captive-bred Emydoidea blandingii (source code C or F) *being exported for all purposes increased from 2000 to 2004, before declining in 2006 (Figure below).Since then, exports showed a general increase, though in 2012 exports once again decreased, but this may partly be explained by incomplete records for November/December. Hong Kong and Japan were by far the most common destinations for individuals being exported from the USA.*

U.S. Export Data for Emydoidea blandingii *2000–2012 (US Fish and Wildlife Service's LEMIS database). Note that data for 2012 are incomplete as they do not contain full records for November or December.*

Supporting Statement (SS)

976 specimens which averages to 81 specimens per year. Thus, there appears to be an increasing trend in the annual number of U.S. exports.

U.S. Exports of *Emydoidea blandingii*; 1999-2010

Year	# Individuals	# Shipments
1999	50	10
2000	44	10
2001	43	9
2002	89	5
2003	124	18
2004	188	19
2005	54	8
2006	1	1
2007	72	9
2008	49	7
2009	154	19
2010	108	13
Total	976	128

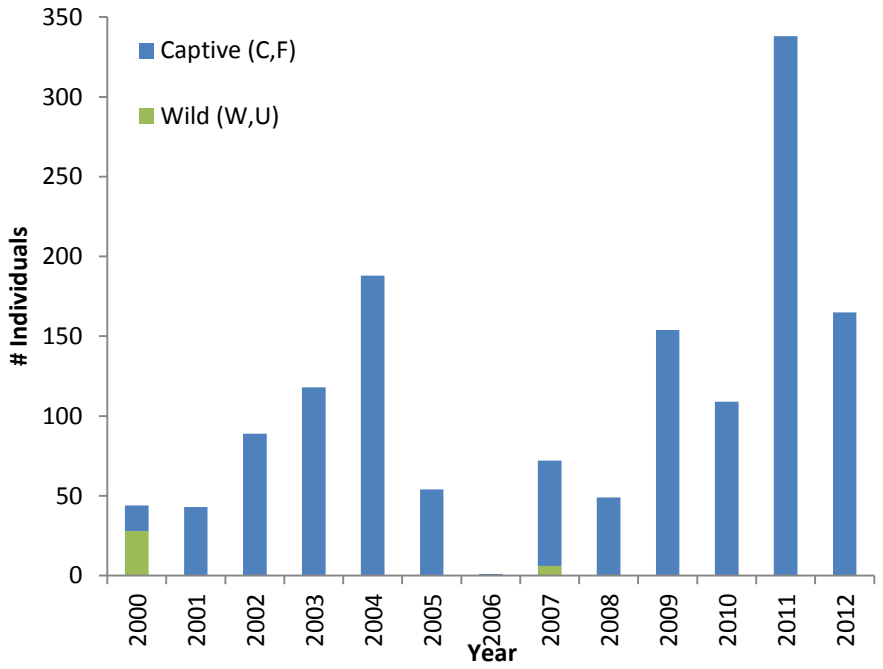
The predominant form of trade is as live pets, though in Ontario, evidence suggests that this species is also harvested for the food industry and traditional medicinal uses.

In Canada, collection for the pet trade is perceived as a growing threat. In Nova Scotia, the threat of collection of the species is thought to be of medium concern relative to the other threats facing the species such as habitat loss. This is because the threat from collection is localized and ongoing, but of unknown frequency and based on some uncertain data. The severity of this impact could be high--there is thought to be a correlation between collection of individuals and population viability for the Nova Scotia population.

Due to prohibitions under Canada's endangered species legislation which does not distinguish between specimens of captive born, bred in captivity or wild origin, the export of *Emydoidea blandingii* would only occur for purposes related to conservation.

In Ontario, there have been several convictions for the collection, transport, sale, and illegal aquaculture of freshwater turtle species, including *Emydoidea blandingii*.

Additional information



In Illinois, collecting of this species by hobbyists or visitors is a common concern of land managers. There was no evidence in other States of an impact of over-use, but it may be a threat in Missouri and Ohio (MWPARC, 2010).

Levell (2000) found that the number of US reptile dealers routinely offering Emydoidea blandingii *for sale increased from one in 1995 to eight in 1998. The price of a hatchling also increased, from USD30–40 in 1995 to USD100–125 in 1998.*

As populations of wood turtles and box turtles decline due to over-exploitation for the pet trade, collectors may focus their attention on Emydoidea blandingii *(Congdon and Keinath, 2006).*

Harding (1990) stated that Emydoidea *had not been as heavily exploited for the pet*

Supporting Statement (SS)	Additional information
This leads Environment Canada to believe that there is an established demand for this species in the pet trade, as the species brings a relatively high price on the Canadian market. The value of a juvenile *Emydoidea blandingii* on the illegal Canadian market is USD150, compared with USD250 for a large female and USD1600 for a breeding pair. Their market value is considerably higher than other turtles because of their ornate markings as well as their rarity and difficulty to acquire legally. The IUCN/SSC Tortoise and Freshwater Turtle Specialist Group identified the elimination of commercial collecting as an immediate conservation need for this species. Collection pressure for trade, whether targeted or as bycatch, magnify the impact of other co-occurring, cumulative, and expanding threats to this species' survival in the wild (i.e., increased predation and increased habitat fragmentation).	*trade or human food as certain other species and that these species grew too large and were too active to be recommended as aquarium pets*. *Juvenile captive-bred* Emydoidea blandingii *are available online for sale in the USA for USD329.99, though the retailer specifies these cannot be shipped internationally (www.reptilesncritters.com).* *Levell (2000) reviewed a number of European, Japanese and Canadian price lists and classified adverts in periodicals and found* Emydoidea blandingii *was 'conspicuously absent'. He concluded this may be explained by low demand owing to a general similarity in appearance to the widely kept European Pond Turtle* Emys orbicularis*.* Emydoidea blandingii *was found for sale in the pet trade in Hong Kong markets, 2000–2003 (Cheung and Dudgeon, 2006).*

Inclusion in Appendix II to improve control of other listed species

A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I

Emydoidea blandingii is a member of the Emydidae family. Similar species in this family that have overlapping ranges include the bog turtle (*Glyptemys muhlenbergii*) and the spotted turtle (*Clemmys guttata)* both of which are smaller than *Emydoidea blandingii* as adults. *Emydoidea blandingii* also have distinctive yellow marking on their chins.	Glyptemys muhlenbergii *has been listed in CITES Appendix I since 1992.* Clemmys guttata *is also proposed for inclusion in CITES Appendix II at CoP16.*

Other information

Threats

Emydoidea blandingii is impacted by habitat fragmentation and habitat destruction caused by road building and land conversion for human use across its range. Proximity to human habitation exposes these turtles to higher road mortality and facilitates access to the turtles by collectors. This species' propensity for movement over a wide area, being active during the day, and its proximity to human habitation exposes it to higher risk of encountering humans or other predators. *Emydoidea blandingii* habitat is degraded where human land use surrounding wetlands leads to effluents polluting the waters.	*A review of the literature by Congdon and Keinath (2006) indicated that habitat degradation and destruction were responsible for the greatest loss of* Emydoidea blandingii *populations throughout their recent range. Habitat destruction can either result in the death of an individual or its emigration, the latter of which puts it at risk and may increase density and competition at remaining habitat fragments.* *At Valentine National Wildlife Refuge in Nebraska, where the population is estimated to be more than 135 000 individuals, juveniles were found to suffer from higher road mortality (60%) than adults and during the spring/late summer and at weekends,*

Supporting Statement (SS)	Additional information
In addition to natural vulnerability to predators, *Emydoidea blandingii* may experience increased predation of eggs, young and possibly adults from subsidized predators (i.e., unnaturally large populations of predators near human population centres). *Emydoidea blandingii* are also impacted from indirect collection for trapping activities aimed at other species. *Emydoidea blandingii* is the second most common turtle species recorded as bycatch due to commercial trapping of snapping turtles in baited traps. Once captured, a ready market exists to sell *Emydoidea blandingii*, which is an incentive not to release the turtles back to the wild. Mortality and collection are barriers to gene flow which could jeopardize the species' long-term survival.	*mortality rates were at their highest. Chronic road kill of adults can have a severe impact on, or extirpate, small populations (Congdon and Keinath, 2006).* Emydoidea blandingii *habitat is threatened by the invasion of non-native plant species including* Lythrum salicaria *and* Phragmites*. Generally, it is not known what the impact of these non-natives species is having upon* Emydoidea blandingii, *though the introduction of the Asian tree* Elaeagnus umbellata *has resulted in the total abandonment of major nesting areas (Congdon and Keinath, 2006).* *Collisions with boats used for water sports have caused the deaths of* Emydoidea blandingii *in Ontario (SARA, 2008).* *There is an increased probability of inter-generational in-breeding in this species due to the reproductive lifespan of females being longer than generation times. There is an especially high chance of this occurring in small and isolated populations. Females normally make a nest in a location in proximity to a wetland that is not their resident wetland, but where habitat degradation means this is not possible, an increased probability of in-breeding may occur (Congdon* et al*., 2008).*
Conservation, management and legislation	
In Canada *Emydoidea blandingii* is listed as Endangered (Nova Scotia population) and Threatened (Great Lakes/St. Lawrence population) under Schedule 1 of Canada's Species at Risk Act (SARA). *Emydoidea blandingii* is listed as Threatened under the Ontario Endangered Species Act. This species is listed as a specially protected reptile under the Fish and Wildlife Conservation Act of 1997. Known localities of turtles are not publicly released due to the threat of poaching. In Quebec, *Emydoidea blandingii* is protected from disturbance, destruction or alteration by the *Loi sur la Conservation et la Mise en Valeur de la Faune.* Additionally, the species is listed as threatened (<< *menacee* ») under the *Loi sur les especes menacees ou vulnerables*. *Emydoidea blandingii* is listed as Endangered by the Nova Scotia Endangered Species. A conservation action program has been developed in Nova Scotia. In the United States *Emydoidea blandingii* are protected to varying degrees in all States, commercial harvest is not allowed in some U.S. States or is allowed but restricted in others. The species occurs in a number of protected areas across its range and conservation action programs have been developed in several U.S. States.	

Supporting Statement (SS)	Additional information
This species is one of the most northern ranged turtle species in North America. An assessment of the anticipated effects of ongoing climate change on *Emydoidea blandingii* habitat and survival has not been performed, but this is expected to complicate conservation success, and could potentially allow for turtles to expand their range northward into the Lake Superior drainage.	
Captive breeding/Artificial propagation	
There is a head starting program to reduce egg predation by raccoons at the Shiawassee National Wildlife Refuge. The hatchlings from ninety-three eggs obtained from wild nests are being reared by the Detroit Zoo and Herpetological Resource and Management (Jackson MI).The turtles will be raised until they are about 10 centimetres in size and are scheduled for release in the spring of 2013.	

Reviewers: J. Congdon, C. Shepherd.

Inclusion of Diamondback Terrapin *Malaclemys terrapin* in Appendix II

Proponent: United States of America

Summary: The Diamondback Terrapin *Malaclemys terrapin* is a medium-sized turtle that occurs in Bermuda and the USA. In the USA the species occurs in brackish coastal swamps in 16 eastern and south-eastern states. The population on Bermuda may well be the result of natural colonisation several centuries ago; it numbers fewer than 100 individuals at a single site. Life history parameters vary considerably across the range, with northern populations producing larger clutches (10-13 eggs compared with 4-7 eggs in southern populations). Male terrapins have been found to mature at 4-7 years of age, and females between 8-13 years, and are estimated to live for as long as 50 years. Historically very abundant in the USA, the species became popular as a gourmet food in the late 19th century in consequence of which the population declined greatly through overharvesting. As demand for the meat declined, populations began to recover. Nowadays, a major cause of mortality throughout much of the range is accidental capture and drowning in Blue Crab *Callinectes sapidus* traps, with a 1995 report suggesting that tens of thousands of individuals are killed in this way annually. Roadkill is also a significant cause of mortality in some areas. Males and juveniles are particularly vulnerable to being caught in crab traps as adult females are often too large to fit in the opening. Conversely, females are more likely to be killed by motor vehicles as they move around looking for nesting sites. Raccoon predation on adults appears to be important in some sites. There is no current range-wide population estimate, but the species is believed to number in the hundreds of thousands.

Since the 1980s there has been a resurgence in demand for the meat, both domestically and abroad, particularly in Asia. In addition to its meat, *Malaclemys terrapin* is also harvested for use in the pet trade due to its attractive patterning, and has been found for sale in pet markets in Asia. Trends in many parts of the range are unknown, but where there is information, populations are generally believed to be declining or stable. The species is currently classified as Lower Risk/Near Threatened by IUCN, based on a 1996 assessment (regarded as in need of updating). It is not listed as Threatened or Endangered in the US Endangered Species Act. Harvest for domestic use is, or has been, extensive, with a minimum of 10 000 turtles believed sold annually in New York city alone in the 1980s. At that time the annual harvest in Chesapeake Bay was estimated at 8000-12 000. More recently, in Maryland recorded harvest increased 23-fold to 10 500 in 2006 compared with 2005; legislation enacted in 2007 has closed the Maryland fishery. The extent of commercial harvest for domestic consumption in US States that still permit this is unclear.

Some 26 000 individuals were reported as exported from the USA in the period 1999-2010, Average annual exports increased from around 750 for the period 1999-2003 to a peak of over 6000 in 2006. Exports dropped to around 1800 in 2007 and then rose to an average of around 3000 per year for 2008-2012 (data for 2012 are incomplete). Data from 1996-2000 indicate around 60% of exports during that period were from wild-caught specimens, as were around two-thirds of the 2006 exports. More recently the great majority of exports have been reported as captive-bred, although some 800 individuals exported in 2012 are of wild or undeclared origin.

Analysis: The Diamondback Terrapin occurs in coastal areas of eastern and south-eastern USA, with a tiny, possibly natural, population on Bermuda. The species has an extensive range and evidently a substantial global population, although there are no precise estimates for the latter. Historically harvested in very large numbers for domestic consumption, populations greatly declined, although recovered to some extent in the 20th century. Harvest, at least initially largely for domestic consumption (and to a lesser extent for the pet trade), appears to have increased again from the 1980s. Export increased markedly after 2000, peaking in 2006 at 6000 individuals, although the likely source of most or all of the 2006 exports (Maryland) has now banned commercial harvest. The great majority of exports since then have been declared as captive-bred; however, a notable number of exports in the most recent year (2012) are of wild or undeclared origin. If a significant proportion of recent exports are in fact of wild origin, and given the relatively high mortality rates reported from other causes,

particularly drowning in crab traps, it is conceivable that the species might meet the criteria for inclusion in Appendix II in that regulation of trade may be required to ensure that the harvest of specimens from the wild is not reducing the wild population to a level at which its survival might be threatened by continued harvesting or other influences (Paragraph B of Annex 2 a to *Resolution Conf. 9.24 (Rev. CoP15).*

Supporting Statement (SS)	Additional information
Range	
Bermuda, United States of America.	
IUCN Global Category	
	Lower Risk/near threatened (Assessed 1996, Criteria version 2.3) (needs updating).
Biological and trade criteria for inclusion in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)	
A) Trade regulation needed to prevent future inclusion in Appendix I	
The US population size of *M. terrapin* in the United States is unknown but presumed to exceed 100 000. The Bermuda population is estimated at less than 100 individuals, has a very low recruitment rate and is dominated by females.	
Marked variation in life history traits of *M. terrapin* can be attributed to a broad latitudinal distribution. Female turtles from northern populations mature later and at a relatively larger size than those from southern populations. In northern populations, the average female may produce 0-3 clutches of about 10-13 eggs in a single nesting season (0 - 30 eggs/year); whereas smaller females from southern populations produce 4-6 eggs per clutch. There is little information available on whether females skip reproduction in particular years.	*Reproductivity varies considerably throughout the range of* M. terrapin*. In general, the further north the population is, the later the females will mature, the larger the females will be, the larger the clutches of eggs, and the shorter the nesting season (Pfau and Roosenburg, 2010). In Chesapeake Bay male terrapins mature at 4-7 years of age, and females between 8-13 years, and are thought to live for as long as 50 years (Roosenburg, 1991).* *Clutch size is likely 4-7 eggs (Gibbons* in litt*., 2012).*
Given the species' population dynamics, slightly increased rates of loss of juveniles and adults significantly affect a *Malaclemys terrapin* population. Life history traits, including delayed sexual maturity and high juvenile mortality make *Malaclemys terrapin* particularly vulnerable when it comes to removing even a few adults from the population.	*Individuals aggregate in large numbers to hibernate, often in areas easily accessible to humans, making them vulnerable to collection. Hundreds of hibernating individuals can be removed in a matter of hours using mechanical means: the majority of which would be adult females (Haramis* et al*., 2011).*
Malaclemys terrapin is native to 16 states in the United States (Alabama, Connecticut, Delaware, Florida, Georgia, Louisiana, Maryland, Massachusetts,	*NatureServe (2012) estimated the total range extent to be between 20 000-2 500 000 km^2. However, it is unclear how this estimation has been calculated as*

Supporting Statement (SS)	Additional information
Mississippi, New Jersey, New York, North Carolina, Rhode Island, South Carolina, Texas, Virginia). Its distribution is best described as discontinuous along the ~5,000 km of coastline between Cape Cod, Massachusetts, and Corpus Christi, Texas. A breeding subpopulation is also found in Bermuda.	*there has been no work done to estimate how far inland or into the ocean this species ranges (Burke* in litt*,, 2012).*
The range of *Malaclemys terrapin* is coincident with dense areas of human population and habitat destruction poses a serious and ongoing threat to *Malaclemys terrapin* populations. Coastal development, particularly salt marsh draining, increased use of coastal waterways for commercial and recreational purposes, and loss of sand dunes, an important habitat for nesting, contribute to the loss and degradation of this species' habitat. Four of the five US states with the highest levels of estuarine wetland losses are found within the range of *M. terrapin*: Florida, Louisiana, New Jersey, and Texas. The coastlines of these four states together comprise 67% of the range of *M. terrapin*.	
Native Bermuda populations are localized to three brackish water ponds on a golf course on the eastern end of the island.	
According to a range-wide survey of researchers and state biologists, most *M. terrapin* subpopulations are "declining to stable".	*At a workshop addressing the ecology, status and conservation of the Diamondback Terrapin in 1994, it was determined that of populations in 16 USA states, 11 had an declining or unknown population status and one was 'stable/increasing' (see Table below). In 2004, 13 states had a declining or unknown population status and no states reported an increase.*
Declines in populations are now mostly associated with increased anthropogenic activity, usually the use of crab pots but also habitat loss and commercial harvest. Significant local declines have been documented in the US states of South Carolina, New Jersey and Maryland due to crab trap mortality and vehicle strikes.	
On Kiawah Island, in the US state of South Carolina, population estimates from a mark-recapture study of *M. terrapin*, suggest a decline of 75% over the last two decades. High male and juvenile mortality rates in this subpopulation, likely due to incidental drowning in crab traps, result in an increase in the proportion of large females.	
In the US state of New Jersey, researchers found a significant decrease in the number and size of adult females of *M. terrapin* relative to the results of a study conducted 12-13 years earlier in the same tidal creek. This demographic shift was not attributed to crab trap mortality because the site is closed to trapping; however, a decline in large females is consistent with the observation that road mortality of nesting females has increased.	
In the coastal town of Jamaica Bay in the US state of New York, researchers found significantly high (92-100%) and consistent raccoon predation on *M. terrapin* eggs	

Supporting Statement (SS)

during the years 1998-2010. While in 1998-9 this population had the largest number of nests of any reported *M. terrapin* population, 12 years later the number of nests had dropped 43%. Jamaica Bay's cord grass marshes, on which *M. terrapin* depend, are disintegrating at a rapid rate, and the bay is predicted to be essentially marsh-free within 50 years.

Additional information

Table: Population status in the USA. Data were collected at workshops in 1994 (Seigel and Gibbons, 1995) and 2004 (Butler et al*., 2006).*

State	***1994***	***2004***
Alabama	*Unknown*	*Declining*
Connecticut	*Declining*	*Unknown*
Delaware	*Unknown*	*Unknown*
Florida	*Unknown/declining/ stable*	*Unknown/declining/stable*
Georgia	*Unknown*	*Unknown*
Louisiana	*Unknown/declining*	*Unknown*
Maryland	*Declining/stable*	*Unknown/declining*
Massachusetts	*Stable/increasing*	*Unknown*
Mississippi	*Declining*	*Unknown/declining*
New Jersey	*Declining*	*Unknown/declining*
New York	*Stable*	*Unknown/stable*
North Carolina	*Declining/Unknown*	*Unknown*
Rhode Island	*Unknown/stable*	*Stable*
South Carolina	*Unknown/declining*	*Unknown/declining*
Texas	*Unknown*	*Unknown/declining*
Virginia	*Unknown*	*Unknown*

A review of surveys carried out by Burger (1989) found that the number of nesting females in West End and Cedar Beach, New York declined from 14 in 1978, to two in 1988. Similarly, numbers declined from 28 in 1974 to six in 1986 in Little Beach, New Jersey. Finally, the number of male and female Diamondback Terrapin observed in Barnegat Bay, New Jersey declined from six in 1976/1977 to zero in 1988.

Loss of habitat, particularly in the northern parts of the range, forces individuals into sub-optimal nesting habitat such as along highways, which increases mortality (Burger in litt,, *2012).*

Rising human population density and development in coastal areas means when nesting beaches are destroyed by storms/hurricanes, there is no unused available habitat for the Diamondback Terrapin to move into (Burger in litt,, *2012). This problem may become more significant as the frequency and severity of storms increases.*

Supporting Statement (SS)	Additional information
B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences	
Historic trade was in the meat of *Malaclemys terrapin*. More recent exports are of live animals. The late 19th century, 400 000 lbs were harvested annually, but by 1920, *Malaclemys terrapin* populations had dwindled, and only 823 lbs were harvested that year on the Chesapeake Bay.	Malaclemys terrapin *was heavily exploited in the late 19th and early 20th centuries as a gourmet food item, causing populations to decline to very low levels at which point the species became commercially extinct. As demand for their meat decreased, it is presumed that many populations naturally began to recover (Gibbons* et al., *2001). Trade peaked in Maryland in 1891 when 89 000 pounds were sold, but by 1920 the population had declined by so much that only 829 pounds were sold (Carr, 1952* in *Butler* et al., *2006).*
Asian countries began importing *Malaclemys terrapin* and other US species due to the depletion of most of their native turtle species, with some vendors selling as many as 2,000-3,000 of these turtles in a single year.	*The recent resurgence in harvesting for meat began during the 1980's, driven by increased demand in the Chinatowns of the larger US and Canadian cities (Pfau and Roosenburg, 2010). Roosenburg (1990) estimated that in the late 1980's the annual harvest of* Malaclemys terrapin *in Chesapeake Bay was between 8000-12 000 individuals with a value of USD20 000-30 000. Most were sold to urban areas in the north eastern USA. Garber (1990* in *Moll and Moll 2004) estimated that during the 1980's at least 10 000* Malaclemys terrapin *were being sold annually in New York City's China town food markets.*
	In 2004 a genetic survey of Malaclemys terrapin *being sold for food in New York City markets showed that they originated mostly from Maryland; the remaining terrapins were assigned to New York, New Jersey, Virginia, North Carolina, and South Carolina (Lester, 2007).*
	The threat of commercial harvest was one of the top three threats to M. terrapin *populations in Maryland and Louisiana (Butler* et al., *2006).*
In 2006, the last year in which this species was legally harvested in the US state of Maryland, watermen reported a catch of 10 500 individuals of *M. terrapin*. The market demand for northern *Malaclemys terrapin* from Asian markets led to the permanent closure of the terrapin fishery in Maryland in April 2007; however, several other US states still allow commercial harvest of terrapins.	*In Maryland, demand from Asian buyers for terrapins of any size resulted in a 23-fold increase in take during the shortened 2006 season, which amounted to over 10 000* Malaclemys terrapin *being harvested. Under the new 2007 legislation, no wild-taken terrapin can be sold for any reason (Roosenburg* et al*., 2008).*
Commercial interest in *M. terrapin* remains high, primarily for the pet trade and, to some extent for use as food, in Asia. Hatchlings sell in pet markets of Hong Kong for USD50-100 apiece. Additionally, harvest of *Malaclemys terrapin* for turtle farms in Asia is taxing wild populations in the United States and contributing to potential illegal harvest in US states where they are currently protected. The extent to which *Malaclemys terrapin* is subject to illegal trade is unknown.	*Of 294* Malaclemys terrapin *sold in Florida between 1990-1991, four were reported to be destined for Japan, whilst the rest for the USA (Enge, 1993). The same study found that between 1990-1992, eight* Malaclemys terrapin *were bred in captivity in Florida for sale in the pet trade. In comparison, during the same two year period, 176* Malaclemys terrapin *were collected from the wild in Florida and sold.*
	There are some speciality terrapin breeders in the USA which produce for the pet

Supporting Statement (SS)	Additional information
A survey of online animal dealers estimated that 40% of the turtles for sale were wild-caught (using descriptions and sizes of animals provided by the seller) and that the average selling price per specimen was USD80 (with a range from USD35 to USD125).	*trade, whereas in Europe there are few breeders (Pfau and Roosenburg, 2010).* *A* Malaclemys terrapin *farmer in Maryland sold 2500 terrapins to a dealer in Louisiana who in turn sent many of the terrapins to China to be eaten or for breeding (Pelton, 2006).* *Between 2000-2003,* Malaclemys terrapin *was recorded for sale as pets in markets in Hong Kong and Guangzhou, Southern China (Cheung and Dudgeon, 2006).* *Shiau* et al. *(2006) found two subspecies of* Malaclemys terrapin *(*M. terrapin marcrospilota *and* M. terrapin terrapin*) for sale in pet stores in southern Taiwan during 2004-2005.* *Four* Malaclemys terrapin *were found for sale in Jakarta in 2010, whilst none were found in 2004 (Stengel* et al*., 2011).* *Between 1998-2002, 877 wild caught individuals were exported from the USA, and* Schlaepfer et al. *(2005) identified* Malaclemys terrapin *as a species expected to be particularly vulnerable to commercial take on the basis of their life-history characteristics, geographic distribution, and levels of US trade (*Schlaepfer et al., *2005).*
The exports in Table below were reported in LEMIS as commercial trade. Of the 26 342 individuals exported during this time period, 7,309 individuals (28%) were sourced as wild; 19 029 individuals (72%) were reported as captive-bred or ranched; and 4 individuals (0.02%) were reported as "other." Overall, there appears to be an increasing trend in export of *Malaclemys terrapin* from the United States. Specimens were primarily exported to Asia. An earlier analysis of LEMIS data from 1989–1997 showed that the number of live *Malaclemys terrapin* exported from the United States totalled 4002 specimens. The number of *Malaclemys terrapin* exported from the United States during 1996-–2000 totalled 2936 specimens.	*As included in the SS, Reed and Gibbons (2002) reported that 2936 individuals were exported from the United States during 1996-2000 This gives an average of 587 individuals per year over the 5-year period. This is an increase on exports between 1989 and 1997 (445 individuals per year), and a decrease on exports between 2001-2010 (2476 individuals per year). Of the 2936 individuals exported during 1996-2000, 59% were reported as being wild caught (Reed and Gibbons, 2002). This suggests there has been a decline in recent years in the percentage of exports that are reported as coming from wild sources.* *According to export data obtained from the US Fish and Wildlife Service, the number of captive-bred* Malaclemys terrapin (source code C or F) *being exported for all purposes increased steadily between 2000 and 2009, and accounted for 100% of exports in 2010 and 2011 (Figure below). In the first 10 months of 2012, captive-bred individuals accounted for 73% of all exports. A peak in the total number of* Malaclemys terrapin *exported can be seen in 2006, and captive-bred individuals only accounted for 21% of exports that year. Elevated harvest rates in Maryland that year likely contributed to this. The countries importing the greatest number of* Malaclemys terrapin *from the US were Hong Kong, Japan, Taiwan POC, the Republic of Korea and China.*

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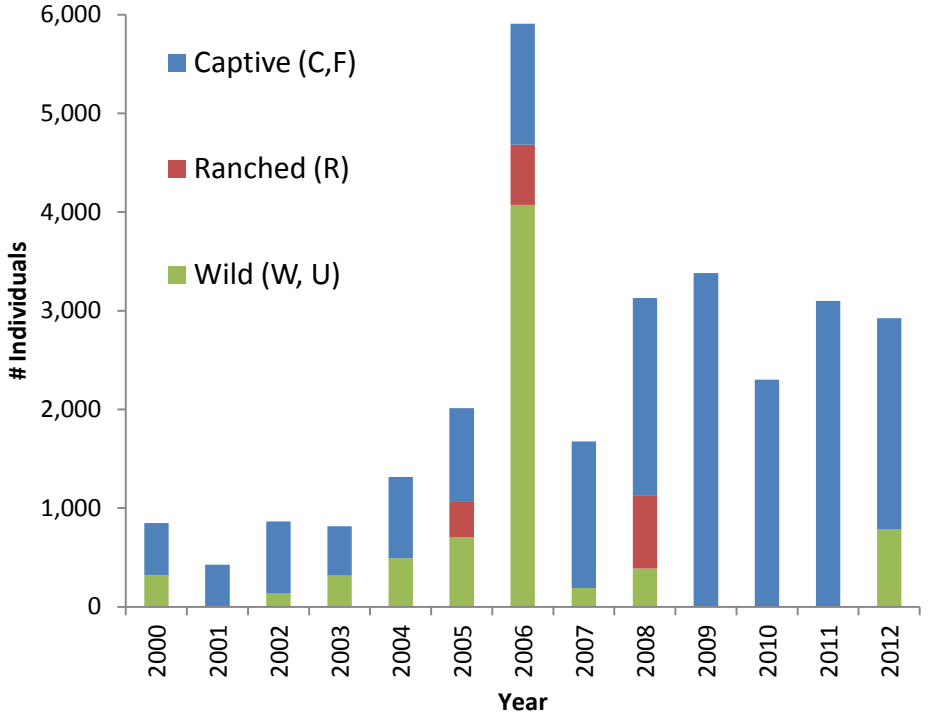
Table. US Export Data for *Malaclemys terrapin* 1999-2010 (LEMIS 2011)

Year	# Individuals	# Shipments
1999	737	19
2000	846	31
2001	422	27
2002	911	38
2003	904	35
2004	1499	76
2005	2399	78
2006	6129	96
2007	1867	77
2008	4021	77
2009	3609	69
2010	2998	88
Total	26 342	711

Additional information

Figure: U.S. Export Data for Malaclemys terrapin *2000-2012 (US Fish and Wildlife Service's LEMIS database). Note data for 2012 is incomplete as it does not contain full records for November or December.*



Inclusion in Appendix II to improve control of other listed species

A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I

There are no similar species in international trade.

Supporting Statement (SS)	Additional information
Other information	
	Threats
In US states with a commercial blue crab fishery, incidental drowning in crab pots is considered to be the major threat to *M. Terrapin.* Small males and juveniles are caught more frequently than adult females due to the limitations on the size of the trap entrance.	*Throughout much of its range, the major cause of mortality for* M. terrapin *is incidental capture in commercial crab traps and subsequent drowning. Roosenberg* et al. *(1997) estimated up to 78% of a population could be captured annually by crab traps; Bishop (1983) stated that in April and May in South Carolina alone, 285* M. terrapin *died per day after being captured, not including those caught in 'lost' crab traps. Grosse* et al. *(2009) estimated that 91% of the total* M. terrapin *biomass of a tidal creek in Georgia was lost as a result of neglected crab pots.*
Predicted sea-level rise represents a particularly severe impact on *Malaclemys terrapin* habitat, as it would affect inter-tidal and supra-tidal coastal marshland and nesting beaches at the seaward side.	*Haramis* et al*. (2011) found that the proportion of young (smaller) female* Malaclemys terrapin *in areas with no crab pots was 2.4 times higher than that in areas with crab pots.*
Adult females of *M. terrapin* are frequently struck and killed by motor vehicles while attempting to cross motorways in search of nesting sites. Hatchlings of *M. Terrapin* migrating to water after nest emergence can get trapped in tire tracks from vehicular traffic on nesting beaches.	Malaclemys terrapin *foraging and nesting habitat is under threat from ocean level rise (Burke* in litt*,, 2012).* *Between 1989-1995, 4,020* M. terrapin *were killed along a busy stretch of road in New Jersey (Wood and Herlands, 1997).*
Human-subsidized predators, native or introduced animals whose populations prosper as a result of association with humans and human-altered habitats, are another threat to *M. terrapin* populations.	*Diamondback terrapins and their eggs are vulnerable to predation by racoons, foxes, skunks, otters, sea gulls, crows, willets (*Catoptrophorus semipalmatus*) and king snakes (*Lampropeltis getulus*) (Pfau and Roosenburg, 2010). Raccoon predation on adults appears to be significant at some sites (Burke* in litt*,, 2012) as does predation by foxes (Burger* in litt*,, 2012).*
Large females of *M. terrapin* often bear scars from the propellers of motor boats.	*M. terrapin basking on the water's surface can be maimed or killed by high speed motor boats (Roosenburg, 1991).*
	Conservation, management and legislation
Malaclemys terrapin is not protected under the U.S. Endangered Species Act or other US Federal laws.	
The U.S. state of Massachusetts has designated *M. terrapin* as Threatened in this state. All US states within this species' range, except New York have designated this species as a Species of Greatest Conservation Need. Legislation in the US state of Maryland ended the commercial harvest of *M. terrapin* in this state in 2007. State protection or harvest regulation in the remaining US states within the species' range	

Supporting Statement (SS)	Additional information
has been recommended.	
There are a number of US Fish and Wildlife Service wildlife refuges and other protected areas within the range of *Malaclemys terrapin*; however the proportion of the species' habitat that is protected has not been quantified.	*US Fish and Wildlife Service wildlife refuges in coastal areas are subject to flooding and erosion, and in the north-eastern USA, changes in available beach (Burger* in litt*,, 2012).*
Captive Breeding/Artificial Propagation	
Experiments with captive propagation for commercial purposes were initiated by the United States Government in the early 20th century because the range-wide population was believed to be in danger of extinction.	*Several thousand* Malaclemys terrapin *were released into Cape Romain National Wildlife Refuge (CRNWR) waters from the North Carolina Beaufort Fishery Station in 1947(Anonymous, 1947* in *Griffon* et al*., 2006).*
This species is bred in captivity by hobbyists, but no large-scale captive-breeding programs exist. In 2006, researchers at the University of Alabama initiated a head-starting program with 150 hatchlings to be raised in captivity to a larger, less vulnerable size before being released back into the marshes of Dauphin Island in the US state of Alabama.	
Other comments	
The seven subspecies within the United States are as follows: *M. terrapin terrapin, M. terrapin centrata, M. terrapin tequesta*, *M. terrapin rhizophorarum, M. terrapin macrospilota, M. terrapin pileata, M. terrapin littoralis.*	*There have been known escapes and releases of* Malaclemys terrapin *throughout its range, meaning there is a possibility that populations contain subspecific hybrids (Pfau and Roosenburg, 2010). However, range-wide genetic analysis indicates genetic structuring consistent with the hypothesis that these releases have had little or no effect (Hart, 2005).*

Reviewers: J.W. Gibbons, R.L. Burke, J. Burger, M. Dorcas, C. Shepherd.

Proposal Part A. Inclusion of the following taxa of the Family Geoemydidae in Appendix II*: Cyclemys* spp.*, Geoemyda japonica, G. spengleri, Hardella thurjii, Mauremys japonica, M. nigricans, Melanochelys trijuga, Morenia petersi, Sacalia bealei, S. quadriocellata,* and *Vijayachelys silvatica*

Proposal Part B. Zero quota on wild specimens for commercial purposes for the following taxa already listed in Appendix II: ***Batagur borneoensis, B. trivittata, Cuora aurocapitata, C. flavomarginata, C. galbinifrons, C. mccordi, C. mouhotii, C. pani, C. trifasciata, C. yunnanensis, C. zhoui, Heosemys annandalii, H. depressa, Mauremys annamensis,*** **and** ***Orlitia borneensis***

Proponent: China and the United States of America

Proposal Part A. Inclusion of the following taxa of the Family Geoemydidae in Appendix II: *Cyclemys* spp., *Geoemyda japonica, G. spengleri, Hardella thurjii, Mauremys japonica, M. nigricans, Melanochelys trijuga, Morenia petersi, Sacalia bealei, S. quadriocellata,* and *Vijayachelys silvatica*.

Summary: The proposal concerns Geoemydidae in Asia. The first part proposes to list 15 (or 17, depending on the species content of *Cyclemys*) species in Appendix II: four are currently in Appendix III (China) and the remainder are at present not listed in the CITES Appendices. The four Appendix III species now proposed for transfer to II are: *Geoemyda spengleri, Mauremys nigricans, Sacalia bealei,* and *S. quadriocellata.* The proposal would have the effect of listing essentially all valid Asian species of Geoemydidae in CITES except for two farmed species (*Mauremys reevesii* and *M. sinensis*).

About half the species proposed for addition in Appendix II are globally threatened according to the current IUCN Red List: six are classified as Endangered and two as Vulnerable. Of the remainder, three were assessed as Lower Risk/near threatened and the others were not evaluated. Recently the IUCN Tortoise and Freshwater Turtle Specialist Group has reviewed current listings and proposed some changes. Almost no quantitative information from assessment or monitoring studies of wild geoemydid populations is available. For most Asian turtle species in trade, population trends are inferred from the volume of trade and/or the relative availability of specimens in food and pet markets. It is widely held that exploited populations of Asian turtle species, including Geoemydidae, are in decline and field collectors typically report that more effort is required now to find a turtle than in the past.

Demand in eastern Asia, particularly in China, for turtles for food and medicinal use and for the live animal trade is very heavy, and there is a very large volume of international trade, some of it illegal. Use of turtles has a long tradition in eastern Asia and recent increase in demand has intensified collection pressure and is believed to have depleted or extirpated populations of most turtle species in the region. Turtles are vulnerable to overexploitation because of life history characteristics, including high longevity, late maturity and limited annual reproductive output. Collection and trade tend to shift in turn from one species to another as supply declines below commercial viability, or trade becomes better controlled. Species are nominally protected by law in many range countries but it is clear that high levels of illegal trade exist, with substantial cross-border movement between Southeast Asian countries and southern China. Few data on levels of international trade, even where species have been listed in Appendix III, are available. Legal trade in Appendix-III listed species as reported to CITES has been mainly at low level. Loss or degradation of habitat, caused by sand or gold mining, dam construction, drainage and pollution also affects many species. Local subsistence use is high in several areas.

Asian species in the family Geoemydidae are broadly similar in appearance and the ways they are used in international trade: as food, medicine, to supply farming and ranching operations and for pets. Because of these similarities, combined with their shared biological vulnerabilities, the proposal suggests these species warrant inclusion in CITES at a higher taxon level under Paragraph B of Annex 2 a to *Resolution Conf. 9.24 (Rev. CoP15)*.

Cyclemys atripons A poorly-known species with a relatively small range in adjoining parts of southwest Cambodia and southeast Thailand. Recently reported fairly common in Cambodia probably because it is not in much demand for food (unpalatable) or medicine, and is rarely traded. Red List status not assessed by IUCN.

Cyclemys dentata An inadequately known species quite widely distributed in Southeast Asia from southern peninsular Malaysia to the Philippines. Formerly regarded as locally common although reportedly heavily exploited for the food trade. Assessed in 2000 by IUCN as Lower Risk/near threatened. This, however, was before 2008 work on genetic diversity within the genus which led to recognition of three new species within the range of '*C. dentata*' *sensu lato*. Systematics and species taxonomy within the complex remain imperfectly resolved, and it is not always possible to determine which species is being referred to in pre-2008 literature.

Cyclemys enigmatica A poorly-known species occurring in Malaysia (West, Sabah, Sarawak) and Indonesia (Sumatra, Java, Kalimantan), probably also Brunei. Red List status not assessed by IUCN. See remarks under *C. dentata*.

Cyclemys fusca A poorly-known species centred in Myanmar, possibly extending to adjoining northeast India and Bangladesh. Red List status not assessed by IUCN. See remarks under *C. dentata*.

Cyclemys gemeli A poorly-known species occurring in Bangladesh, extreme northeast India and possibly Nepal. Red List status not assessed by IUCN. See remarks under *C. dentata*.

Cyclemys oldhamii Widespread in mainland Southeast Asia, from Myanmar to Viet Nam, possibly extending to southern China. Not well known. This was recently the turtle most commonly encountered in two areas in Cambodia, probably because it is not in much demand for food (unpalatable) or medicine, and is apparently rarely traded. Red List status not assessed by IUCN.

Cyclemys pulchristriata A poorly-known species with a relatively small range in adjoining parts of eastern Cambodia and Viet Nam. Recently said to be still fairly common in Cambodia, probably because it is not in much demand for food (unpalatable) or medicine, and is apparently rarely traded. Red List status not assessed by IUCN.

Cyclemys shanensis This species appears in the CITES standard taxonomy for chelonians but is no longer recognised, with populations divided among three new species, none of which is in the CITES standard list.

Geoemyda japonica Endemic to Japan. Subject to a separate proposal (CoP16 Prop. 34) for inclusion in Appendix II (with a zero annual export quota with primarily commercial purposes for wild-caught specimens). See separate analysis for details.

Geoemyda spengleri Occurs in southern China, northern Viet Nam, and recently reported in adjacent Lao PDR. Formerly said to be abundant in China but now reportedly rarely seen in the wild, except in very remote places, and in steep decline; also said to be the only turtle still present in many areas

where all others had become extremely rare or had been extirpated. Relatively abundant in parts of northern Viet Nam, although large numbers are exported to markets in south China for live animal trade; excess collection appears to have caused decline in some populations. In the period 2004-2009, transactions reported to CITES indicate 1204/24 live specimens were imported/exported, mainly from China and Thailand. Assessed by IUCN as Endangered in 2000.

Hardella thurjii Present in the lower and middle reaches of the main river systems of the Indian subcontinent: Indus, Ganges, and Brahmaputra. Formerly not uncommon in Bangladesh and parts of India, but apparently rare in Nepal, status in Pakistan not known. Appears to have declined greatly in India and parts of Bangladesh, probably because of the long-standing heavy exploitation for food, attributed to its large size and palatability. Also affected by drainage and water pollution. Assessed by IUCN as Vulnerable in 2000.

Mauremys japonica Endemic to Japan; widespread, known from Honshu, Shikoku, Kyushu and several smaller islands. Although often found at high density, many populations are thought to be depleted or in decline, mainly because of land-use changes, also affected by collection for pets and competition with the introduced *Trachemys.* Assessed by IUCN in 2000 as Lower Risk/near threatened.

Mauremys nigricans Present in southern China, and may extend into northern Viet Nam. Appears to have declined sharply over the last few decades, and has not been located in the wild for several years. Because it is rare and attractive it is much in demand and expensive in the pet trade. Unlike many other Asian turtles, this species is not widely consumed, nor used for medicine, because of its strong musk odour. Assessed by IUCN as Endangered in 2000.

Melanochelys trijuga Widespread over the Indian subcontinent, Sri Lanka and Myanmar, and just extends into the northwest margin of Thailand. Exists in good numbers in many parts of India, where it is often the most frequently encountered turtle, particularly after first rains; low population density in some parts of India is probably a result of exploitation and water pollution. Also frequent in parts of Sri Lanka, particularly protected areas. Not in immediate danger in India, Nepal or Sri Lanka although widely collected for food and sometimes affected by habitat loss or modification. Little recent information available on populations in Bangladesh or Myanmar. Assessed by IUCN as Lower Risk/near threatened in 2000.

Morenia petersi Confined to sites with the Ganges-Brahmaputra systems in India, Bangladesh and possibly Nepal (where marginal and not recently confirmed). No substantive population data available. Two decades ago said to be common in parts of Bangladesh where other large turtles had become rare because of exploitation, but also said to be uncommon. Widely used for food, said to be heavily used in parts of Bangladesh, and has appeared in food markets in south China. Has never been widely available in the pet trade. Assessed by IUCN as Vulnerable in 2000.

Sacalia bealei Has a restricted range at lower elevations in southeast China. A decade ago said to be uncommon and declining, but little detailed and current information on population or trade levels appears to be available. Assessed by IUCN as Endangered in 2000.

Sacalia quadriocellata Formerly distributed over much of northern Viet Nam, parts of the eastern margins of Lao PDR, southern mainland China (and Hainan Island). A decade ago the species was said to exist in small to moderate numbers in northern Lao PDR and northern Viet Nam, where it was not under great threat, but it was reportedly severely threatened in China. No detailed and current information on population or trade levels appears to be available. In Lao PDR, turtles were caught for consumption or sale to Vietnamese traders. Assessed by IUCN as Endangered in 2000.

Vijayachelys silvatica Endemic to southwest India, with a restricted range in moist forests in the southern Western Ghat hills, mainly in Kerala. Rediscovered in the 1980s having not been seen since first described in 1912. Previously assigned to *Heosemys* (and formerly *Geoemyda*) but now seen as an isolated basal lineage within the family and placed in its own monotypic genus *Vijayachelys.* Generally appears rare and infrequently encountered, although highly cryptic and seasonal in appearance. Most individuals among local indigenous communities interviewed considered the species not uncommon and not declining. Forest fire was reported a threat and turtles are widely caught for local consumption. A few specimens have appeared in the European pet trade. Assessed by IUCN as Endangered in 2000.

Analysis: Information on population trends and trade volume in these species of Asian Geoemydidae is not comprehensive and for some included taxa little or no species-specific information is available. The following brief observations can be made regarding whether the species may meet the criteria for inclusion in Appendix II set out in Annex 2 a of *Resolution Conf. 9.24 (Rev. CoP15)*, that is whether regulation in trade in the species is necessary to prevent it becoming eligible for inclusion in Appendix I in the near future, or to ensure that harvest for trade is not reducing the population to a level at which its survival might be threatened by continued harvest or other influences.

Cyclemys species are poorly-known and taxonomically confused. One widespread form (*Cyclemys dentata sensu lato)* is reportedly heavily exploited for the food trade; others are reportedly not in demand for food or medicine and are rarely traded. There is insufficient information to determine whether *Cyclemys dentata s.l.*) meets the criteria for inclusion in Appendix II in Annex 2 a to *Resolution Conf. 9.24 (Rev. CoP15)*. Where it to do so, the others might well meet the look-alike criteria set out in Annex 2 b of the Resolution.

Geoemyda japonica is endemic to Japan and subject to a separate proposal (CoP16 Prop. 34) for inclusion in Appendix II (with a zero annual export quota with primarily commercial purposes for wild-caught specimens). It is not clear that the species meets the criteria for inclusion in Appendix II. See separate analysis for discussion.

Geoemyda spengleri has a relatively restricted distribution in southern China and northern Indochina. Populations are said to have declined greatly in China as a result of overexploitation and the species is reported to be harvested in Viet Nam for export to China, leading to further population declines. The species would appear to meet the criteria for inclusion in Appendix II.

Hardella thurjii occurs widely in the Indian subcontinent where it is reported to have declined greatly, apparently largely as a result of local exploitation for food. The species has appeared in international trade, but there is no information on current trade levels. It is not clear whether the species meets the criteria for inclusion in Appendix II.

Mauremys japonica is widespread in Japan and apparently locally common. There is some domestic use. The species is available in small numbers (as captive-bred animals) abroad but there is no evidence of any significant international trade, or any indication that harvest for international trade has an impact on wild populations. The species would not appear to meet the criteria for inclusion in Appendix II.

Mauremys nigricans is endemic to China where it has not been found in the wild by scientists for several years. China has reported no export since including the species in Appendix III in 2005. The absence of recorded international trade in recent years indicates that the species is unlikely to meet the criteria for inclusion in Appendix II. It probably meets the criteria for inclusion in Appendix I.

Melanochelys trijuga is widespread in South Asia and adjacent Southeast Asia. It is harvested for local consumption and has in the past been noted as exported from Myanmar. There is no information on current international trade or on the impact of harvest for trade on wild populations. It is not clear whether the species meets the criteria for inclusion in Appendix II.

Morenia petersi has a relatively restricted range in north-east India, Bangladesh and possibly Nepal. Information on its status is sparse and conflicting. The species is apparently harvested for local consumption and there are reports of its presence in large amounts in food markets in Hong Kong in the mid-1990s. There is little information on its current availability in markets outside range States. There is insufficient information to determine whether the species meets the criteria for inclusion in Appendix II.

Sacalia bealei is endemic to China and does not appear to feature to any significant extent in international trade. Any extensive use of the species is likely to be domestic. The absence of recorded international trade in recent years indicates that the species is unlikely to meet the criteria for inclusion in Appendix II. It may conceivably meet the criteria for inclusion in Appendix I.

Sacalia quadriocellata has a reasonably restricted distribution, is reportedly harvested for international trade and is regarded as severely threatened in one range State. It may meet the criteria for inclusion in Appendix II.

*Vijayachelys silvatic*a is a localised species in southwest India that does not appear to be heavily affected by harvest for export. The great majority of use of the species is evidently domestic. It is unlikely that it meets the criteria for inclusion in Appendix II.

In summary: *Geoemyda spengleri* and *Cyclemys dentata sensu lato* appear likely to meet the criteria for inclusion in Appendix II set out in Annex 2 a to *Resolution Conf. 9.24 (Rev. CoP15); Sacalia quadriocellata* may meet the criteria; the other *Cyclemys* spp., *Geoemyda japonica, Mauremys japonica, M. nigricans, Sacalia bealei* and *Vijayachelys silvatica* appear not to meet the criteria (although *Mauremys nigricans, Sacalia bealei* and conceivably *Geoemyda japonica* may meet the criteria for inclusion in Appendix I). There is insufficient information to determine whether *Hardella thurji, Melanochelys trijuga* or *Morenia petersi* do or do not meet the criteria.

The various species above resemble each other to greater or lesser degrees. It is conceivable that, were some species to be included in Appendix II on the basis of the criteria in Annex 2 a to *Resolution Conf. 9.24 (Rev. CoP15),* inclusion of others would facilitate implementation and they would therefore be considered to meet the criteria in Annex 2 b to the Resolution. It is not clear that this applies in all cases. In particular, neither of the two *Mauremys* species appears to meet criteria for inclusion under Annex 2 a (for different reasons in each case), both occur in countries that are not major exporters of the other species, and both resemble other *Mauremys* species in Europe and western Asia, not in the Appendices, more than they resemble the other species considered here.

Proposal Part B. Zero quota on wild specimens for commercial purposes for the following taxa already listed in Appendix II: *Batagur borneoensis, B. trivittata, Cuora aurocapitata, C. flavomarginata, C. galbinifrons, C. mccordi, C. mouhotii, C. pani, C. trifasciata, C. yunnanensis, C. zhoui, Heosemys annandalii, H. depressa, Mauremys annamensis,* and *Orlitia borneensis.*

Summary: A zero quota for wild-caught specimens is proposed for fifteen geoemydid species currently listed in Appendix II. Almost all are categorised by IUCN as Critically Endangered. Most have restricted ranges in China and Southeast Asia, some extremely so, and the range of one remains unknown. They are widely used for food and are heavily collected and traded for this purpose; some, particularly the rare or attractively marked *Cuora*, are subject to

intense demand for the pet trade and command a very high price. Legal trade in listed species as reported to CITES has been mainly at low to moderate level.

Batagur borneoensis Formerly assigned to *Callagur.* A large riverine species, widespread from extreme south Thailand to Borneo, most populations are thought to be in decline because of excess exploitation for meat and eggs; also affected by habitat changes. Assessed by IUCN as Critically Endangered in 2000.

Batagur trivittata Formerly assigned to *Kachuga*. Endemic to Myanmar. Thought possibly extinct a decade ago until individuals were found in a temple pond in 2002, and two small wild populations were found in the Dokkhtawady and the Upper Chindwin during 2002-2004 surveys. Current status not known in detail. Acutely threatened by fishing, gold-mining and dam construction. Assessed by IUCN as Endangered in 2000.

Cuora aurocapitata A restricted range species, endemic to China, and known from three river systems in southern Anhui. Described from market turtles in 1988 and found in the wild by scientists in 2004. Collection for pet trade began to deplete populations from the 1990s onward. Wild population now estimated at 50-100, probably fewer than are held in captivity. Threatened by fishing, pollution and habitat loss to hydroelectric projects as well as excess collection. Assessed by IUCN as Critically Endangered in 2000.

Cuora flavomarginata Present in China and Japan (Ryukyus). A decade ago, the mainland China population was considered highly endangered; the Taiwanese population had declined because of agricultural expansion but was then thought to be stable or recovering. In Japan (Ryukyus) populations are small and somewhat threatened but relatively well protected. Assessed by IUCN as Endangered in 2000.

Cuora galbinifrons Occurs in southern China (Gunagxi, Hainan) and neighbouring parts of Viet Nam and Lao PDR. The subject of a separate proposal (CoP16 Prop. 33) for transfer to Appendix I. See separate analysis for details.

Cuora mccordi Endemic to China. Described in 1988 on the basis of animals from a market in western Guangxi and only located in the wild in 2005; the known range extends over only 50 sq kms. Much in demand by collectors. Formerly said to be common, turtles began to be collected for trade in the 1980s and one of the last known to have been collected sold for USD 20 000 in 2008. Surveys found one animal in the known range in 2009 and none in 2010. Assessed by IUCN as Critically Endangered in 2000.

Cuora mouhotii Present in China and Southeast Asia west to Assam (India). Little information on population status available. *Believed to be widely consumed and in much trade.* Assessed by IUCN as Endangered in 2000.

Cuora pani Endemic to China where restricted to small streams in the Qin Ling mountain range in Shaanxi, central China. Few specimens with exact locality data are known; the species appears to exist as fragmented small populations. Exploited by the pet trade and affected by habitat loss. Some 250 animals are known in captivity where breeding has been quite successful. Assessed by IUCN as Critically Endangered in 2000.

Cuora trifasciata Extends from southern China to adjacent parts of Viet Nam, Lao PDR and possibly Myanmar. Has long been in demand for live animals and medicinal use but subject to rising demand and excess collection over recent decades. Also in demand to stock farming operations. Recent high prices (reportedly up to USD 20 000) thought to be driven by its supposed efficacy in combating cancer. Assessed by IUCN as Critically Endangered in 2000.

Cuora yunnanensis Endemic to China. The first specimens known were obtained in the vicinity of Kunming (Yunnan) but, despite intensive searches, the species was virtually unknown until live individuals were found in Kunming market in 2004. The wild range was only located in 2008. There is said to be exceptionally high demand from collectors. Breeding has occurred among turtles recently found. Assessed by IUCN as Critically Endangered in 2010.

Cuora zhoui Originally described from turtles in a market in southern Guangxi (China), the natural range remains unknown and only collectors have ever seen it in the wild. The species may occur in China or in northern Viet Nam, or conceivably both. No specimens are known to have entered trade in recent years. About half the 200 specimens that went to live animal collections survive; some breeding has occurred. Assessed by IUCN as Critically Endangered in 2000.

Heosemys annandalii Widely distributed in Southeast Asia. Formerly in the genus *Hieremys*. Threatened by collection for trade in Cambodia, Lao PDR and Viet Nam, probably threatened in Thailand, the population in Malaysia is marginal and very small. Habitat loss is a contributing factor throughout the range. Among the most immediately threatened turtles in Viet Nam because of its relatively large size and association with lowland wetlands in populated areas. Assessed by IUCN as Endangered in 2000.

Heosemys depressa Endemic to western Myanmar where restricted to the Arakan hills (Rakhine). Not seen by scientists in the wild for more than a century; turtles of this species began to appear in food markets in Myanmar and China during the 1990s, and the species was rediscovered in the wild in 2007 within a protected area established for elephants. Used locally for food and traded to China. Some breeding has occurred in captive groups in Myanmar, Europe and USA. Assessed by IUCN as Critically Endangered in 2000.

Mauremys annamensis Endemic to Viet Nam. The subject of a separate proposal (CoP16 Prop. 35) for transfer to Appendix I. See separate analysis for details.

Orlitia borneensis Ranges from peninsular Malaysia to Sumatra and Borneo. Traded in vast numbers and all sizes in East Asian food markets. Threatened in peninsular Malaysia, and highly so in Indonesia whence exported in large quantities despite official protection. Assessed by IUCN as Endangered in 2000.

For some species there has been little reported wild trade. Some are protected from harvest and trade in some range States, with some having adopted zero export quotas. It is not clear whether a zero quota is intended to cover ranched specimens, trade in which essentially involves individual taken from the wild. Some trade in some of the species is reported as of ranched specimens; there are not known to be commercial ranching operations for these species in range States.

Analysis: The stated original intention of the proponents was to transfer these existing Appendix II species to Appendix I, but this was modified following consultation with range States, although two separate proposals for transfer of *Cuora galbinifrons* (Prop. 33) and *Mauremys annamensis* (Prop. 35) to Appendix I have been submitted.

There are no guidelines for assessing a proposal to annotate an Appendix-II listing with a zero export quota of wild specimens for commercial purposes. However, such a listing is close to an Appendix-I listing in its effect. It seems reasonable therefore to assess these proposals against the criteria for inclusion in Appendix I set out in Annex I to *Resolution Conf. 9.24 (Rev. CoP15).* The following brief observations may be helpful regarding which species

may or may not meet these criteria. Some of these species have not been recorded in (legal) international trade recently; all may be expected to be in demand in international trade.

Batagur borneoensis is relatively widespread. There is no information on population levels, nor survey data on population trends. It may meet the criteria for inclusion in Appendix I on the basis of inferred population decline.

Batagur trivittata was until recently thought extinct. Known populations are apparently very small and highly vulnerable. The species would appear to meet the criteria for inclusion in Appendix I.

Curoa aurocapitata is believed to have an extremely small wild population and to have undergone major population decline in the past few decades. It appears to meet the criteria for inclusion in Appendix I.

Cuora flavomarginata appears to have relatively stable populations in two parts of its range (Taiwan POC) and Ryukyu Islands (Japan) and may not meet the criteria for inclusion in Appendix I.

Cuora galbinifrons As discussed in the analysis for proposal CoP16 Prop. 33, this species may meet the criteria for inclusion in Appendix I.

Curoa mccordi is known from a small area of China where it appears to have undergone a very marked population decline in the past few decades and now appears extremely rare. It appears to meet the criteria for inclusion in Appendix I on the basis of a marked decline and a small population with high vulnerability.

Curoa mouhoti is a widespread species for which no information is available on population levels, nor survey data on population trends, nor information on numbers harvested and in trade. There is insufficient information to determine whether the species meets the criteria for inclusion in Appendix I.

Cuora pani occurs in central China where populations are assumed to be small and fragmented. There is no survey data on population trends. There is insufficient information to determine whether the species meets the criteria for inclusion in Appendix I, although it may conceivably do so by virtue of a small population and high vulnerability.

Cuora trifasciata has (or had) a reasonably wide distribution but has undoubtedly been subject to intense collection pressure because of its high value. It is likely to meet the criteria for inclusion in Appendix I on the basis of inferred population decline.

Cuora yunnanensis if the species still persists in the wild, it is highly likely that it would meet the criteria for inclusion in Appendix I on the basis of a small wild population, restricted range and high vulnerability.

Cuora zhoui is an enigmatic species whose wild range (presumed China or Viet Nam, or both) remains unknown to science. No specimens are known to have entered commerce recently. If it still exists in the wild it seems highly likely to meet the criteria for inclusion in Appendix I on the basis of a small wild population, restricted range and high vulnerability.

Heosemys annandalii is relatively widespread. There is no information on population levels, nor survey data on population trends. It may meet the criteria for inclusion in Appendix I on the basis of inferred population decline.

Heosemys depressa is currently known from a single protected area in Myanmar and may meet the criteria for inclusion in Appendix I by virtue of a restricted range and high vulnerability.

Mauremys annamensis. As discussed in the analysis for proposal CoP16 Prop. 35, this species may meet the criteria for inclusion in Appendix I.

Orlitia borneensis is relatively widespread. There is no information on population levels, nor survey data on population trends. It may meet the criteria for inclusion in Appendix I on the basis of inferred population decline.

An Appendix-II listing with a zero quota for wild specimens that allowed export of ranched or captive-bred specimens may create implementation and enforcement problems in that wild-collected specimens could be reported as ranched or captive-bred.

Proposal Part A. Inclusion of the following taxa of the Family Geoemydidae in Appendix II: *Cyclemys* spp., *Geoemyda japonica, G. spengleri, Hardella thurjii, Mauremys japonica, M. nigricans, Melanochelys trijuga, Morenia petersi, Sacalia bealei, S. quadriocellata,* and *Vijayachelys silvatica*.

Supporting Statement (SS)	Other information
Cyclemys atripons Western Black-bridged Leaf Turtle. IUCN Global Category: Not assessed (IUCN, 2012). (Draft Data Deficient*). * See table footnote re "draft" categorisations Range: Cambodia, Thailand.	*Southwest Cambodia, southeast Thailand (Fritz* et al., *2008).* *In Cambodia present in the Cardamom Mountains in the southwest where the range extends over some 15 000 sq kms (Emmett, 2009). Occurs in swamps, streams, rivers (and sometimes in village ponds) from 1400 m down to sea level. Fairly common, not in demand for food (poor taste) or medicine, almost never in trade (Emmett, 2009).*
Cyclemys dentata Asian Leaf Turtle. IUCN Global Category: Lower Risk/near threatened ver 2.3 (ATTWG, 2000a; this assessment refers to "the species complex" of Asian Leaf Turtles and appears to include the other *Cyclemys* species listed here and recognised as full species after 2000. Needs updating). (Draft Data Deficient*, referring to *C. dentata* in a more restricted sense than ATTWG, 2000a).	*Brunei, Indonesia (Sumatra, Java, Kalimantan), Malaysia (southern peninsular Malaysia, Sarawak, probably Sabah), Philippines (Palawan Islands and Sulu Archipelago, introduced to Leyte and some other islands), Singapore (unconfirmed) (Fidenci and Castillo 2008; Fritz* et al., *2008).* *Widespread and locally reasonably common species, but occurs in substantial numbers in the food trade (ATTWG, 2000a; this assessment refers to "the species complex" of Asian Leaf Turtles and appears to include the other* Cyclemys *species listed here and recognised as full species after 2000). Fairly common in the Palawan group in the Philippines (Diesmos* et al., *2008).*

Supporting Statement (SS)	Other information
Range: Brunei (unconfirmed), Indonesia, Malaysia, Philippines. Around 15 000 turtles imported to the USA between 1999-2010 (from U.S. Fish and Wildlife Service's LEMIS Database).	*A tabulation of U.S. Fish And Wildlife Service's LEMIS data (imports to USA) for the period 1999-2010 in the Proposal gives an indication of trade levels in some of the species being considered for Appendix II listing. The geoemydid by far most traded was* C. dentata*, with more than 14 000 imported during this period. This name will probably refer to* C. dentata sensu lato *and so include individuals from populations since recognised assigned to different species in the genus.* *In Palawan (Philippines) traders report that this species is among those regularly and illegally exported to pet markets in Asia and Europe. In 2004, 44 kg of* C. dentata *was discovered on a bus by police in Viet Nam, who suspected it came from Laos (TRAFFIC, 2012). An unknown quantity of* C. dentata *was seized in Singapore in 2006, along with 2520* Cuora amboinensis *packed into 72 crates on a ship that had arrived from Sumatra (TRAFFIC, 2012). In 2010, 1000 freshwater turtles including an unknown number of* C. dentata *were seized from smugglers attempting to take them from Hong Kong to mainland China (TRAFFIC, 2012).*
	Cyclemys enigmatica *IUCN Global Category: Not currently listed (IUCN, 2012).* *(Draft Data Deficient*).* *Range: Brunei (unconfirmed), Indonesia (Sumatra, Java, Kalimantan), Malaysia (West, Sabah, Sarawak), (Fritz* et al., *2008).*
	Cyclemys fusca *IUCN Global Category: Not currently listed (IUCN, 2012).* *(Draft Data Deficient*).* *Range: Myanmar (Fritz* et al., *2008); in adjoining Bangladesh and northeast India (unconfirmed).*
	Cyclemys gemeli *IUCN Global Category: Not currently listed (IUCN, 2012).* *(Draft Data Deficient*).* *Range: Bangladesh, Nepal (unconfirmed), India (extreme northeast) (Praschag* et al., *2009).*

Supporting Statement (SS)	Other information
Cyclemys oldhamii Southeast Asian Leaf Turtle. IUCN Global Category: Not currently listed (IUCN, 2012). (Draft Data Deficient*). Range: Brunei, Cambodia, China, Indonesia, Malaysia, Myanmar, Thailand.	*Range according to Fritz* et al. *(2008) includes Cambodia, Lao PDR, Myanmar, Thailand, Viet Nam, southern China (unconfirmed) but not Brunei.* *In Cambodia present in Prey Long (central Cambodian swamp forests) and Virachey National Park and the most frequently encountered turtle species in both sites. Probably stable because not in demand for food (unpalatable) or medicine and almost never in trade (Emmett, 2009).*
Cyclemys pulchristriata Eastern Black-bridged Leaf Turtle. IUCN Global Category: Not currently listed (IUCN, 2012). (Draft Data Deficient*). Range: Cambodia, Viet Nam.	*Central and south Viet Nam, eastern most Cambodia (Fritz* et al., *2008).* *In Cambodia only recorded east of the Mekong River in the Mondulkiri region, where apparently still fairly common, probably because not in demand for food (unpalatable) or medicine and almost never in trade (Emmett, 2009).* *Between 1994-1999, 3144* C. pulchristriata *and* C. tcheponensis (= Cyclemys oldhamii) *were exported legally from Viet Nam (Hendrie, 2000). The former remains a valid species but the latter is currently regarded as a synonym of* Cyclemys dentata *(van Dijk* et al*., 2011)* Cyclemys dentata *(at the time identified as* C. tcheponensis*) appeared in 66% of seizures on northern land routes in Viet Nam, making it the 4th most traded turtle (Hendrie, 2000). A shipment of reptiles was seized in Viet Nam apparently en route to China, containing 18* C. pulchristriata *(TRAFFIC, 2012).*
Cyclemys shanensis (no longer recognised by Fritz *et al*., 2008). IUCN Global Category: Not currently listed (IUCN, 2012). Range: Indonesia, Lao PDR, Myanmar, Thailand, Viet Nam.	*The proposal follows Fritz and Havas (2007), the standard CITES nomenclature reference for turtles, in recognising five species of* Cyclemys*. Fritz* et al. *(2008) described three new species of* Cyclemys *and reassigned all populations of* Cyclemys shanensis *(no longer recognised) among the new taxa, resulting in seven species currently recognised. The three new taxa are listed below in this column. This later treatment is adopted in van Dijk* et al. *(2011), representing the then current position of the IUCN Tortoise and Freshwater Turtle Specialist Group.*
Geoemyda japonica Ryukyu Black-breasted Leaf Turtle. IUCN Global Category: Endangered (ATTWG, 2000b, in IUCN, 2012; needs updating). Range: Japan. Around 750 *Geoemyda spp.* imported to the USA between 1999-2010 (from U.S. Fish and Wildlife Service's LEMIS Database), which may include *Geoemyda japonica.*	*Also the subject of a single-species proposal (Prop 34) for Appendix II listing from Japan. See separate analysis.* *Restricted to moist forest on three islands in the Okinawa group (Ryukyu Archipelago). Observations suggest the range and population have declined since the 1980s. Reduction in forest area over several decades now limits the potential maximum range of Geoemyda japonica to under 30 000 ha on Okinawa Island, 1000 ha on Kume Island, and 500 ha on Tokashiki Island (CoP16 Prop. 34). The total range of 31 500 ha converts to 315 km^2.*

Supporting Statement (SS)	Other information
	There are no scientifically reasonable estimates for population size of G. japonica *on any of the islands inhabited by this turtle. However, the number of individual turtles, whose occurrence had been confirmed by direct counting on all three islands was reported as 343 in total. The area surveyed in this work obviously represents only a part of the whole habitat on each island, actual population size should be much greater (CoP16 Prop. 34).* *Observations on captive individuals suggest that it takes at least three years for newly hatched individuals to attain sexual maturity. Based on some observations of individuals kept in an outdoor open cage on Okinawa Island, an adult female lays one (or sometimes more) clutch, each consisting of one egg or two eggs (or rarely three) (CoP16 Prop. 34).* *Loss, modification and fragmentation of forest habitat appear to be the major threats. The species is nominally completely protected in Japan since being declared a National Natural Monument in 1975. Continuing illegal collection from the wild is an additional threat to wild populations. There is high demand from turtle-keepers in North America and Europe.* *Listed as Vulnerable in the 1991 and 1999 Japanese Red Lists; believed to be declining on Okinawa, with two small isolated subpopulations on Kume, and no status data for Tokashiki; at some risk from hybridization (Asian Turtle Trade Working Group, 2000b, in IUCN, 2012).* *Populations on Kume and Tokashika are reportedly small and particularly at risk because of habitat loss (Yasukawa and Ota, 2008).* *The relatively high price demanded for individuals of this species in shops and online outlets in China (and Hong Kong SAR), and the ready availability throughout the year, raises particular concern over the impact on wild populations. The species is a restricted-range endemic highly susceptible to excess exploitation (Kanari and Xu, 2012). A maximum sale price equivalent to USD5159 was recorded in Hong Kong during a 2011-2012 survey (Kanari and Xu, 2012).A contributor to a turtle forum discussion in 2006, stated that nobody was then breeding the species in Hong Kong but it was simply a convenient midway point for smuggling wild caught G. japonica with the claim that they were captive-bred animals.*
Geoemyda spengleri Black-breasted Hill Turtle.	*Recently reported from Lao PDR (Stuart* et al., *2011).* *Considered threatened by levels of trade and scarcity (ATTWG, 2000c, in IUCN, 2012).*

Supporting Statement (SS)	Other information
IUCN Global Category: Endangered (ATTWG, 2000c, in IUCN, 2012; needs updating). Range: China, Viet Nam. 1204/24 live turtles were imported/exported in trade reported to CITES in 2004-2009, mainly exported from China and Thailand. Appendix III (China). Around 3500 turtles imported to the USA between 1999-2010 (from U.S. Fish and Wildlife Service's LEMIS Database).	*Said to be abundant in China in the mid 20th century, but reportedly now rarely seen in the wild, except in very remote places, and in drastic decline (Lau and Shi Haitao, 2000). Recently (Gong* et al., *2009) said to be the only turtle species still present in many places in China where all others had become extremely rare or extirpated. Relatively abundant in parts of northern Viet Nam. Large numbers are exported via Hong Kong for the pet trade, and large numbers are sold in markets in south China; excess collection appears to have caused decline in some populations. Also much collected in Viet Nam for domestic pets (Yasukawa and Ota, 2010).* *According to the CITES trade database, 1167 live individuals were reported by importers in trade between 2004-2010. Of these, 801 were declared as wild caught and were exported from China to Germany and the Czech Republic. Between 1994-1999, 12 of this species were legally exported from Viet Nam according to CITES records (Hendrie, 2000); at that time trade in Viet Nam appeared to be mainly for the domestic market. A review of literature by Rhodin (2003) found this species has been recorded in turtle markets in China and Taiwan, and commented that previously there were high levels of trade in this species, but now it is scarce in markets.* *A tabulation of data from the U.S Fish and Wildlife Service's LEMIS Database (imports to USA) for the period 1999-2010 in the Proposal gives an indication of trade levels in some of the species being considered for Appendix II listing. This species had the second highest imports in the period, around 3500 animals.*
Hardella thurjii Crowned River Turtle. IUCN Global Category: Vulnerable A1cd+2cd ver 2.3 (ATTWG, 2000d, in IUCN, 2012; needs updating). (Draft Endangered*). Range: Bangladesh, India, Nepal, Pakistan. In Bangladesh *Hardella thurjii* are used as a source of protein for low-income non-Muslims and tribal peoples.	*Present in the middle and lower reaches of the main river systems in the northern Indian subcontinent (Indus, Ganges, and Brahmaputra); a report from northwest Myanmar needs verification (Das and Bhupathy, 2009a).* *In the late 20th century, described as rare in Nepal and common or fairly common in Bangladesh; appears to have declined greatly in India, probably because of the long-standing heavy exploitation for food, attributed to its large size and palatability. Also impacted by drainage and water pollution (Das and Bhupathy, 2009a).* *Hatchlings of the subspecies in Bangladesh have been exported for the commercial pet trade (Rashid and Khan, 2000). The species has been recorded in food trade in China (Lau and Shi Haitao, 2000) and in the medicinal trade in Taiwan (Chen* et al., *2000).*
Mauremys japonica Japanese Pond Turtle	*Endemic to Japan; widespread, known from Honshu, Shikoku, Kyushu and several smaller islands. Often found at high density, especially in central and western Honshu,*

Supporting Statement (SS)	Other information
IUCN Global Category: Lower Risk/near threatened ver 2.3 (ATTWG, 2000e, in IUCN, 2012; needs updating). Range: Japan. Less than 500 *Mauremys japonica* imported to the USA between 1999-2010 (from U.S. Fish and Wildlife Service's LEMIS Database).	*but many populations are thought to be depleted or in decline, mainly because of land use changes, also affected by collection for pets and competition with the introduced* Trachemys *(Yasukawa* et al., *2010).* *A small number of animals are in the pet trade (Rhodin, 2003). Eight individuals were seen for sale in one day Chatuchak Market, Bangkok, 2006 (Shepherd and Nijman, 2008). Internet searches reveal hatchlings are available for USD30 in the USA and Eur59 in Europe (Jenkins, 2012).*
Mauremys nigricans Red-necked Pond Turtle. IUCN Global Category: Endangered A1d+2d ver 2.3 (ATTWG, 2000f, in IUCN, 2012; needs updating). (Draft Critically Endangered*). Range: China. Wild populations of *Mauremys nigricans* appear to have crashed over the last few decades, and biologists in southern China have not located wild animals for several years. Appendix III (China).	*Occurs in Viet Nam (unconfirmed) (TCC, 2011).* *Wild populations appear to have crashed over the last few decades, and biologists in southern China have not located wild animals for several years. Because it is rare and attractive it is much in demand and expensive in the pet trade. Unlike many other Asian turtles, this species is not widely consumed, nor used for medicine, undoubtedly because of its strong musk odour (TCC, 2011).* *No trade reported to CITES since listing in Appendix III in 2005.*
Melanochelys trijuga Indian Black Turtle. IUCN Global Category: Lower Risk/near threatened ver 2.3 (ATTWG, 2000g, in IUCN, 2012; needs updating). Range: Bangladesh, India, Maldives, Myanmar, Nepal, Sri Lanka, Thailand, UK (Chagos).	*Populations in the Maldives and Chagos are probably introduced; may occur or have occurred in the Indus (Pakistan) (Das and Bhupathy, 2009b).* *Present in South Asia, including the Indian subcontinent, Myanmar, and extends marginally to northwest Thailand. Exists in good numbers in many parts of India and Sri Lanka, and often the most frequently encountered turtle, particularly after first rains. Low population density in some suitable areas in India probably a result of exploitation and water pollution. May be threatened in some areas of northeast India because of regular collection (Pawar and Choudhury in prep in Choudhury* et al., *2000). Not in immediate danger in India, Nepal or Sri Lanka although widely collected for food and sometimes affected by other factors. Little recent information available on populations in Bangladesh or Myanmar (Das and Bhupathy, 2009b).* *More than a decade ago, considered Endangered in Bangladesh, presumed to be Vulnerable or Endangered in Myanmar, common in India and Nepal, no data available*

Supporting Statement (SS)	Other information
	for Sri Lanka; overall the species was considered fairly secure (ATTWG, 2000g, in IUCN, 2012). *Live individuals and plastrons are exported from Myanmar to China (Bhupathy* et al.*, 2000). Some individuals are exported from Myanmar to Thailand (van Dijk and Palasuwan, 2000).*
Morenia petersi Indian Eyed Turtle. IUCN Global Category: Vulnerable A1cd+2d ver 2.3 (ATTWG, 2000h, in IUCN, 2012; needs updating). Range: Bangladesh, India, Nepal. In Bangladesh turtles *Moreina petersi* are used as a source of protein for low-income non-Muslims and tribal peoples. Less than 300 *Morenia petersi* imported to the USA between 1999-2010 (from U.S. Fish and Wildlife Service's LEMIS Database).	*Confined to sites within the Ganges-Brahmaputra system. One recent report (Aryal,* et al*., 2010) questions its continued existence in Nepal.* *Reportedly common a decade ago in parts of Bangladesh, but also reported rare in parts; affected by drainage and water pollution, also widely consumed, and traded to food markets in south China (rarely in the pet trade) (Das and Sengupta, 2010).* *Considered Vulnerable in Bangladesh, where it is the most commonly traded species; also LR/nt or VU in India. In East Asian food markets, supply reached peaks of 30 tons per day between April 1996 and May 1997, but disappeared from markets by 1998 (ATTWG, 2000h, in IUCN, 2012).*
Sacalia bealei Beal's Eyed Turtle. IUCN Global Category: Endangered A1d+2d ver 2.3 (ATTWG, 2000i, in IUCN, 2012; needs updating). (Draft Critically Endangered*). Range: China. Appendix III (China). Two specimens reported as imported in 2010. A few *Sacalia bealei* imported to the USA between 1999-2010 (from U.S. Fish and Wildlife Service's LEMIS Database) with around 1000 *Sacalia* spp. reported which may include this species.	*Former range in China probably restricted to the lower elevations inland from the southeast coastal area, including Hong Kong (Shi* et al*., 2008).* *Reportedly uncommon and declining in its restricted range (ATTWG, 2000i, in IUCN, 2012).* *Two captive-bred* Sacalia bealei *were exported from the USA to Argentina in 2008 and then two captive-bred* Sacalia bealei *were exported from Argentina to the USA in 2010. The species was formerly common in trade, but is now rarely seen (Rhodin, 2003).*
Sacalia quadriocellata Four-eyed Turtle.	*Formerly distributed over much of northern Viet Nam, parts of the eastern margins of Lao PDR, and mainland China (including parts of the Pearl River basin, Guangxi) and*

Supporting Statement (SS)	Other information
IUCN Global Category: Endangered A1d+2d ver 2.3 (ATTWG, 2000j, in IUCN, 2012; needs updating). Range: China, Viet Nam. Appendix III (China). 522 reported in trade 2006-2009.	*Hainan Island (Shi* et al*., 2008).* *Occurs in ponds and streams in wooded hill areas; genetically diverse and may comprise more than one species; wild populations in China are decreasing rapidly because of hunting and habitat loss (He* et al., *2010).* *Modest to small populations in northern Lao PDR and northern Viet Nam, where it is not under great threat, but Endangered in China, the main distribution area* (ATTWG, 2000j, in IUCN, 2012)*. The main threats to this species in China are over-collection for food trade, and habitat destruction and degradation due to deforestation, the construction of small hydroelectric plants, water pollution and liming of streams (Lau and Shi Haitao, 2000). In Viet Nam, the main threats are collection and habitat loss (Hendrie, 2000).* *Inhabitants of two villages in Phou Louey National Biodiversity Conservation Area, Houaphanh Province, Lao PDR, reported (respectively) catching about 20 per year, or 1-2 per year, and considered the species to be at the same abundance as formerly, or much rarer. Turtles were caught for consumption or, recently, sale to Vietnamese traders (Stuart, 1998).* *Of the 522 specimens in trade reported to CITES after listing in Appendix III in 2005, 500 exported from Myanmar were declared as ranched and imported by Viet Nam. A decade ago, the species was primarily collected in Viet Nam for the domestic pet trade (Hendrie, 2000). According to Hendrie (2000), CITES recorded 630 of this species to be legally exported from Viet Nam between 1994-1999. A review of the literature by Rhodin (2003) noted that this species had been recorded in markets in northern and southern China, and that there was some captive breeding for commercial sale on farms in China.*
Vijayachelys silvatica Cochin Forest Cane Turtle. IUCN Global Category: Endangered B1+2c ver 2.3 (ATTWG, 2000k, in IUCN, 2012; needs updating). Range: India.	*Previously assigned to the genera* Geoemyda *and* Heosemys *but placed in its own monotypic genus* Vijayachelys *by Praschag* et al. *(2006) after phyletic analysis showed its distinct and isolated basal position within the Geoemydidae.* *Generally rare and infrequently encountered, although highly cryptic and seasonal in appearance. Most individuals among local indigenous communities interviewed considered the species not uncommon and not declining, although it was less frequently seen than* Indotestudo travancorica*. Forest fire was reported a threat and turtles are widely caught for consumption (Kanagavel and Raghavan, 2012).* *A few specimens have appeared in the European pet trade since the late 20th century (Praschag* et al., *2006).*

Proposal Part B. Zero quota on wild specimens for commercial purposes for the following taxa already listed in Appendix II: *Batagur borneoensis, B. trivittata, Cuora aurocapitata, C. flavomarginata, C. galbinifrons, C. mccordi, C. mouhotii, C. pani, C. trifasciata, C. yunnanensis, C. zhoui, Heosemys annandalii, H. depressa, Mauremys annamensis*, and *Orlitia borneensis.*

Supporting Statement (SS)	Other information
Batagur borneoensis Painted Terrapin. IUCN Global Category: Critically Endangered A1bcd ver 2.3 (ATTWG, 2000l, in IUCN, 2012; needs updating). Range: Brunei, Indonesia (Sumatra, Kalimantan), Malaysia, Thailand (extreme south). 8625/16 611 live turtles were reported as imported/exported in CITES trade data 1996-2011, mainly exported from Myanmar and Malaysia.	*Formerly Callagur borneoensis, now included in the expanded genus Batagur (Praschag et al., 2007); the existing CITES listing retains the previous nomenclature (Fritz and Havas, 2007).* *The status of the species in Brunei Darussalam is uncertain; the species has not been reported there in the past century (AC22 Doc. 10.2 Annex 4).* *Very widespread but most populations are thought to be in decline because of excess exploitation for meat and eggs; also affected by habitat changes (Horne et al., 2012; TCC, 2011).* *Estimated wild populations in Peninsular Malaysia are believed to amount to a few thousand mature individuals at most. Once common, few large populations remain and most rivers have less than 50 nesting females, while only three rivers in Peninsular Malaysia are thought to have more than 100 (AC22 Doc. 10.2 Annex 4).* *Batagur borneoensis are reported to be almost extinct in Thailand, with only one population of scattered animals left in Klong La-Ngu in Satun Province (AC22 Doc. 10.2 Annex 4).* *In Peninsular Malaysia and Sarawak two clutches of 10-20 eggs were laid per year. Captive females in Thailand produced a clutch size of 5-15 eggs (AC22 Doc. 10.2 Annex 4).* *The species is now absent from several rivers on the east coast of Malaysia where locals reported the species nested in the 1980's. Data gathered between 1990-1997 indicates that egg production is declining in the Setiu, Linggi and Paka rivers (Sharma and Tisen, 2000).* *On the east coast of Peninsular Malaysia the largest known breeding populations are on the Setiu-Chalo and Paka river systems in Terengganu. A sampling programme carried out in the Setiu River between 2003 and 2005 provided an estimate of about 200 individuals. This compares with an earlier estimate of 600 - 700 individuals. Between 1985 and 1990, the population at Paka- Kerteh is believed to have declined from 160 to 108 individuals. Overall the population in Terengganu was estimated at 405 individuals*

Supporting Statement (SS)	Other information
	in 1995, compared with earlier estimates of 585 in 1990 and 178 in 1985 (AC22 Doc. 10.2 Annex 4). *Prior to the late 1990s, when consumption in East Asia increased dramatically, the primary threat appears to have been overexploitation of eggs for local human consumption. International trade is in live specimens for meat in East Asia (adults) and the global pet trade (juveniles) (AC22 Doc. 10.2 Annex 4).* *Listed in Appendix II in 1997.* *The CITES Trade database indicates that around 7000 wild-caught turtles, and around 1000 captive-bred and ranched, were traded in the period 2001-2010, mainly from Indonesia and Malaysia. There have been almost no wild-caught animals traded after 2004.* *Selected for review of significant trade (RST) at Animals Committee (AC) 20 (2004). Indonesia reported a zero quota and was excluded from RST. Biology, status and trade were reviewed at AC22. No exports were recorded from Brunei Darussalam; Malaysia reported having set zero quotas for 2005 and 2006; and in Thailand the species is fully protected from exploitation. Authorized trade levels from these three Parties were thus all considered Least Concern, and these Parties were therefore removed from the RST at AC22 (2006), which concluded the RST of Batagur (Callagur) borneoensis. Since 2006 there has been a zero quota for all specimens for Peninsular Malaysia.* *The species is not known to breed well in captivity on a commercial scale, requiring large breeding ponds and displaying aggressive behaviour. It may be that those declared as captive-bred are actually ranched wild hatchlings (AC22 Doc. 10.2 Annex 4).* *Activities such as sand mining, beach-front development, the construction of dams, sea walls and jetties and the removal of sand and vegetation are threatening the survival of the species as nesting sites are destroyed or become out of reach for the terrapins (AC22 Doc. 10.2 Annex 4).*
Batagur trivittata Burmese Roofed Turtle. IUCN Global Category: Endangered A1c ver 2.3 (ATTWG, 2000m, in IUCN, 2012; needs updating).	*Until recently regarded as possibly extinct (ATTWG, 2000m, in IUCN, 2012), individuals were found in a temple pond in 2002 and two small wild populations found in 2002-2004 surveys, in the Dokkhtawady and the Upper Chindwin (TCC, 2011). Acutely threatened by fishing, gold-mining and dam construction (Horne et al., 2012; TCC, 2011).*

Supporting Statement (SS)	Other information
(Draft Critically Endangered*). Range: Myanmar.	*Formerly Kachuga trivittata, now included in the expanded genus Batagur (Praschag et al., 2007); the existing CITES listing retains the previous nomenclature (Fritz and Havas, 2007).* *Listed in Appendix II in 2003.* *The only reported trade has been of scientific specimen from a captive bred animal.*
Cuora aurocapitata Yellow-headed Box Turtle. IUCN Global Category: Critically Endangered A1d+2d ver 2.3 (ATTWG, 2000n, in IUCN, 2012; needs updating). Range: China (south Anhui Province). The wild population of *Cuora aurocapitata* is between 50-150 individuals. 102/13 live turtles were reported as imported/exported in CITES trade data 2002-2010, mainly (re-)exported from Indonesia and China (Hong Kong).	*Restricted to three river systems in southern Anhui. Described from market turtles in 1988 and found in the wild by scientists in 2004. Collection for trade began to deplete populations from the 1990s onward. Wild population now estimated at 50-100, probably fewer than are held in captivity. Threatened by fishing, pollution and habitat loss to hydroelectric projects as well as excess collection. (TCC, 2011).* *Listed in Appendix II in 2000.*
Cuora flavomarginata Yellow-margined Box Turtle. IUCN Global Category: Endangered A1cd+2cd ver 2.3 (ATTWG, 2000o, in IUCN, 2012; needs updating). (Draft Critically Endangered*). Range: China, Japan (Ryukyus). 1393/1296 live turtles were reported as imported/exported in CITES trade data 2000-2011, mainly re/exported from China.	*Also present in Taiwan, POC (ATTWG, 2000o). The few specimens found in Hong Kong are almost certainly released animals and it is uncertain whether a breeding population exists (Lau and Shi Haitao, 2000).* *The mainland China population is highly endangered; the Taiwanese population has declined in recent decades because of agricultural expansion but the remnants may be stable or recovering slightly. In Japan (Ryukyus) populations are small and somewhat threatened but relatively well protected (ATTWG, 2000o, in IUCN, 2012).* *The population in Japan is known only from Ishigaki and Iriomote islands in the Yaeyama Island chain (Ryukyu Islands). A survey on Iriomote Island between 1982-1983 found the population density to be 0-128 individuals per ha. The species is widely distributed on Iriomote Island with a range size of 250 km^2. However, due to deforestation and development activities, the range has decreased to less than 30 km^2 (AC18 Doc. 7.1 Annex 2).* *In captivity the species has exhibited longevity of 19 years. Sexual maturity in the*

Supporting Statement (SS)	Other information
	wild has been estimated at 13 years for males and 14 years for females, with a variable clutch size of 1-4 eggs, and an annual number of clutches also varying between 1 and 4 (AC18 Doc. 7.1 Annex 2). *The main threats to this species are habitat loss and degradation in its East Asian range, collection for local consumption for its perceived medicinal benefits, and collection for the international pet trade (AC18 Doc. 7.1 Annex 2).* *Captive breeding has been undertaken for a number of years in the USA and in Europe, although it is unclear if the level of breeding is sufficient to meet the demand in the western pet market. Commercial captive breeding facilities in China are reportedly supplying an increasing number of hatchlings to the domestic pet market in China. The potential of these facilities to produce specimens for the food market is unknown. A turtle trader in Hong Kong estimated in 2001 60% of* C. flavomarginata *hatchlings in trade in China are harvested from the wild from Anhui, Hubei and Hunan provinces, where the species was reported to "remain common" (AC18 Doc. 7.1 Annex 2).* *Surveys undertaken at one market in Shanghai during 2001 indicated that several hundred live specimens of* C. flavomarginata *were available (AC18 Doc. 7.1 Annex 2). A survey of 12 market sites in Hong Kong during 1998-1999 found that of the 84 chelonian species encountered,* C. flavomarginata *was one of the top ten species traded in terms of volume, though it is unclear how many were from the wild. Since this species is not thought native to Hong Kong and captive breeding for this species is not known locally, the specimens have likely been imported (AC18 Doc. 7.1 Annex 2).* *The USA imported a total of 5035 live* C. flavomarginata *specimens from 1992-1999, primarily from China and Hong Kong (AC18 Doc. 7.1 Annex 2).* *Listed in Appendix II in 2000. Since then around 200 wild (including "O", "U" and" I") live turtles have been reported in trade as well as around 1200 live captive or F.* *The species was selected for review of significant trade (RST) at AC17 (2001). Reviewed at AC18 (2002) and placed in Category 2 for China and Category 3 for Japan. At AC19 (2003) China reported that it had suspended commercial export of this species since June 2000; consequently China was placed in Category 3 and was removed from the RST. This concluded the RST of* Cuora flavomarginata.

Supporting Statement (SS)	Other information
Cuora galbinifrons Indochinese Box Turtle. IUCN Global Category: Critically Endangered A1d+2d ver 2.3 (ATTWG, 2000p, in IUCN, 2012; needs updating). Range: China, Lao PDR, Viet Nam. *Cuora galbinifrons* was found in over 80% of shipments coming out of Viet Nam and represented the third most encountered species in those shipments. 2504/558 live turtles were reported as imported/exported in CITES trade data 1999-2010, mainly (re-)exported from Laos and China (Hong Kong). Around 3,000 imported to the USA between 1999-2010 (from U.S. Fish and Wildlife Service's LEMIS Database). This species had the third highest imports in the period. .	*In China, largely restricted to Hainan Island and southern margins of Guangxi, and present in adjacent parts of Laos and Viet Nam. Collected for food use in China.* *Possibly present in Cambodia (AC18 Doc. 7.1 Annex 2).* *Molecular phylogenetics suggests* bourreti *and* picturata*, both typically treated as forms of* galbinifrons*, and both from Viet Nam (possibly also adjacent Cambodia and Lao PDR), would be appropriately elevated to full species status (Stuart and Parham, 2004). This is adopted in van Dijk* et al. *(2011) but not in the CITES standard (Fritz and Havas, 2007).* Cuora galbinifrons *does not reach sexual maturity until 10-15 years old, and breeding records from captive animals suggest they produce one clutch a year of 1-3 eggs (CoP16 Prop. 33).* Cuora galbinifrons *has suffered dramatic population declines due to harvesting for the international pet trade and the Asian food trade. It was listed as Critically Endangered on the IUCN Red List of Threatened Species in 2000 due to an estimated 80% or greater decline in the past three generations, which was also projected to continue. Although this assessment needs updating, the Conservation of Asian Tortoises and Freshwater Turtles Workshop held in 2011 recommends that C. galbinifrons retains this status (CoP16 Prop. 16).* *Populations have reportedly (TCC, 2011) been much depleted by collection.* Cuora picturata *had only been known from market specimens but has recently been located in the wild, on the Langbian Plateau, Viet Nam (Ly* et al., *2011). Numbers in food markets in Viet Nam and China have fallen recently, possibly indicating depletion of wild populations (TCC, 2011).* *Anecdotal evidence suggests this species is uncommon and rarely encountered. Field surveys in Lao PDR 1993-1999 had an encounter rate of one* C. galbinifrons *per day when working with a trained turtle hunting dog in prime turtle habitat, estimating a density of less than one* C. galbinifrons *per km^2. It is reported that* C. galbinifrons *is collected intensively throughout its range, and hunters report that this once common species is now increasingly difficult to find. The majority of research for* C. galbinifrons *comes from Viet Nam, for instance hunters have claimed that where they used to be able to collect 20 individuals a day in the 1990s, by 2006 they could only find a few animals a week. (CoP16 Prop. 33).* *Primary threat is from heavy harvesting, throughout its range. A population decline is indicated by a decrease in the availability of this species at food markets coinciding*

Supporting Statement (SS)	Other information
	with a doubling of price in some regions. A smaller number of animals are thought to be exported to supply the pet trade in the western world as well as hobbyists in Japan, Hong Kong, Thailand and elsewhere within Indochina (AC18 Doc. 7.1 Annex 2). *It is still being collected and trapped in Hainan; reportedly even within protected areas (AC18 Doc. 7.1 Annex 2). It is believed that the majority of* C. galbinifrons *observed regularly in Chinese markets originated in other southeast Asian countries (AC18 Doc. 7.1 Annex 2).* *Listed in Appendix II in 2000. Since then around 650/500 wild (Including O, U, I) have been reported as imports/ exports. In addition 1500 ranched and 200 captive or F.* *The species was present in nearly every reported market survey that looked at turtle trade in China and Hong Kong since recording began in 1993. All these animals appeared wild caught and most were offered in the food markets. During the period of 2000-2003 in Hong Kong markets alone over 15 000* C. galbinifrons *were recorded. During this same period 905 animals are recorded as exported worldwide, indicating a high volume of illegal and unrecorded trade. Recent records shows a continued high volume of trade, with 1826 animals observed in food markets and 1944 animals in pet markets recorded in Guangzhou markets, China, for 2008-2011 (CoP16 Prop. 33).* *There is a demand from commercial turtle farms for wild-caught turtles for founder stock, which is driving the collection of wild individuals through increased trade prices (CoP16 Prop. 33).* *This species was reportedly the fifth most traded chelonian species in Hong Kong during May 1998 to May 1999, and that it is likely nearly all of the animals in trade are wild-collected (AC18 Doc. 7.1 Annex 2).* *It is reported that European importers inform of mounting difficulties in obtaining specimens, though the species is still commonly sold in the European and USA pet market (AC18 Doc. 7.1 Annex 2).* *This species has a history of high mortality in captivity and there are, to date, very few captive propagation programmes. A few private hobbyists are breeding the species in captivity, but there does not appear to be any commercial breeding. (AC18 Doc. 7.1 Annex 2).* *The species was selected for review of significant trade (RST) at AC17 (2001) (see*

Supporting Statement (SS)	Other information
	separate analysis for details).
Cuora mccordi McCord's Box Turtle. IUCN Global Category: Critically Endangered A1d+2d ver 2.3 (ATTWG, 2000q, in IUCN, 2012; needs updating). Range: China. *Cuora mccordi* may be extinct in the wild. Field surveys turned up one specimen in 2009 and none in 2010. 73/89 live turtles were reported as imported/exported in CITES trade data 2004-2011, (re-)exported from Germany.	*Described in 1988 on the basis of animals from a market in western Guangxi and only located in the wild in 2005; the known range extends over only 50 sq kms. Formerly said to be common, turtles began to be collected for trade in the 1980s and one of the last known to have been collected sold for USD20 000 in 2008. Surveys found one animal in 2009 and none in 2010. (TCC, 2011). Some 150 of the 350 animals known to have entered trade are believed alive, most in collections in the West, and many have bred.* *Listed in Appendix II in 2000. Since then around 10 wild (or U) live reported in trade with 60-80 Captive or F live in trade.*
Cuora mouhotii Keeled Box Turtle. IUCN Global Category: Endangered A1d+2d ver 2.3 (ATTWG, 2000r, in IUCN, 2012; needs updating) (draft Critically Endangered*). Range: China, India (Assam), Lao PDR, Myanmar, Thailand (unconfirmed). 2/3 live turtles were reported as imported/exported in CITES trade data 2009-2010, (re)exported from China (Hong Kong). Around 2200 imported to the USA between 1999-2010 (from U.S. Fish and Wildlife Service's LEMIS Database).	*Also present in Viet Nam.* *Listed in Appendix II in 2003. Since then five specimens have been reported in the CITES trade database.*
Cuora pani Pan's Box Turtle. IUCN Global Category: Critically Endangered A1d+2d ver 2.3 (ATTWG, 2000s, in IUCN, 2012; needs updating). Range: China. 87/56 live turtles were reported as imported/exported in CITES trade data 2001-2010, mainly (re-)exported from Germany and Switzerland.	*Inhabits small streams in the Qin Ling mountain range of central China. Few specimens with exact locality data are known; the species appears to exist as fragmented small populations. Exploited by the pet trade and affected by habitat loss. Some 250 animals are known in captivity where breeding has been quite successful. (TCC, 2011).* *Listed in Appendix II in 2000. 30 wild in trade in 2001. Around 55 captive and F live in trade.*

Supporting Statement (SS)	Other information
Cuora trifasciata Chinese Three-striped Box Turtle. IUCN Global Category: Critically Endangered A1d+2d ver 2.3 (ATTWG, 2000t, in IUCN, 2012; needs updating). Range: China, Lao PDR, Myanmar (unconfirmed), Viet Nam. *Cuora trifaciata* have disappeared from the Chinese Provinces/SAR of Fujian, Hong Kong, Guangdong, Hainan, and Guangxi. 645/196 live turtles were reported as imported/exported in CITES trade data 2000-2011. Around 750 imported to the USA between 1999-2010 (from U.S. Fish and Wildlife Service's LEMIS Database). In the eighties the species sold for $50-100 USD but by 1999/2000 the price had gone to $1500/kg because it was thought to cure cancer which has now brought this species to the brink of extinction.	*Formerly widely distributed in southern China, and extending into adjacent countries. Has long been in demand for live animals and medicinal use but subject to rising demand and excess collection over recent decades. Also in demand to stock farming operations. Recent high prices (reportedly up to USD20 000) thought to be driven by its supposed efficacy in combating cancer. (TCC, 2011).* *Listed in Appendix II in 2000. Less than 20 live specimens reported as Wild (W, O U or I) with almost 600 traded as captive or F as well as 20 ranched.*
Cuora yunnanensis Yunnan Box Turtle. IUCN Global Category: Critically Endangered B2ab(ii,iii,v); D ver 3.1 (van Dijk, P.P., Blanck, T. & Lau, M. 2010, in IUCN, 2012). Range: China (Yunnan).	*Any remaining population(s) is assumed to be extremely small and localized. Only three animals have been confirmed since 1946, all since 2004, despite at least 15 years of searches for this species, and monitoring of the intensive turtle trade in China. The first specimens were obtained in the vicinity of Kunming, but perhaps had been transported there for sale. Three individuals found since 2004 in Kunming market are in captivity. Remaining individuals would be under exceptional threat from collection, as the species potentially commands a very high price in the (illegal) pet trade; possibly about USD50 000 for the first animal to emerge from China into the international pet trade (van Dijk* et al., *2010, in IUCN, 2012).* *The species has bred in captivity and the wild habitat was finally located in 2008 (TCC, 2011).* *Listed in Appendix II in 2000. Since then no trade has been reported in the CITES trade database.*
Cuora zhoui Zhou's Box Turtle. IUCN Global Category: Critically Endangered A1d+2d ver 2.3 (ATTWG, 2000u, in	*Originally described from turtles in a market in southern Guangxi, the natural range remains unknown and only collectors have ever seen it in the wild. No specimens are known to have entered trade in recent years. About half the 200 specimens that went to live animal collections survive; some breeding has occurred (TCC, 2011).*

Supporting Statement (SS)	Other information
IUCN, 2012; needs updating). Range: China (unconfirmed), Viet Nam (unconfirmed). Less than 100 known individuals of *Cuora zhoui.* 33/7 live turtles were reported as imported/exported in CITES trade data 2000-2007, re/exported from China.	*Listed in Appendix II in 2000. Since then around 30 live turtles recorded in the CITES trade database (W, O, C, F).*
Heosemys annandalii Yellow-headed Temple Turtle. IUCN Global Category: Endangered A1cd+2d ver 2.3 (ATTWG, 2000v, in IUCN, 2012; needs updating). Range: Cambodia, Lao PDR, Malaysia, Thailand, Viet Nam. 33 976/70 394 live turtles were reported as imported/exported in CITES trade data 2003-2011, (re-)exported from Laos PDR and Viet Nam.	*Until recently assigned to* Hieremys*.* *Threatened because of trade exploitation in Cambodia, Lao and Viet Nam, probably threatened in Thailand, the population in Malaysia is marginal and very small. Habitat loss is a contributing factor throughout the range (ATTWG, 2000v, in IUCN, 2012).* *Probably one of the most immediately threatened turtles in Viet Nam; relatively large size and association with lowland wetlands makes the species susceptible to heavy collection pressure and habitat loss. Reported in trade en route to China (Stuart, 2004).* *Listed in Appendix II in 2003.* *The CITES Trade database shows large numbers of this species in trade in the period until 2010; most of the 13 228 transactions involving live wild-caught turtles are exports from Lao PDR or Malaysia before 2006. From 2006 onwards all trade has been in ranched (57 000 live, re-exported form Lao PDR and Myanmar) or captive-bred specimen (< 200 live, mainly from Malaysia).* *Malaysia has had a zero quota since 2007 initially for Wild caught, then live from Peninsular Malaysia then all from Peninsular Malaysia.* Heosemys annandalii *(along with H. grandis and H. Spinosa) was selected at AC23 (2008) for review of significant trade (RST), excluding the populations of Malaysia (which confirmed a zero export quota). Following correspondence from the Secretariat in May 2008, responses were received from Indonesia, Myanmar, the Philippines and Thailand, documenting their respective trade regulation or species protection measures in force and these Parties were thus removed from the Review. No responses were received from Brunei Darussalam, Cambodia, Lao PDR and*

Supporting Statement (SS)	Other information
	Viet Nam, and these Parties were retained in the RST.
Heosemys depressa Arakan Forest Turtle. IUCN Global Category: Critically Endangered A2cd, B1+2c ver 2.3 (ATTWG, 2000w, in IUCN, 2012; needs updating). Range: Myanmar (Arakan). 15/3 live turtles were reported as imported/exported in trade reported to CITES in 2003-2010, (re-)exported from China (Hong Kong).	*Recent discovery of a few specimens in markets in Myanmar and across the border in China confirm the rarity and threatened status of this rarely-seen species (ATTWG, 2000w, in IUCN, 2012).* *Not seen by scientists in the wild for more than a century; began to appear in Chinese food markets in the 1990s, and relocated in the wild in 2007 in a protected area for elephants. Threatened by habitat loss and collection. Some breeding has occurred in captive groups in Myanmar, Europe and USA. (TCC, 2011).* *Listed in Appendix II in 2003. Less than 20 live turtles have been reported in the CITES trade database.*
Mauremys annamensis Annam Pond Turtle. IUCN Global Category: Critically Endangered A1d+2d ver 2.3 (ATTWG, 2000x, in IUCN, 2012; needs updating). Range: Viet Nam. *Mauremys annamensis* has disappeared from the coastal lowland wetlands and rivers of some provinces of central Viet Nam. This species is considered one of the *Top 25 Endangered Freshwater Turtles at Extremely High Risk of Extinction.* It is threatened by severe loss of lowland habitat by degradation and fragmentation due to land conversion to agricultural land and urban development. Peak wildlife trade to largely Asian markets of this species in the 80's and early 90's greatly diminished populations making this species rare in the wild. It is still sought after for international trade but also for local consumption and traditional medicines in Viet Nam. 110/121 live turtles were reported as imported/exported in CITES trade data 2003-2009, (re-)exported from Germany and China. Less than 500 *Mauremys annamensis* imported to the USA between 1999-2010 (from U.S. Fish and Wildlife Service's LEMIS Database).	*Recruitment for* M. annamensis *is slow – animals take about seven years to mature, females are thought to produce one or two clutches of 5-8 eggs per year, and there is high egg and juvenile mortality rates (CoP16 Prop. 35).* *However it is known from only three provinces in Viet Nam, and within these it is restricted to small lowland lakes, ponds and wetland areas close to large rivers (CoP16 Prop. 35). The combined area of Quang Nam, Da Nang and Gia Lai provinces is approximately 27 000 km^2. Suitable habitat within this range would be considerably smaller.* *Endemic to rivers and coastal wetlands in central Viet Nam. Almost all habitats reportedly converted to rice cultivation or urban use; also in demand nationally for medicinal use and traded to China for the same purpose. Numbers in trade declined during the late 20th century, apparently because of declining populations. Recently (2006) documented in native habitat for the first time since 1939. Reproduces well in captivity (TCC, 2011).* M. annamensis *is classified as Critically Endangered on the IUCN Red List of Threatened Species, based on a population decline of 80% or more within the past three generations, and a similar projected decline in the future. Although this assessment needs to be updated, the Conservation of Asian Tortoises and Freshwater Turtles Workshop held in 2011 recommended that this species retains its Critically Endangered status for the same thresholds (CoP16 Prop. 35).* *Wild collection for Asian (and particularly Chinese) markets is suggested to pose a greater threat to* M. annamensis *than export for the Western pet trade, and the Asian*

Supporting Statement (SS)	Other information
	trade network for this species is largely illegal (Raffel and Meier, 2012). According to ATP (2008), intensive collection of M. annamensis *to meet the rising demand for turtles in China since the late 1980s has significantly reduced remaining populations, with fewer animals observed in the trade in each passing year* *During April and May 2006, comprehensive interview-based surveys were conducted in Quang Nam Province, focusing on* M. annamensis*. During the survey, 397 locals were interviewed, of whom 93 were able to provide information on* M. annamensis*. In particular, the two districts of Dien Ban and Duy Xuyen provided reliable information on the species, including information from a boy who was keeping a specimen of* M. annamensis *which he claimed to have caught in a small lake known locally as Ha Tre Lake. In November 2006 the MAP team returned to investigate Ha Tre Lake. During this visit non-lethal aquatic trapping was conducted which resulted in the capture of a single sub adult* M. annamensis*, the first ever confirmed wild capture of the species since 1939. As a result of the findings, the MAP established a project presence at the site starting in September 2007, with a full time monitoring team located in Dien Phong Commune. By February 2008, a total of 339 additional interviews were conducted in Duy Xuyen, Dien Ban, Que Son, Thang Binh and Dai Loc districts. In total, five* M. annamensis *were once observed in the hands of a single trader in Vinh Dien town of Dien Ban district. Interviews with traders indicate that the species is becoming increasingly rarer. This is further supported by the fact all five animals observed in trade were sub-adults or juveniles; the largest specimen was 280 g and still not mature and the smallest was only 85 g. In addition to interviews, a total of 110 days of trapping were carried out at three sites in Duy Xuyen and Dien Ban districts. Trapping resulted in no additional field records for* M. annamensis *(Nguyen* et al.*, 2008).* *Listed in Appendix II in 2003. Around 80 wild caught live turtles reported in trade (including O).* *Reported seizures involving* M. annamensis *provide evidence of illegal activities involving this species, although it is unclear whether any/all of these shipments were destined for international markets. In 1998, Vietnamese authorities reported having seized an estimated 700 (800 kg) of turtles and tortoises of 13 species, of which a small number were* M. annamensis*, from a public bus destined for Hanoi. The trader claimed that the animals were raised on farms in southern Viet Nam, but information provided to the authorities suggested that they were collected from the wild. The cargo was for possible onward shipment to the Chinese market (TRAFFIC, 2012). A 2007 genetic study looked at eight individuals confiscated in northern Viet Nam and assumed the animals: (i) to be wild, owing to the lack of known turtle farms breeding* M. annamensis *at that time, and (ii) destined for China presumably due in part to the*

Supporting Statement (SS)	Other information
	location of the seizure (Fong et al*., 2007).*
Orlitia borneensis Malaysian Giant Turtle. IUCN Global Category: Endangered A1d+2d ver 2.3 (ATTWG, 2000y, in IUCN, 2012; needs updating). (Draft Critically Endangered*). Range: Indonesia (Sumatra, Kalimantan), Malaysia. 39 951/15 340 live turtles were reported as imported/exported in CITES trade data 2003-2010, (re-) exported from Malaysia and Indonesia. Around 600 *Orlitia borneensis* imported to the USA between 1999-2010 (from U.S. Fish and Wildlife Service's LEMIS Database).	*Considered vulnerable in peninsular Malaysia, and endangered in Indonesia whence exported in large quantities despite official protection. Traded in East Asian food markets in huge numbers of animals of all sizes (ATTWG, 2000y, in IUCN, 2012).* *The Lao PDR and Viet Nam are not range States of the species but wild-caught specimens are exported from these States (AC24 Summ.Rec).* *Listed in Appendix II in 2003.* *The CITES Trade database shows large numbers of this species in trade in the period 2001-2010: 39 949/15 267 live animals imported/exported (plus 50 kg of carapace and 100 captive-bred turtles). Most wild turtles were from Malaysia (with additional trade originating from Lao PDR, not a range state, and Indonesia), all before 2006. Almost no trade has been reported since 2006 and this mostly Illegal re-exports from non-range states.* *Malaysia has had a zero quota since 2007 initially for wild caught, then live from Peninsular Malaysia then all from Peninsular Malaysia.* Orlitia borneensis *was evaluated for inclusion in review of significant trade (RST) at AC 23 but not retained in Review; however, the AC requested the Secretariat to seek clarification from Lao PDR and Viet Nam regarding their reported trade in this species. No responses were received and the species was retained at AC24 (2009), where the AC recommended that the Secretariat inform the SC accordingly to take appropriate action. The available session reports from SC58 do not indicate that this case was discussed.*

*"Draft" IUCN Red List assessments, as shown in Table 1 of the proposal Supporting Statement are by the Tortoise and Freshwater Turtle Specialist Group (the official authority for tortoises and freshwater turtles for the IUCN Red List); although some categorisations have been published (Van Dijk et al., 2011) they are subject to revision and not yet incorporated in the IUCN Red List itself (IUCN, 2012). The draft categories are only shown in the Table above if they differ from those in IUCN (2012) or if the species was not currently listed for IUCN (2012).

Reviewers: C. Shepherd.

Transfer of Indochinese Box Turtle *Cuora galbinifrons* from Appendix II to Appendix I

Proponent: Viet Nam

Summary: The Indochinese Box Turtle *Cuora galbinifrons* is a medium-sized omnivorous turtle, reaching up to 19 cm carapace length, known from China, Lao PDR, Viet Nam and possibly northeastern Cambodia. It is predominantly terrestrial and inhabits cool upland, moist, closed-canopy forest, usually between 300 and 1700 m altitude. From observations in captivity it seems that *C. galbinifrons* is slow to mature (10-15 years) and has low fecundity, with a single clutch of one to three eggs produced annually.

Apparently once common, field encounters with species are reportedly now rare even during dedicated surveys, indicating that populations have suffered severe declines. These are ascribed to over-collection, as the species is reportedly in high demand in the international pet trade and the Asian food market. The species is collected both during targeted searches and when encountered in searches for other forest products. It is reported that any individuals encountered are collected, regardless of legal protection status or location inside protected areas. Collected turtles are traded, apparently mostly illegally, through a network of local middlemen before being exported or consumed locally. The species is also affected by habitat loss and degradation, although this is generally considered to have less of an impact than over-collection. The species was classified as Critically Endangered by IUCN in 2000 due to an inferred 80% population decline. It is listed as endangered in the Viet Nam Red Data Book, and also as endangered in the China Red Data Book of Endangered Animals. It is legally protected from exploitation in China and Lao PDR. In Viet Nam it is under evaluation for inclusion under strict protective legislation. Enforcement is said to be insufficient.

The species has been included in Appendix II since 2000. Since then around 2500 specimens have been reported in trade in the CITES trade database, the majority in a single shipment of 1500 recorded by Viet Nam as imported from Lao PDR in 2006, and reported as ranched specimens. No exports were reported by Lao PDR in that year. However, the species is known to be difficult to raise in captivity, owing to a high rate of mortality in eggs and hatchlings and there are not known to be any facilities for rearing the species in Lao PDR. Around 480 animals traded under CITES since 2000 have been recorded as being of wild origin. Observations from markets indicate that actual volumes in trade may be or may have been several orders of magnitude greater than reported legal trade volumes. From 2000-2003 over 15 000 individuals were recorded from Hong Kong markets alone yet only 905 individuals were reportedly exported worldwide in that period, suggesting a very high level of illegal trade in this species. The species was included in the Animals Committee's Review of Significant Trade process, which eventually resulted in the Standing Committee recommending in July 2009 that all Parties suspend trade in the species with Lao PDR and Viet Nam. These trade suspensions are still (late 2012) in place.

Analysis: *Cuora galbinifrons* is a relatively widespread species that has been harvested intensively. There is no quantitative information on population levels or trends. However, the species is now apparently rarely recorded in surveys, with anecdotal information indicating that it was once common. It may meet the criteria for inclusion in Appendix I in Paragraph C of Annex 1 to *Resolution Conf. 9.24 (Rev. CoP15)* on the basis of inferred population decline.

Supporting Statement (SS)	Additional information
Range	
China, Lao PDR, Viet Nam, Cambodia (unconfirmed).	*The proposal to list the genus* Cuora *in Appendix II at CoP11 included Cambodia as a range state for this species based on Lehr* et al*. (1998).*
IUCN Global Category	
Critically Endangered (Assessed 2000).	*Critically Endangered A1d + 2d ver 2.3* (*needs updating).*

Biological criteria for inclusion in Appendix I

A) Small wild population

(i) Population or habitat decline; (ii) small sub-populations; (iii) concentrated geographically during one or more life-history phases; (iv) large population fluctuations; (v) high vulnerability

No population data are available for this species. Anecdotal evidence suggests this species is uncommon and rarely encountered. Field surveys in Lao PDR 1993-1999 had an encounter rate of one *C. galbinifrons* per day when working with a trained turtle hunting dog in prime turtle habitat.

Field surveys from Phu Yen province, Viet Nam, in 2012 found a single C. galbinifrons in a traditional collecting area during a week using a team of dogs, estimating a density of less than one *C. galbinifrons* per km^2.

C. galbinifrons does not reach sexual maturity until 10-15 years old, and breeding records from captive animals suggest they produce one clutch a year of 1-3 eggs. This slow growth rate and low fecundity makes this species vulnerable to high rates of decline.

B Restricted area of distribution

(i) Fragmented or localised population; (ii) large fluctuations in distribution or sub-populations; (iii) high vulnerability; (iv) decrease in distribution, population, area or quality of habitat, or recruitment)

No estimation is given on the area of distribution of this species. It is recorded from southern China including Hainan, from northern, central and southern Viet Nam, and neighbouring provinces in Lao PDR. Its range possibly extends into north-eastern Cambodia however this remains unconfirmed. Its area of habitat will be much smaller than this as it is restricted to upland, moist, closed canopy forest, much of which has been lost due to deforestation.

Within Lao PDR, C. galbinifrons *is known from just three provinces, all of which share a border with Viet Nam (Stuart and Platt, 2004; Stuart* et al*., 2011).*

Supporting Statement (SS)	Additional information
C) Decline in number of wild individuals **(i) Ongoing or historic decline; (ii) inferred or projected decline due to decreasing area or quality of habitat, levels of exploitation, high vulnerability, or decreasing recruitment**	
C. galbinifrons has suffered dramatic population declines due to harvesting for the international pet trade and the Asian consumption trade. It was listed as Critically Endangered on the IUCN Red List of Threatened Species in 2000 due to an estimated 80% or greater decline in the past three generations, which was also projected to continue. Although this assessment needs updating, the Conservation of Asian Tortoises and Freshwater Turtles Workshop held in 2011 recommends that *C. galbinifrons* retains this status. Much of the information on the population trends of this species is anecdotal – it is reported that *C. galbinifrons* is collected intensively throughout its range, and hunters report that this once common species is now increasingly difficult to find. The majority of research for *C. galbinifrons* comes from Viet Nam, for instance hunters have claimed that where they used to be able to collect 20 individuals a day in the 1990s, by 2006 they could only find a few animals a week. In 2012 local hunters in south-eastern Viet Nam reported that they use a large pack of hunting dogs to collect 50 individuals annually. Given that this is the same area with an estimated density of less than one individual per km^2, this level of collection appears unsustainable. A great deal of survey work has been undertaken in Viet Nam between 2009 – 2012 focused on determining the range and priority habitat for *Cuora galbinifrons,* with a focus on *Cuora g. bourreti* and *Cuora g. picturata.* Anecdotal information from interviews throughout the range has found that historic quantities of the species available for collection in the forest have been greatly reduced, with many hunters stating that while the species was common 7-15 years ago, it is now increasingly difficult to find.	*In 2011, the Conservation of Asian Tortoises and Freshwater Turtles Workshop noted that habitat destruction and intensive hunting have caused rapid declines in* C. galbinifrons *(Horne* et al., *2012).*

Trade criteria for inclusion in Appendix I

The species is or may be affected by trade

This species is in decline due to the collection of wild individuals for the international pet trade and Asian consumption trade. It is believed that most *Cuora galbinifrons* traded in Viet Nam are exported to Chinese markets.	

Supporting Statement (SS)	Additional information
All age classes except hatchlings are seen in trade; juveniles are normally kept at the village level as traders prefer not to buy very small individuals due to high mortality.	
Some shells or shell fragments are traded internationally, *Cuora galbinifrons* were reported as rare but present among imported turtle shells for Chinese traditional medicine in Taiwan POC.	
The UNEP-WCMC CITES trade database recorded a total of 2529 net exported animals or specimens of *C. galbinifrons* during the period 2000-2011 (Gross exports amounted to 2569 animals or specimens).	*According to the CITES trade database, 2497animals were reported as imported between 2000-2011, of which 2479 were live. The most common reported source of the animals was ranched (60%) although these all come from one shipment of 1500 animals from Lao PDR, reported as imports by Viet Nam. The next most common source was wild (19%), followed by pre-Convention individuals (11%) and those bred in captivity (8%).*
The species was present in nearly every reported market survey that looked at turtle trade in China and Hong Kong since recording began in 1993. All these animals appeared wild caught and most were offered in the food markets. During the period of 2000-2003 in Hong Kong markets alone over 15 000 *C. galbinifrons* were recorded. During this same period 905 animals are recorded as exported worldwide, indicating a high volume of illegal and unrecorded trade. Recent records shows a continued high volume of trade, with 1826 animals observed in food markets and 1944 animals in pet markets recorded in Guangzhou markets, China, for 2008-2011.	*For all reported (re-)exports, there were a total of 560 animals, 543 of which were live. The majority of animals were recorded as being for commercial purposes (88%), with 4% being recorded as for scientific purposes, 3% for zoos, 2% as personal and 2% for exhibits. The source for the animals was most commonly recorded as pre-Convention animals (85%), with 3% recorded as of wild origin and 3% bred in captivity. Eight per cent were recorded as of unknown origin (UNEP-WCMC, 2012).*
There is a demand from commercial turtle farms for wild-caught turtles for founder stock, which is driving the collection of wild individuals through increased trade prices.	*In a survey of turtles in markets in Hong Kong 2000-2003,* C. galbinifrons *was the fourth most traded species overall accounting for 4% of total trade, and was the third most traded food species, accounting for 10% of turtle trade in the food market (Cheung and Dudgeon, 2006).*
In an innovative analysis of risk posed by international trade, *Cuora galbinifrons* emerged with a relatively high score (1.5 out of a maximum of 2.0) of endangerment from trade.	C. galbinifrons *is the second most valuable species of turtle in trade in Viet Nam and Lao PDR after the* C. trifasciata *complex (Stuart* in litt., *2012).*
	The species is known to be in trade in the USA. According to one source writing in a US-based turtle forum in December 2011, hatchlings command prices of around USD800 while adults, being extremely hard to come by, are associated with even higher price tags (http://www.turtleforum.com/forum/upload/index.php?showtopic=143014&hl=%2Bgeoemyda+%2Bjaponica).
	The majority of trade in this species is illegal, and more must be done to increase national protection (particularly in the case of Viet Nam) and enforce legislation in order for international legislation to be effective (Raffel and Meier, 2012).

Supporting Statement (SS)	Additional information
	Reported seizures involving C. galbinifrons *provide evidence of illegal activities involving this species, although it is unclear whether any/all of these shipments were destined for international markets. In 1998, Vietnamese authorities reported having seized an estimated 700 (800 kg) of turtles and tortoises of 13 species, of which a small number were* C. galbinifrons*, from a public bus destined for Hanoi. The trader claimed that the animals were raised on farms in southern Viet Nam, but information provided to the authorities suggested they were collected from the wild in Viet Nam, Laos PDR and possibly Cambodia. The cargo was for possible onward shipment to the Chinese market (TRAFFIC, 2012). In 1999, an estimated 150* C. galbinifrons *were among specimens seized from a truck travelling from Central Vietnam to Hanoi, which, at the time, was the largest number of specimens of this species observed in a single trade seizure (Hendrie, 1999*)*. In 2004, 277 kg of turtles were seized* en route *to Vinh City, Viet Nam, of which an unknown number were* C. galbinifrons*. Police suspected that the turtles came across the border from Lao PDR (TRAFFIC, 2012).*

Other information

Threats

This species is restricted to upland, moist, closed canopy forest and is therefore vulnerable to habitat loss particularly through deforestation. However, this is likely to be a localised threat, and parts of the species range do fall within protected areas.

Conservation, management and legislation

Cuora galbinifrons was included in CITES Appendix II 2000 and was selected for the Review of Significant Trade (RST) at AC17 in 2001.

The species was selected for review of significant trade (RST) at AC17 (2001). The species was reviewed at AC18 (2002) and placed in Category 2 for all range States. At AC19 (2003) the AC was informed that China had suspended commercial export of this species since June 2000; consequently China was placed in Category 3 and was removed from the RST. No replies were received from Lao PDR and Viet Nam, and the AC recommended that they be placed in Category 1. AC24 (2009) recommended that action be taken by the Secretariat with the AC Chair. At SC58 (2009) the Secretariat suggested that, in view of the unsatisfactory conservation status of this species and the indication of some continuing exports from Lao PDR and Viet Nam, the Standing Committee should request the Secretariat to pursue contacts with these countries about the implementation of Article IV, paragraphs 2 (a) and 3 for this species and report to SC59. However, the SC recommended that, until the recommendations of the AC have been implemented to the satisfaction of the Secretariat and the AC Chair, all Parties suspend trade in Cuora galbinifrons *with Lao PDR and Viet Nam. The SC also instructed the Secretariat to report on these issues*

Supporting Statement (SS)	Additional information
	at SC61 and to contact and work with Lao PDR and Viet Nam to address the AC's recommendations, so that they could be resolved in a manner that addressed the conservation concerns for these species.
The genus *Cuora*, including *Cuora galbinifrons*, is included in Annex B of EU Commission Regulation no. 709/2010 (amending EC Regulation 338/97), which requires that a corresponding import permit must be issued by the country of import before a shipment of the species can enter the European Union.	*Since 10 May 2006, imports of wild specimens of* C. galbinifrons *from China have been subject to an EU import suspension (implemented on the basis of Article 4(6)(b) Council Regulation (EC) No 338/97). EU import suspensions have been in place for imports of wild specimens of this species from Viet Nam and Lao PDR since 26 November 2010.*
It has been listed in Appendix II of CITES since 2000. It is listed as Endangered in the Viet Nam Red data Book, and also as Endangered in the China Red Data Book of Endangered Animals.	
In China, *C. galbinifrons* is listed as a state major protected species, which limits the collection of wild individuals to scientific research, captive-breeding, exhibition and other special reasons. The import and export of this species must be certified by the government.	
There is a total ban on hunting and collecting this species in Lao PDR.	*Although legally protected in Lao PDR, trade continues almost unabated due to the porous border with Viet Nam and limited resources and capacity of law enforcement personnel (Stuart* et al*., 2011).*
C. galbinifrons is currently not under any specific protection in Viet Nam. Hunting permits are required by law for the collection of any wild animals, and also for the transportation of wild animals. Non-protected wildlife species can be registered for farming as long as founder stock is bought from captive-bred animals or from the government. However, *C. galbinifrons* is currently under consideration for inclusion within Viet Nam's principal protection law Decree 32 which would give it a higher level of legal protection.	
In 2011 the Conservation of Asian Tortoises and Freshwater Turtles Workshop discussed recommendations for *C. galbinifrons* as a Critically Endangered species. This included the transfer of this species to Appendix I and stressed the need for increased enforcement efforts and higher penalties for those convicted of illegally trading the species.	*According to the 2011 Conservation of Asian Tortoises and Freshwater Turtles Workshop, recent advances in captive husbandry techniques may allow captive breeding to play a greater role in the future conservation of this species. However, due to the species' relatively limited annual reproductive potential, it was considered that a decrease in human-induced adult mortality would have the greatest positive impact on the recovery of wild populations. The workshop therefore recommended greater protection of remaining wild populations of* C. galbinifrons*, through greater habitat protection and increased anti-poaching programmes, as well as transfer of the species from CITES Appendix II to I. Surveys to identify additional localities were regarded as a secondary priority (Horne* et al*., 2012).*

Supporting Statement (SS)	Additional information
Similar species	
Cuora box turtles can be separated from all other turtles by the combination of possessing a single hinge on the plastron allowing them to effectively close their shell, their distinctly domed to highly domed shell, and generally bright facial colouration that includes a strip of granular skin between the eye and tympanum. *C. galbinifrons* can be distinguished from other *Cuora* box turtles by a large yellow to orange area on each side of their carapace.	
Captive breeding/Artificial Propagation	
This species is regarded as difficult to breed and maintain in captivity as it is slow to mature and produces small clutches. There is high mortality in eggs and juveniles. It is maintained by hobbyists in Asia, Europe and USA in modest numbers, and there is a European studbook with over 150 registered animals. The Turtle Conservation Centre at Cuc Phuong National Park has been breeding *Cuora galbinifrons* (subspecies *bourreti* and *galbinifrons*) with limited success; survival in eggs is low and long term survival of hatchlings is lower. Around 30 *Cuora galbinifrons* of all three subspecies are maintained at the centre.	
Other comments	
Three subspecies have been identified: *C. galbinifrons galbinifrons*, *C. galbinifrons bouretti* and *C. galbinifrons picturata*. These subspecies are recognised as distinct species by some authors.	*Stuart and Parham (2004) proposed that* C. galbinifrons bouretti *and* C. galbinifrons picturata *should be raised to full species based on morphological differences. However Fritz* et al. *(2006) argue that wide intergradation zones exist between specimens and subspecies status should thus be retained. This proposal follows this standard. Recent work by Spinks* et al. *(2012) once again recommends that* C. galbinifrons bouretti *and* C. galbinifrons picturata *should be raised to full species based on analyses of mitochondrial and nuclear DNA of the three subspecies.* *According to the IUCN Red List Assessment, the conservation situation of this species is made even more acute by the diversity of subspecies:* C. g. bourreti *Obst & Reimann, 1994,* C. g. galbinifrons *Bourret, 1939,* C. g. picturata *Lehr, Fritz & Obst, 1998 and* C. g. serrata *Iverson & McCord, 1992.* Cuora galbinifrons serrata *has since been elevated to full species. Some consider* C. galbinifrons *to be so highly terrestrial that it should not belong within the genus* Cuora, *proposing the genus* Cistoclemmys *to accommodate this. Other authors do not accept this.*

Reviewers: C. Shepherd.

Inclusion of Ryukyu Black-Breasted Leaf Turtle *Geoemyda Japonica* in Appendix II (with a zero annual export quota for wild specimens)

Proponent: Japan

Summary: The Ryukyu Black-breasted Leaf Turtle *Geoemyda japonica* is endemic to Japan where it is restricted to moist forest on three islands in the Okinawa group (Ryukyu Archipelago). Forest cover has declined markedly on the islands since the 1980s and potential habitat for the species is now believed to cover around 300 km^2, virtually all on Okinawa Island. There are no population estimates available. The species was declared a National Natural Monument in 1975 and is therefore completely legally protected in Japan. There are no indications of domestic use of the species. It is in demand from hobbyists in North America, Europe and Asia and it is thought likely that at least a proportion of the turtles entering trade are wild-collected and illegally exported from Japan. Quantitative information is scarce, but it appears that the numbers entering international trade outside Japan are not large (e.g. the total founder population in the USA is estimated at 100–150). The species was assessed by IUCN in 2000 as Endangered.

Analysis: *Geoemyda japonica* has a restricted range, believed to be declining in extent as a result of deforestation. It is legally protected in its range State, with commercial collection and export banned, but is believed to be illegally exported to meet demand in the international hobbyist trade. There are no population estimates for the species, nor figures for numbers in trade, although indications are that the latter are not large. Overall, there is insufficient information to determine with any degree of confidence whether the species meets the criteria for inclusion in Appendix II. Were the species to be included in the Appendices, a zero quota for wild specimens would reflect the national legislation protecting it in Japan.

Supporting Statement (SS)	Additional information
Taxonomy	
	One of two extant species assigned to the genus Geoemyda*; formerly treated as a subspecies of the second (*G. spengleri*), present in mainland Asia. A third species,* G. amamiensis *is known only from Late Pleistocene fossil material from the Amami Islands (Japan).*
Range	
Japan.	
IUCN Global Category	
Endangered A1ce, B1+2c .	*Assessed in 2000; in need of updating.*

Supporting Statement (SS)	Additional information

Biological and trade criteria for inclusion in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)

A) Trade regulation needed to prevent future inclusion in Appendix I

Geoemyda japonica is endemic to Okinawa Island, Kume Island and Tokashiki Island of the Okinawa Island Group, Ryukyu Archipelago, southern Japan.

Essentially confined to *Castanopsis*-dominated forests. Reduction in forest area over several decades now limits the potential maximum range of *Geoemyda japonica* to under 30 000 ha on Okinawa Island, 1000 ha on Kume Island, and 500 ha on Tokashiki Island. [The total range of 31 500 ha converts to 315 km^2.]

There are no scientifically reasonable estimates for either population size or individual home range size of *G. japonica* on any of those islands inhabited by this turtle. However, the number of individual turtles, whose occurrence had been confirmed by direct counting on each of the three islands was reported (Table below). The area surveyed in this work obviously represents only a part of the whole habitat on each island, actual population size should be much greater.

Habitat	Period	Frequency	Number
Okinawa Island	2002-2002	107 times	302
Kume Island	1994-2002	18 times	29
Tokashiki Island	1994-2000	4 times	12

No precise numerical estimates of population size exist but field observations suggest decline in size and geographic range of *G. japonica* populations on at least Okinawa and Kume Islands since the early 1980s.

Observations on captive individuals suggest that it takes at least three years for newly hatched individuals to attain sexual maturity. Based on some observations on individuals kept in an outdoor open cage on Okinawa Island, an adult female lays one (or sometimes more) clutch, each consisting of one egg or two eggs (or rarely three).

IUCN Endangered A1ce, B1+2c—*the Criteria cited indicate population reduction, restricted range and effect of hybridization.*

Listed as Threatened II in the 2012 Japan Red List.

There is concern over the reduction in the distribution of this species due to changes in its habitat, land use and illegal capture (Ota and Hamaguchi, 2003).

It is very probable that the Okinawa population is declining because of the rapid reduction in forest area (Yasukawa and Ota, 2008). On Kume, very limited forest habitat is available, restricted to the north and south extremities, with cultivated land between isolating turtle populations. Populations on Kume and Tokashika are reportedly small and particularly at risk because of habitat loss (Yasukawa and Ota, 2008).

It has been suggested that the populations of Kume and Tokashiki Islands could become extinct as a result of land development, since habitat has been greatly restricted and population size already appears to be very small (Yasukawa and Ota, 2008).

Supporting Statement (SS)	Additional information

B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences

The species is of great interest to terrarium keepers and online sale prices of 1900 Euro and USD2750 were recorded in October 2012.

Only specimens bred in captivity before the 1975 regulations, or their captive-bred progeny could in principle be traded legally.

Of 31 *G. japonica* found recently in markets in China, Japan could be confirmed as the country of origin of six individuals, three of which were reported to have been wild-caught. Prices were between USD1427 and USD5159.

It is probable that international trade has stimulated illegal capture of wild individuals and it is therefore necessary to regulate and monitor international trade in this species. Demand as a pet is persistent, there are illegal trade cases such as the incident which the persons concerned were arrested in September, 2003 with suspicion of capture and sale of 41 individuals, and a case of paper sent to prosecutor in August 2011 dealing eight individuals of this turtle.

Demand and harvesting pressure on wild populations has been shown to be persistent, even in low season (Kanari and Xu, 2012).

The total of 31 in the SS included 30 individuals allegedly kept specifically for breeding. Six of the turtles were found to originate from Japan: of these, three individuals were described as wild-caught, while the source of the others could not be identified. One shop in Guangzhou, China, and two additional shops in Hong Kong also responded that they accepted orders for G. japonica *(Kanari and Xu, 2012). In a series of separate surveys carried out during the period 2000 to 2003, specimens were observed being offered for sale in markets in Hong Kong and China (Cheung and Dudgeon, 2006). A specialist has confirmed that three individuals of this species were on sale at a Hong Kong market in March 2011(van Dijk* in litt*., 2011).*

In North America, G. japonica *is traded as a pet, commanding a high price due to its rarity (Lee, 2004).*

The relatively high price demanded for individuals of this species in shops and online outlets in China (including Hong Kong SAR) and the ready availability throughout the year raises particular concern over the impact on wild populations. The species is a restricted-range endemic, highly susceptible to excess exploitation (Kanari and Xu, 2012). A maximum sale price equivalent to USD5159 was recorded in Hong Kong during a 2011–2012 survey (Kanari and Xu, 2012).

A discussion on a turtle forum in 2006 concerning the veracity of claims that G. japonica *traded from Hong Kong to the USA were captive-bred included a statement that nobody was then breeding the species in Hong Kong, but it was simply a convenient mid-point for smuggling wild-caught G. japonica with the claim that they were captive-bred animals—see www.turtleforum.com/forum/upload/index.php?showtopic=55453*.

Given the relative rarity with which this species has been bred past first generation progeny in captivity, it appears unlikely that all individuals held and traded today are derived from pre-1975 (i.e. legal) imports. The species has been advertised for sale in the USA and in Europe, and has been on sale in markets in Hong Kong in 2011 (Kanari and Xu, 2012). The USFWS reportedly cleared at least 30 individuals for entry between 2004 and 2011 (Kanari and Xu, 2012).

In 2007, TRAFFIC conducted a survey of 40 pet shops dealing in reptiles in Honshu, the

Supporting Statement (SS)	Additional information
	main island of Japan, which revealed the illegal sale of species protected under Japan's Cultural Properties Protection Law*, including* G. japonica *(Ishihara* et al.*, 2010).* *Regarding trade in the species in the EU, a specimen was observed for sale on a French reptile trader's website in February 2011 (Kanari and Xu, 2012).* *According to LEMIS data, since 2000 there have been seven imports into the USA, involving a total of 37 live* G. japonica*, all of which were reportedly of captive-born/bred origin. Hong Kong was recorded as the territory of origin/import for three of these imports (during 2004–05), with the other imports originating from the EU (Austria, Germany and the Czech Republic). Five of the seven imports were for commercial purposes.* *A recent unofficial source noted in 2012 that every one of the approximately 100–150 founder* G. japonica *specimens in the USA were wild-caught when imported more than 10 years ago, the great majority of which "probably came through under the radar or with* G. spengleri *paperwork"—see www.turtleforum.com/forum/upload/index.php?showtopic=143014.* *According to the LEMIS data for* G. spengleri *included in the family-level Geoemydidae proposal (CoP16 Prop. 32), over 3500 specimens of this species were imported into the USA during the period 1999–2010. Since China's population of this species was listed in Appendix III in 2005, reported trade has been limited: the CITES trade database holds records of 816 specimens imported and 24 exported during the years 2005 to 2010 (data downloaded November 2012). The majority of these were imports of live, wild-caught* G. spengleri *(800 specimens) imported by Germany from China for commercial purposes in 2005. In recent years, reported trade has mainly been in captive-born/bred or pre-Convention specimens, traded in small numbers between the USA, Canada, Germany and Switzerland.* *Although the SS states "it is probable" that international trade demand has stimulated illegal capture from the wild", indications are that this is certainly the case.*

Inclusion in Appendix II to improve control of other listed species

A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I

Its closely related species, *G. spengleti* has more markedly developed saw-tooth pattern and cephalic dark reddish brown dashed lines are not seen. Therefore, it is	*Non-specialists typically have difficulty in identifying the many species of Geoemydidae in international trade because of their broad similarity and frequent lack of prominent*

Supporting Statement (SS)	Additional information
possible to identify from *G. japonica*. In addition, *G. spengleti* in China is included in CITES Appendix III.	*diagnostic features, but the extent to which this is a problem in practical enforcement of regulations is not clear.*

Other information

Threats

Principally loss and degradation of forest habitat. Construction of roads and tracks, including within protected areas, promotes population fragmentation, mortality, and reduces forest floor humidity. Large numbers of turtles have been found trapped in roadside drainage channels.	*Illegal collection for private pet-keeping or the live animal trade and insecticide spraying to control pine beetle are suspected to affect populations (Yasukawa and Ota, 2008). There are possible threats from competition from two other geoemydid turtles recently introduced to Okinawa (Yasukawa and Ota, 2008).*
Invasion of exotic potential predators including mongooses, wild dogs and cats into its habitats in Okinawa Island and the intercrossing with *Cuora flavomarginata* or *Mauremys mutica* are also concerned.	*Hybrid specimens of* C. flavomarginata *and* G. japonica *have been recorded and could, in future, significantly affect* G. japonica *populations* (AC18 Doc. 7.1).

Conservation, management and legislation

The species was declared a National Natural Monument in Japan in 1975 (26 June) and all handling, capture and trade is subject to the Law for the Protection of Cultural Properties of the Japanese National Government. This law prohibits handling, use and trade without permission. The management authority will not allow export after its listing in the CITES Appendix II, unless the permission in accordance with the Law for the Protection of Cultural Properties is confirmed, examining the export legitimacy of this turtle at the border in accordance with Foreign Exchange and Foreign Trade Control Act. Some parts of the range are within protected areas, with regulation of land use changes.	*Although protective legislation may have reduced collection of live animals, it is very probable that such collection continues (Yasukawa and Ota, 2008). As noted above, the recent belief among apparently responsible turtle-keepers in the USA (forum post, 2006) was that supposed captive-bred* G. japonica *traded from Hong Kong were smuggled wild caught animals (see www.turtleforum.com/forum/upload/index.php?showtopic=55453).*

Captive breeding/Artificial propagation

The proposal notes that there appear to be no active captive breeding programmes in zoos or aquaria but cites reports that captive breeding has occurred.	*Captive breeding has been reported (Yasukawa and Ota, 2008) but may not be straightforward away from native habitats; terrarium keepers in North America, for example, suggest that while obtaining eggs is achievable, it is much more difficult to hatch young (forum post http://www.turtleforum.com/forum/upload/index.php?showtopic=55453). Subsequent posts on this forum suggest that producing hatchlings, at least among North American turtle keepers, is still a relatively rare event.*

Supporting Statement (SS)	Additional information
	Other comments
	Yasukawa and Ota (2008) note that effective protection of this species' primary habitat is the most urgent conservation measure. *The species is currently not listed in Appendix III of CITES. It is included in a broader proposal to CoP16 (CoP16 Prop 32) from China and USA to include virtually all Asian Geoemydids in CITES.*

Reviewers: C. Shepherd.

Transfer of Annam Leaf Turtle *Mauremys annamensis* from Appendix II to Appendix I

Proponent: Viet Nam

Summary: The Annam Leaf Turtle *Mauremys annamensis* is a moderately large freshwater turtle, endemic to Viet Nam. Its known distribution is the marshes and slow-flowing streams of the lowlands of Quang Nam, Da Nang and Gia Lai Provinces in the centre of the country. The provinces have a combined area of approximately 27 000 km^2; suitable habitat within this area would be considerably smaller. Records of specimens in markets in Southern Viet Nam indicate that the species may be considerably more widespread than this in Viet Nam, but this remains unconfirmed. The species has been very rarely recorded in the wild. There are anecdotal accounts that it was locally common in the 1980s and 1990s. In recent years, very few animals have been found in the wild by scientists, despite targeted survey efforts, nor is the species frequently seen in market surveys or recorded in trade seizures. Observations in captivity indicate that it takes about seven years to mature, and females may produce one or two clutches of five to eight eggs per year.

The species was included in Appendix II in 2002. Since then, fewer than 200 have been recorded in CITES trade data, and fewer than 30 of those are recorded as having been taken from the wild. The species is protected in Viet Nam; there have been numerous documented seizures made within the country, apparently with the intended destination of China. Collection for trade is considered to be the primary threat to the species. It is in some demand in the international pet trade and the Asian food trade, and is also used locally for medicinal purposes. Apparently wild-collected turtles pass through a network of local middlemen before being exported or consumed locally. There has been some success in captive-breeding the species in Viet Nam and elsewhere; the largest known holding in Viet Nam is of around 40 individuals. A European studbook has been established, and the Asian Turtle Consortium in the USA is also holding a number of animals.

Wetland habitat loss and degradation as a result of conversion to agriculture is a secondary threat to the species; the species may well be able to adapt to agricultural landscapes with wet rice fields, ponds and canals, but in this habitat animals are extremely likely to be encountered by humans and collected. There are currently no records from any protected areas. *Mauremys annamensis* was assessed as Critically Endangered by IUCN in 2000.

Analysis: *Mauremys annamensis* is endemic to Viet Nam and is in demand in international trade. There are no estimates for a global population but the species now appears to be rare or very rare, with few specimens encountered in the wild in surveys. Reports from local people and market observations indicate that the species was considerably more abundant in the 1980s and 1990s, suggesting a marked population decline. It is possible, therefore, that it meets the criteria for inclusion in Appendix I set out in Paragraph C of Annex I to *Resolution Conf. 9.24 (Rev CoP15).*

Supporting Statement (SS)	Additional information
Range	
Viet Nam.	
IUCN Global Category	
Critically Endangered (Assessed 2000).	*Critically Endangered A1d+2d* ver 2.3 *Assessment noted as in need of updating.*

Supporting Statement (SS)	Additional information

Biological criteria for inclusion in Appendix I

A) Small wild population

(i) Population or habitat decline; (ii) small sub-populations; (iii) concentrated geographically during one or more life-history phases; (iv) large population fluctuations; (v) high vulnerability

No data are available on the population size of *M. annamensis*.

Recruitment for *M. annamensis* is slow – animals take about seven years to mature, females are thought to produce one or two clutches of 5-8 eggs per year, and there is high egg and juvenile mortality rates making this species intrinsically vulnerable to large population declines such as that brought about by over-exploitation.

During April and May 2006, comprehensive interview-based surveys were conducted in Quang Nam Province, focusing on M. annamensis*. During the survey, 397 locals were interviewed, of whom 93 were able to provide information on* M. annamensis*. In particular, the two districts of Dien Ban and Duy Xuyen provided reliable information on the species; including information from a boy who was keeping a specimen of* M. annamensis *which he claimed to have caught in a small lake known locally as Ha Tre Lake. In November 2006, a team from the* Mauremys annamensis *Project (MAP; led by the Asian Turtle Program* (*ATP*)*) returned to investigate Ha Tre Lake. During this visit, non-lethal aquatic trapping was conducted, which resulted in the capture of a single sub-adult* M. annamensis*, the first ever confirmed wild capture of the species since 1939. As a result of the findings, the MAP established a project presence at the site starting in September 2007, with a full-time monitoring team located in Dien Phong Commune. By February 2008, a total of 339 additional interviews had been conducted in Duy Xuyen, Dien Ban, Que Son, Thang Binh and Dai Loc districts. Five* M. annamensis *were observed in the hands of a single trader in Vinh Dien town of Dien Ban district. Interviews with traders indicated that the species was becoming increasingly rarer. This is further supported by the fact all five animals observed in trade were sub-adults or juveniles; the largest specimen was 280 g and still not mature and the smallest was only 85 g. In addition to interviews, a total of 110 days of trapping were carried out at three sites in Duy Xuyen and Dien Ban districts. Trapping resulted in no additional field records for* M. annamensis *(Nguyen* et al.*, 2008).*

B) Restricted area of distribution

(i) Fragmented or localised population; (ii) large fluctuations in distribution or sub-populations; (iii) high vulnerability; (iv) decrease in distribution, population, area or quality of habitat, or recruitment)

No data are given on the area of distribution of *M. annamensis*. However, it is known from only three provinces in Viet Nam, and within these it is restricted to small lowland lakes, ponds and wetland areas close to large rivers. There is ongoing habitat degradation predominantly through the conversion of wetlands to agricultural land. There is also continued decline in the population due to over-harvesting of wild individuals.

M. annamensis is suffering a decline in habitat due to the conversion of natural lowland wetlands to agriculture. While this species can inhabit modified landscapes,

The combined area of Quang Nam, Da Nang and Gia Lai provinces is approximately 27 000 km^2. Suitable habitat within this range would be considerably smaller.

Le et al. *(2004) suggest that the range of* M. annamensis *may be far larger than is commonly thought. Surveys from 1995 suggested it may be found as far south as Ca Mau, although these animals may have been misidentified, but individuals also appear in Ho Chi Minh City markets. As turtle trade runs south to north (to China) and traders tend to sell locally, they suggest this means the species' range reaches to the south of Viet Nam.*

Supporting Statement (SS)	Additional information
this increases the proximity of the turtles to humans making it more likely that they will be collected through chance encounters.	

C) Decline in number of wild individuals

(i) Ongoing or historic decline; (ii) inferred or projected decline due to decreasing area or quality of habitat, levels of exploitation, high vulnerability, or decreasing recruitment

M. annamensis is classified as Critically Endangered on the IUCN Red List of Threatened Species, based on a population decline of 80% or more within the past three generations, and a similar projected decline in the future. Although this assessment needs to be updated, the Conservation of Asian Tortoises and Freshwater Turtles Workshop held in 2011 recommended that this species retains its Critically Endangered status for the same thresholds. *M. annamensis* has historically been collected for local consumption, however with the rise in the international turtle pet trade since the 1990s this species has suffered dramatic decline in numbers. Anecdotal evidence suggests that locals reported this species as common in the 1980s and 1990s and occasionally considered this species a pest. The species now appears to be extremely rare. At one site where Asian Turtle Program (ATP) has a focused presence across three villages, fewer than five new turtles have been observed each year since 2008.	

Trade criteria for inclusion in Appendix I

The species is or may be affected by trade

The primary threat to *Mauremys annamensis* is collection for trade. The species is in some demand in the international pet trade and the Asian consumption trade, and is also used locally for medicinal purposes. Collected turtles are traded, mostly illegally, through a network of local middlemen before being exported or consumed locally. Collection of wild individuals, predominantly for the pet trade, has had a significant impact on this species. It is exported for Asian and worldwide markets, usually as adults as these fetch a higher price. It is also used throughout its range in traditional medicine and in particular *M. annamensis* is targeted for its blood for an alleged heart disease cure. The CITES trade database recorded a total of 172 exported animals or specimens of *M. annamensis* during the period 2000-2011.	*Wild-collection for Asian (and particularly Chinese) markets is suggested to pose a greater threat to* M. annamensis *than export for the Western pet trade, and the Asian trade network for this species is largely illegal (Raffel and Meier* in litt., *2012). According to Nguyen* et al. *(2008), intensive collection of* M. annamensis *to meet the rising demand for turtles in China since the late 1980s has significantly reduced remaining populations, with fewer animals observed in the trade in each passing year.* *According to the CITES trade database, 110 animals were imported 2000–2011, 109 of which were live. The vast majority were imported for commercial purposes (99%). Of these, it was reported that 38% were pre-Convention animals, 31% were of unknown origin, 24% were born or bred in captivity (including F1 generations) and 7% were reported as of wild origin. For all reported (re-)exports, there were a total of 121 animals, 111 of which were live. Most animals were recorded as being for commercial purposes (55%), with 28% recorded as for educational purposes and 17% for scientific purposes. The source for the animals was most commonly recorded as pre-Convention animals (63%), with 18% recorded as of wild origin (none live), 17% as*

Supporting Statement (SS)	Additional information
Despite a legal trade in this species, illegal trading is still apparent. The species is found in lower numbers in market trades than it has in the past, which is thought to be due to the difficulty in finding remaining individuals in the wild to collect. Nevertheless trade still continues, for instance up to 50 animals were recorded in one market in Guangzhou, China, during seven surveys from 2006-2008. There is a demand from commercial turtle farms for wild-caught turtles for founder stock, which is driving the collection of wild individuals through increased trade prices.	*bred or born in captivity and 3% as confiscated or seized (UNEP-WCMC, 2012).* *Reported seizures involving* M. annamensis *provide evidence of illegal activities involving this species, although it is unclear whether any/all of these shipments were destined for international markets. In 1998, Vietnamese authorities reported having seized an estimated 700 (800 kg) of turtles and tortoises of 13 species, of which a small number were* M. annamensis*, from a public bus destined for Hanoi. The trader claimed that the animals were raised on farms in southern Viet Nam, but information provided to the authorities suggested that they were collected from the wild. The cargo was for possible onward shipment to the Chinese market (TRAFFIC, 2012). Other seizures reported as having occurred in Viet Nam in recent years include a case of six adult* M. annamensis *seized from the home of a Vietnamese trader in January 2009 (Humane Society International, Australia, 2009) and a case of 16 specimens reportedly seized from a house in the Dong Hoa district in August 2011 (Education for Nature Vietnam (ENV), 2012). A 2007 genetic study looked at eight individuals confiscated in northern Viet Nam and assumed the animals: (i) to be wild, owing to the lack of known turtle farms breeding* M. annamensis *at that time, and (ii) destined for China, presumably due in part to the location of the seizure (Fong* et al.*, 2007).* *The species may be observed for sale on a small number of US-based websites: in 2008, captive-bred specimens were being offered by a US dealer at a price of USD100 per turtle--see http://www.turtletimes.com/forums/topic/64899-turtlepimpcom-current-list-of-turtles-for-sale/.*

Other information

Threats

The primary threat to this species is over-harvesting. Conversion of wetlands to agricultural land is causing habitat degradation, however, the main cause of population decline in these areas is through increased proximity to humans, which increases the likelihood of collection of wild individuals.	*In 2011, the Conservation of Asian Tortoises and Freshwater Turtles Workshop noted that the demand for* M. annamensis *blood in traditional medicine had placed wild populations under exceedingly high collection pressure. Rapid population growth in central Viet Nam has resulted in much of its habitat being converted to rice fields (Horne* et al., *2012).*

Conservation, management and legislation

It has been listed in Appendix II of CITES since 2002. *M. annamensis* is a protected species in Viet Nam. Collection is only permitted for	

Supporting Statement (SS)	Additional information
scientific research, establishing a breeding colony and international exchange, and permits must be obtained. Wildlife also needs a permit to be transported nationally.	
An international program led by the Asian Turtle Program of Cleveland Metroparks Zoo aims to reintroduce and strengthen a viable population of *M. annamensis* into its native range. Captive-bred individuals from various institutions around the world are currently being held in anticipation of suitable habitat being adequately secured. The project includes a large outreach component to generate support for conservation of the species through awareness and community engagement, a training component for local authorities, and a population monitoring program.	*The MAP is being led by the ATP (as previously noted). Currently, the Turtle Conservation Centre (TCC) of Cuc Phuong National Park has almost 200 animals waiting for release in the wild within their historical distribution—see http://www.asianturtleprogram.org/working-on/map_project.html.*
There are no records of this species from within any protected areas, which are largely focused on forested areas. At present the Asian Turtle Program is working with the Forest Protection Department of Quang Ngai province and local People's Committee to establish a small Species Habitat Conservation Area (SHCA) for *M. annamensis.*	
Similar species	
This species is easily recognisable. The only other Asian turtle with a similar head pattern is *Cuora amboinensis*, which is instantly separated from *M. annamensis* by its possession of a transverse hinge across the plastron, which allows *Cuora amboinensis* to close its shell completely. In contrast, *M. annamensis* cannot move its shell. *Mauremys sinensis* has much finer and more numerous yellow head stripes and also has yellow stripes on the limbs.	
Captive breeding/Artificial propagation	
This species has been bred in captivity with some success. There are records of successful breeding in some turtle farms, for instance the largest observed in 2009 had approximately 40 *M. annamensis*. There is no information on the number of farms or an estimation of the numbers of hatchlings produced annually.	*According to the 2011 Conservation of Asian Tortoises and Freshwater Turtles Workshop,* M. annamensis *is a promising candidate for pilot programmes aimed at establishing semi-wild to wild colonies within their former range from captive produced stock. The species breeds readily in captivity and has breeding programmes and studbooks managed by the AZA (Association of Zoos and Aquariums) and EAZA (European Association of Zoos and Aquariums). Approximately 100 ha. of suitable habitat have been identified for a reintroduction programme and establishment of a community-based wildlife protected area (Horne* et al., *2012).*
This species is bred in zoos and by private hobbyists in Europe, USA and Hong Kong in modest numbers. In recent years hobbyists efforts have started to develop into coordinated breeding programs, and a European studbook has been established for *M. annamensis*. Despite apparent success in captive breeding attempts, the numbers in question are still very low, e.g. by 2001, 77 animals were held within the Asian Turtle Consortium in the USA and another 54 were registered in the European studbooks.	

Supporting Statement (SS)	Additional information
Other comments	
Ocadia glyphistoma has been considered a hybrid between *M. annamensis* and *M. sinensis*. While *O. glyphistoma* is excluded from the scope of this proposal, the recent findings of seven individuals of *O. glyphistoma* in the wild are suggested to show that population levels of both the parent species have fallen so low that no separate breeding populations exist anymore, leading to hybridisation. At its 5th World Conservation Congress in 2012, IUCN passed a Resolution (Motion 028 – Addressing the Turtle Extinction Crisis) that, among others, called upon CITES Parties to a) Evaluate that turtle species subject to international trade are appropriately included in the CITES Appendices; b) Ensure that international trade adheres to CITES regulations, including detailed Non-Detriment Findings being made, and including complete reporting of trade in parts (e.g. shell) and derivative products (e.g. jelly) of turtles; c) Ensure that domestic laws and regulations adequately address both the requirements of CITES and safeguard native turtle populations from over-exploitation, that all pertinent laws and regulations are diligently enforced, and that appropriate awareness and capacity are developed within the government agencies concerned with turtle offtake and trade; and d) Collaborate with competent NGOs to effectively and humanely triage confiscated live turtle specimens.	M. annamensis *has been listed 14th in order of extinction risk of tortoise and freshwater turtles globally, owing to: (i) its restricted distribution; (ii) the limited number of times it has been observed by scientists in the wild; and (iii) the intense levels of wildlife harvesting across its range in central and southern Viet Nam (Fong* et al*., 2007; Turtle Conservation Coalition, 2011).*

Reviewers: C. Shepherd.

Transfer of the Family Platysternidae from Appendix II to Appendix I

Proponent: United States of America and Viet Nam

Summary: The Big-headed Turtle *Platysternon megacephalum* is the only species in the family Platysternidae. It is a small to medium-sized turtle (up to 18 cm carapace length) with a large head that occurs in Cambodia, China, Lao PDR, Myanmar, Thailand and Viet Nam. It is restricted to unpolluted, clear, cascading mountain streams usually within closed-canopy forest and bordering riparian areas. Because of historical deforestation, it is believed to be now largely restricted to protected areas. Reproductive characteristics are not well known, but based on captive observations individuals mature at five to nine years and females normally lay up to four eggs per clutch.

The species is collected for food and for the international pet trade, in which hatchlings are particularly highly sought-after because of their vivid colouration. Overall population estimates are lacking although some data are available from two recent studies. In Hong Kong, where collection pressure is low, a density of 60-145 individuals per km^2 has been recorded, while in Guangdong, China, in 2007-2009 only six individuals were found in over 2000 trap-days, with an inferred population density of 0.125 individuals per km^2 of suitable habitat. The difference is believed to be a result of different collection pressure in the two areas. Information on the current and historical status of the species elsewhere is patchy, with indications that it may be locally common in parts of Cambodia and Thailand. Anecdotal information indicates that the availability of the species in markets, chiefly in China, has declined considerably in the past two or three decades, and from this it is inferred that the wild population has also declined. The species was assessed in 2000 by IUCN as Endangered.

Platysternon megecephalum was included in Appendix II in 2002. Since then, around 1700 specimens have been reported in trade under CITES, the great majority in a single shipment of 1500 recorded by Viet Nam as imported from Lao PDR in 2006. These were reported as ranched specimens, which seems highly unlikely: the species does not breed readily in captivity and it is believed that most, if not all, specimens in trade are of wild origin. No exports were reported by Lao PDR in that year. Juveniles of the species fetch high prices in the international pet trade.

Analysis: *Platysternon megacephalum* occurs relatively widely in Southeast Asia and would not appear to have a restricted range under the terms of *Resolution Conf. 9.24 (Rev. CoP15),* although within its range it is restricted to unpolluted areas of habitat. There are no overall population estimates for the species; given the size of the range, and observations of some reasonably high population densities, it seems unlikely that the population is small under the guidelines in Annex 5 of the Resolution. Anecdotal information based on market observations and low population densities in an area where the species is believed to have been exploited indicates that the population has declined in recent years. However, there is insufficient information to determine whether this decline would be considered a marked decline as set out in Paragraph C of Annex 1 to *Resolution Conf. 9.25 (Rev. CoP15).* On current information, it is not possible to determine whether this species meets the biological criteria for inclusion in Appendix I. The species is in demand for international trade.

Supporting Statement (SS)	Additional information
Taxonomy	
Family Platysternidae containing the single species *Platysternum megacephalum.*	
Range	
Cambodia, China (including Hong Kong SAR), Lao PDR, Myanmar, Thailand and Viet Nam.	
IUCN Global Category	
Platysternum megacephalum is classified as Endangered (Assessed 2000).	*Endangered A1d+2d* ver 2.3. *Assessment needs updating.*

Biological criteria for inclusion in Appendix I

A) Small wild population

(i) Population or habitat decline; (ii) small sub-populations; (iii) concentrated geographically during one or more life-history phases; (iv) large population fluctuations; (v) high vulnerability

Limited population data are available due to a lack of intensive studies of *P. megacephalum*. Although restricted to unpolluted clear cascading mountain streams usually within closed-canopy forest and described as rare, suitable habitat can be found throughout its range and it is reported in some areas in Thailand as locally common. Although no specific data is available on the population parameters for this species, it is thought to reach maturity at between five to nine years old and to have a relatively low annual reproductive potential (captive observations report up to four eggs per clutch).	
In Cambodia anecdotal information suggests that the species is fairly abundant in suitable riparian habitats but that populations may be small because of limited habitat.	
In China the species is considered endangered and is now rarely seen in the wild, and field surveys have revealed low abundances in southern China. More recently, the species was commonly found in the Guangdong Province, being collected by local hunters and residents almost entirely from nature reserves.	*Between 2007 and 2009, 29 streams and 365 trapping sites were surveyed in Guangdong, China, and in 2031 trapping days only six* P. megacephalum *were found. A density of 0.125 individuals per km^2 of suitable habitat was estimated from this (Wang, 2010).*
There is no current data available for Hong Kong, but it was reported that the species was regularly recorded in some of the stream systems in central New Territories indicating that fairly stable populations existed.	*A field study of populations in Hong Kong, which are better protected, show densities ranging from 60 to 145 individuals per km^2 (Sung, 2012). This huge difference in density is likely to be due to intense trapping in Guangdong.*

Supporting Statement (SS)	Additional information
In Lao PDR it is thought that populations of the species are probably quite reduced. No information is available on the species status in Myanmar. In Thailand in 2000, the species was reported as uncommon to locally fairly common, and it has been suggested that a few large populations may be present in remote areas that are difficult to access or near villages where turtles are not regularly sold or eaten. In Viet Nam in 2000, the species status was unknown, but it is considered rare.	
B Restricted area of distribution **(i) Fragmented or localised population; (ii) large fluctuations in distribution or sub-populations; (iii) high vulnerability; (iv) decrease in distribution, population, area or quality of habitat, or recruitment)**	
While the species is found across six countries, it is restricted to specific riparian habitats. *P. megacephalum* inhabits unpolluted clear cool rocky mountain streams within forest areas and also within the bordering riparian habitats. Due to historical habitat loss (largely forest destruction) it is now restricted to protected areas across much of its range. There is ongoing substantial habitat degradation and destruction particularly in China (the primary range state), including deforestation, water pollution, and the construction of small hydro-electric facilities. Despite now largely being restricted to protected areas, this species is still highly vulnerable to collection for trade, except for those parts of its range that are difficult to access, and in Hong Kong, where there is better enforcement.	*Due to the habitat requirements of this species and past levels of deforestation within its range, suitable habitat is somewhat restricted. However,* P. megacephalum *does occur within protected areas and the greatest concern is the very low numbers found within suitable habitat, or the lack of individuals at all (Wang, 2010).*
C) Decline in number of wild individuals **(i) Ongoing or historic decline; (ii) inferred or projected decline due to decreasing area or quality of habitat, levels of exploitation, high vulnerability, or decreasing recruitment**	
For much of its range there is a lack of data on the population trend. However it has been impacted by the increased turtle trade since the 1990s and is consistently reported by locals as having drastically declined due to over-harvesting. Previously reported as a common species in some areas, this species is now rare to find in market surveys indicating a decline in wild populations. In Viet Nam, an over 50% population decline is estimated in the last 10 years due to over-harvesting. The high market price that this species commands encourages ongoing trade. As this species does not readily breed in captivity the trade is based on wild populations.	

Supporting Statement (SS)	Additional information
In Cambodia no information is available on population trends for this species. In China this species was previously common in the food markets, but now only low numbers of individuals turn up indicating that wild populations have drastically declined. For Hong Kong, published population trend data is lacking In Lao PDR wildlife inventories have been limited to short-term studies and the scarcity of turtles recorded during those surveys suggests that turtle populations have declined. There was also a perception among local villagers that suggests declines in turtle populations in the 1990s. Although in Myanmar there is a lack of information for this species, the available evidence for the status of all turtle populations suggests declines may have occurred as a result of over-harvesting for both local consumption and to meet the demands of export markets. In Thailand in 2000, the species population trend was reported as unknown and presumed stable where not exploited. Informal interviews with local villagers suggest that the species is less common now than in the past due to hunting and are likely declining in numbers. In Viet Nam the population trend is unknown. As with other species in Viet Nam, natural populations of *P. megacephalum* are unlikely to sustain present levels of collection. Turtle hunters now report a significant decline in the number of turtles found. In Viet Name over a 50% population decline is estimated in recent years (10 years) due to the over harvesting. This species was listed as Endangered on the IUCN Red List in 2000 when the Asian Turtle Working Group estimated that there had been a population decline of 50% or more within the last three generations due to exploitation (A 1d) which is projected to continue into the future (A 2d). This assessment is now considered out of date. Experts attending the Conservation of Asian Tortoises and Freshwater Turtles Workshop in 2011 considered that *P. megacephalum* qualifies for critically endangered using the IUCN categories and criteria due to an inferred past decline of 80% or greater in the past three generations, due to exploitation.	

Trade criteria for inclusion in Appendix I

The species is or may be affected by trade

Collected throughout much of its range, it is likely that the majority of animals are traded rather than used for subsistence, due to the high market value. It is traded domestically and internationally in both the pet market (hatchlings and young juveniles) and in the food market (adults), in which hatchlings now command higher prices than adults due to their bright vivid colours. In China, the species is mainly collected for the food trade. In Thailand the species is	*The CITES trade database lists 1692 animals as imported 2004–2011, of which 1683*

Supporting Statement (SS)	Additional information
threatened by collection for consumption in relation to traditional Chinese medicine, for pet trade and *ex situ* captive breeding programs. In Hong Kong the species has been recorded as being used as food and as pets.	
In Cambodia the domestic pet trade is considered minor when compared to the much larger international trade, and it is likely that any turtles collected are taken directly to markets in Viet Nam rather than to Cambodian markets.	
P. megacephalum comprised 9% of all live turtles imported into China between 1998 and 2002 (pre CITES listing), and the species is considered to be traded in significant numbers.	*were live. Of all animals imported, 99% were recorded as imported for commercial purposes. One shipment of 1500 ranched individuals was reported as imported by Viet Nam from Lao PDR in 2006 (although no exports were reported by Lao PDR in that year). Overall, 89% of animals were recorded as ranched from wild-born individuals, and another two per cent were recorded as of wild origin. Animals recorded as pre-Convention stock accounted for nine per cent of reported imports; there was one individual recorded as bred in captivity. In addition to the live trade, seven wild-taken dead specimens were reportedly imported and two specimens and 266 g of* P. megacephalum *reportedly exported, for scientific purposes.*
In Viet Nam records indicate that 50 *P. megacephalum* were legally exported between 1994 and 1999.	*For all (re-)exports, there was a total of 190 animals, plus 266 g of specimen for scientific purposes. Of whole animal (re-) exports, 93% were recorded as being for commercial purposes, with four per cent recorded as for exhibit and two per cent for zoos. The vast majority of whole animals (97%) were recorded as pre-Convention animals, with three individuals recorded as captive-bred and two as of wild origin (UNEP-WCMC, 2012).*
According to the CITES Trade Database, there are records for *P. megacephalum* from 2004 to 2011. Data for 2011 are not considered because they may be incomplete, therefore a total of 7 years of trade data are being presented. All *P. megacephalum* imports for the mentioned years account for 1691 animals mostly for commercial purposes (44%) followed by circus/traveling exhibits (27.8%) and scientific (22%) purposes. Almost all of the imports were of pre-Convention specimens (61%) and wild sources (33%). For all (re-) exports, there were a total of 453 animals mostly for commercial purposes (44%) followed by circus/travel exhibits (25%) and scientific (18.8%). Almost all of the (re-) exports were of pre-Convention specimens (75%) and wild sources (18.8%). The majority of all the trade consisted of live animals followed by a few specimens for scientific purposes.	
There appears to be a high level of legal and illegal trade throughout its range, although much of the information is either anecdotal, or generalised to all turtles. Illegal animals are frequently seized, for example, for 2007-2008, police in Thailand seized 81 *P. megacephalum*, and in Viet Nam between 2006-2011, 73 individuals were seized by law enforcement agencies and transferred to the Turtle Conservation Centre.	*During their surveys, 2007–2009, Wang* et al. *(2010) found 77 illegal hunting traps in the field and were informed of 110 illegal trappings by locals through interviews. Furthermore, they had 16 of their own traps stolen during the research. Over 100* P. megacephalum *specimens were found for sale during the market surveys in 30 cities at prices of RMB1000-1800/kg (~EUR125-225/kg).*
It is believed that the majority of traded animals are from wild populations as this species does not breed readily in captivity.	

Supporting Statement (SS)	Additional information
Other information	
Threats	
This species is threatened both by habitat degradation and loss, and substantial declines from over-harvesting for commercial purposes. Deforestation and the construction of small hydro-electric plants, and the liming of streams within the species range, causes habitat destruction and degradation.	*In Guangdong, China, 77 traps were found in an area of 16 km^2 of* P. megacephalum *habitat (Wang, 2010).*
Conservation, management and legislation	
It has been listed in Appendix II of CITES since 2002. China, Thailand, and Viet Nam (2007) have all listed the species as endangered in their own countries Red Data Book of Endangered Animals. *P. megacephalum* has different levels of protection within the range countries: In Cambodia it is not specifically listed for protection, but is protected through laws preventing the hunting, consumption or trade of wild animals. In China hunting for commercial purposes, consumption and export is strictly restricted, and permits for import will not be issued for any turtles with a carapace of less than 10 cm long. It is listed as a protected species in Hong Kong, Lao PDR, Myanmar, Thailand and Viet Nam. In 2011 a Conservation of Asian Tortoises and Freshwater Turtles Workshop was held and *P. megacephalum* was considered as a species likely to be listed as Critically Endangered in the near future. Recommendations were made to increase efforts to protect wild populations and their habitats, along with an increase in anti-poaching efforts. This concurs with other conservation needs for the species which have been published (see Supporting Statement for details), alongside further measures such as the recommendation of translocation programs. Emphasis is made on the need for effective and enforced legislation to protect the species across its native range.	
Similar species	
P. megacephalum is the only species within the family Platysternidae with distinct morphological characteristics.	

Supporting Statement (SS)	Additional information
It is most likely to be confused with New World snapping turtles but these do have differing shells.	
Captive breeding/Artificial propagation	
This species does not breed readily in captivity and even dedicated efforts within zoos and other institutions have failed to achieve successive years of captive breeding. No assurance colonies have been established. The most successful attempts at captive breeding suggest this species has a low annual reproductive potential (clutch size of up to four eggs, sexual maturity reached at five to nine years old) with specific habitat requirements and is therefore not a species that can readily rely on captive breeding attempts to supplement wild populations.	*A wild population studied in Hong Kong showed females reached sexual maturity at an average age of eight years (Sung, 2012).*

Reviewers: M. Lau, C. Shepherd.

Transfer of the Burmese Star Tortoise *Geochelone platynota* from Appendix II to Appendix I

Proponent: United States of America

Summary: The Burmese Star Tortoise *Geochelone platynota* is a medium-sized tortoise endemic to the dry zone of central Myanmar. It occurs in deciduous forests, thorn scrub and pastures and possibly various other agricultural landscapes. Historically *G. platynota* was collected for local human consumption. From the mid-1990s it has been in demand internationally for meat and medicine as well as for the pet trade. Fragmentation and conversion of land to row crop agriculture have affected its habitat, including in protected areas where shifting cultivation, illegal tree-felling and bamboo harvesting take place. However, the species can survive in modified habitats if not subjected to excessive harvesting.

The species appears to be extremely depleted in the wild and the view has been expressed that there may now be no viable wild populations. Three areas were identified in the 1990s and early 2000s with notable populations, including one (Myaleik Taung) with what was described as the most significant *G. platynota* population ever found in Myanmar. Populations in all three areas have been reported as subsequently very rapidly reduced to extremely low levels by collection. There are scattered records from elsewhere in central Myanmar, but no recent information from these locations. Three professional hunters reported that they last encountered Burmese Star Tortoises in the wild three to four years ago and have seen none since. Apparently wildlife traders have recently stopped making visits to *G. platynota* areas because few, if any, tortoises are available. The species was assessed by IUCN as Critically Endangered in 2000.

Geochelone platynota was included in the general listing of the family Testudiniade in Appendix II in 1975. Myanmar became a Party to CITES in 1997. Trade has only been reported in the CITES trade database since 1986. From then until 2005, approximately 140 live wild specimens were reported as exported from Myanmar and some 500 re-exports reported as originating from Myanmar. Since 2005, nearly 800 captive-bred specimens and 500 ranched specimens have been reported as exported from Myanmar. An additional 2500 live individuals have been recorded in trade from non-range States, just under half of which have been reported as wild (or with no origin stated) and some of which were re-exports from non-range States.

Commercial harvest and trade of this species is illegal under Myanmar law although export of captive specimens is permitted from one facility within the country, which also contributes to a future release programme.

Analysis: From available information it would appear that *Geochelone platynota* meets the biological criteria for inclusion in Appendix I on the basis of a marked decline as set out in Paragraph C of Annex I to *Resolution Conf. 9.24 (Rev. CoP15)*. It is likely also to have a very small and fragmented population as set out in Paragraph A. The species is in demand for international trade.

Supporting Statement (SS)	Additional information
Range	
Myanmar.	
IUCN Global Category	
Critically Endangered A1cd+2cd, C2a.	*Assessed in 2000 using Categories and Criteria ver. 2.3 (needs updating).*

Biological criteria for inclusion in Appendix I

A) Small wild population
(i) Population or habitat decline; (ii) small sub-populations; (iii) concentrated geographically during one or more life-history phases; (iv) large population fluctuations; (v) high vulnerability

The most current available information suggests that *G. platynota* is ecologically extinct in the wild.	G. platynota *is ranked as the eleventh-most endangered tortoise or freshwater turtle in the world (Turtle Conservation Coalition, 2011).* *Scattered individuals are likely to survive elsewhere in the dry zone, but it is unlikely that viable populations remain in Myanmar (Platt* et al*., 2011b).* *In captivity, the number of eggs per clutch is generally four to five, with females depositing one to four clutches each breeding season, or seven to 16 eggs during one breeding season (Platt* et al*., 2011b).*

B Restricted area of distribution
(i) Fragmented or localised population; (ii) large fluctuations in distribution or sub-populations; (iii) high vulnerability; (iv) decrease in distribution, population, area or quality of habitat, or recruitment)

G. platynota inhabits the dry zone of central Myanmar where it occurs in deciduous forests, thorn scrub, and pastures. The dry zone is a densely populated agricultural landscape, and both commercial and subsistence harvesting of *G. platynota* have been ubiquitous throughout the region. Suitable habitat still remains within the species' known habitat and within apparent suitable habitat where tortoises have not been found. Recent land use changes are affecting tortoise habitat, even within protected areas. Fragmentation and conversion of land to row crop agriculture also threaten the	*Historically the species probably occurred throughout the dry zone of central Myanmar. Pristine habitats are not required by this species (Platt 2001a, 2001b, Platt* et al., *2003 in Platt* et al., *2011b).* *It is considered unlikely that viable wild populations of* G. platynota *remain in Myanmar (Platt* et al*. 2011b).* *Within the dry zone of central Myanmar, the distribution of* G. platynota *remains ill-defined and few specimen-based locality records are available (Platt* et al*. 2004 in Platt* et al*., 2011b).*

Supporting Statement (SS)	Additional information
integrity of *G. platynota* habitat.	

C) Decline in number of wild individuals

(i) Ongoing or historic decline; (ii) inferred or projected decline due to decreasing area or quality of habitat, levels of exploitation, high vulnerability, or decreasing recruitment

During surveys conducted from 1999 to 2001, extant *G. platynota* wild populations were identified at three sites in Myanmar, including two protected areas (Shwe, Settaw, and Minzontaung Wildlife Sanctuaries) and village lands near Mya Leik Taung. Since the initial surveys, *G. platynota* populations have precipitously declined throughout Myanmar primarily as a result of over-collection to supply international food and pet markets. Recent (*September 2011*) surveys within some of these areas did not record any individuals. The available evidence now suggests that few, if any, viable populations of *G. platynota* remain, and the species could be ecologically extinct in the wild, even within two protected wildlife sanctuaries – there is no evidence that star tortoises remain in either wildlife sanctuary.

Three professional hunters last encountered star tortoises in the wild 3 to 4 years ago and have seen none since.

One hunter near a wildlife sanctuary claimed to have taken about 300 *G. platynota* in 1999.

It is probable that subsistence harvesting eliminated G. platynota *from many areas of the dry zone well before recent times (Platt* et al*., 2011b).*

Surveys in 1994 and 1999 found a small number of G. platynota *persisting in Shwe Settaw Wildlife Sanctuary (van Dijk, 1994; Platt* et al*., 2001a), although this population was hunted to near extinction soon thereafter (Platt 2001c, Platt* et al*., 2003 and Platt* et al*., 2011 in Platt* et al*., 2011b). Additional specimens of* G. platynota *have been reported from scattered localities in the dry zone, including Hti Chaing Town and Myinthar-Kyarnyut, Mau, Budalin, Sheinmaga, Sing Khaing and Padan villages (Platt 2001a and Platt* et al., *2004 in Platt* et al., *2011b). Thought to occur, but unverified, in the Sagaing Hills.*

Myaleik Taung harboured the least disturbed and most significant G. platynota *population ever identified in Myanmar and plans were made to designate this area as a National Tortoise Sanctuary (Platt* et al., *2003). However, before a sanctuary could be established, collectors from outside the area arrived and rapidly depleted the population (Platt* et al*., 2011b). Likewise, commercial collectors began operating in Minzontaung Wildlife Sanctuary at about the same time, and within a brief period reduced tortoise populations to very low levels (Thanda Swe, 2004, in Platt* et al*., 2011b).*

The Turtle Survival Alliance and Wildlife Conservation Society conducted fieldwork in Shwe Settaw and Minzontaung Wildlife Sanctuaries (SSWS and MWS) in September 2011. No star tortoises were encountered during 174 man-hours and 54 dog-hours of search effort in SSWS, contrasting markedly with their earlier survey in 1999. Interviews of local villagers also suggest G. platynota *is extremely rare in the sanctuary (Platt* et al*., 2011a).The populations in Shwe Settaw and Minzontaung Wildlife Sanctuaries and Myaleik Taung are considered to be reduced to non-viable levels (Platt* et al*., 2011b). For example, traders have stopped making periodic visits because few if any, tortoises are available to buy, and villagers no longer consider it economically worthwhile to devote time and effort to search for star tortoises owing to their rarity.*

Although scattered individuals persist in SSWS, these remaining tortoises cannot be

Supporting Statement (SS)	Additional information
	considered a biologically viable population. It is therefore concluded that G. platynota *is most likely "ecologically" extinct in SSWS. No wild tortoises were found during the reconnaissance of MWS. In 2008, an intensive 10-day survey found only a single star tortoise. This is apparently the only verified occurrence of* G. platynota *in the sanctuary since 2004 (Platt* et al.*, 2011a).*
Trade criteria for inclusion in Appendix I **The species is or may be affected by trade**	
Over-harvesting for subsistence and commercial purposes is believed to be the single most important threat to the continued survival of *G. platynota* populations in the wild. Historically the species has been locally Myanmar collected for human consumption and later was also in demand from China for its meat and alleged medicinal purposes and for the international pet trade. Continued international commercial demand poses a serious impediment to reintroducing *G. platynota* into the wild and its eventual recovery.	*Reported trade from Myanmar numbered 136 wild individuals with the last reported wild trade (130 live) exported in 2005. Since then, there have been 765 captive-bred specimens, mainly reported as imports, and 500 ranched specimens. In addition, some 500 live specimens have been reported as re-exports originating from Myanmar. Approximately 2500 live specimens, just under half of which have been reported as wild or of no origin recorded, have also been reported in trade, some of which were re-exports from non-range States.*
According to the UNEP-WCMC CITES Trade Database, *G. platynota* were legally traded for the following years: 1986, 1987, 1990 to 1992, 1995, 1997, and 1999 to 2011 (incomplete). All *G. platynota* imports for the mentioned years account for 4620 animals, mostly for commercial purposes (76.5%) and from captive sources (55.6%). For all (re-) exports, there were a total of 2,127 animals, also mostly for commercial purposes (77.6%) and from captive sources (68.2%). By far, Japan is the largest importer and (re-)exporter, accounting for 50% of the imports and 88% of the (re-) exports. Wild *G. platynota* sources for imports and (re-) exports account for 15% and 14% respectively.	*The Burmese Star Tortoise is one of the CITES-listed species over which there are serious concerns of false claims of captive-breeding and laundering of wild specimens (Vinke and Vinke, 2010). According to CITES trade data, over 1000 "captive-bred" specimens of* G. platynota *were imported into Thailand and Japan from Lebanon between 2004 and 2006, 60% of which were declared as having their origin in Kazakhstan. In addition, another ~200 specimens with their origin declared to be Kazakhstan or Lebanon were reportedly re-exported by Thailand to Japan, Taiwan, Indonesia and Bulgaria between 2004 and 2009. There are no records of this species having been imported into Kazakhstan. There is one record of specimens having been exported to Lebanon--eight live captive-bred specimens from Switzerland in 2005. Therefore, there is no evidence to support the presence of legal parental stock being used in captive-breeding facilities in Kazakhstan or Lebanon.*
Harvesting dramatically increased and ceased to be a local subsistence activity in the mid-1990s when traders began purchasing tortoises for export to wildlife markets in southern China.	*Tortoise populations cannot withstand even low to moderate levels of harvest of adults (Congdon* et al.*, 1993) and it is doubtful whether any harvest can be considered truly sustainable (Thorbjarnarson* et al.*, 2000; Platt* et al.*, 2011b).*
G. platynota is highly prized in the international pet trade, and the demand for this species in the high-end pet trade has pushed *G. platynota* to near extinction. As recently as 2010 and 2011, hundreds of *G. platynota* have been found in illegal turtle shipments. Juveniles and small adults are in especially high demand for the pet trade, while some larger adults enter the food or medicinal market. Because of its illicit nature, the commercial trade in *G. platynota* is extremely difficult to accurately quantify, but there is little doubt that vast numbers of tortoises were removed from the wild over the last decade. Theft of captive animals has occurred and remains a constant concern.	*Numerous, sizable seizures have been reported: see, for example, the 2005 report from the US Fish and Wildlife Service at www.fws.gov/news/NewsReleases/showNews.cfm?newsId=C9EE21A4-65BF-03E7-2E6590F4095D4819, in which Special Agent Kenneth McCloud of the US Fish and Wildlife Service is quoted as saying Burmese Star Tortoise adults were selling for up to USD7000 apiece and juveniles were worth about half that much, adding, "in the last*

Supporting Statement (SS)	Additional information
	few years we've seen a huge increase in the number of these species being smuggled into the United States... in the past three years alone, we've seized about 500 tortoises". More recently, in 2011, Freeland (see freeland.org/eng/news/press-release/237-hundreds-of-indian-and-burmese-star-tortoises-seized-at-thai-airport). reported that "approximately 370 protected Indian and Burmese Star Tortoises were seized at Thailand's Suvarnabhumi International Airport" on 10 June, and that "Royal Thai Customs officers detected the live contraband in two unclaimed suitcases with loading tags marked Dhaka, Bangladesh". The seized tortoises were "estimated to be worth up to THB 950 000 (USD31 000) on the black market." The report continued that, in "September last year, a Pakistani citizen was arrested at Suvarnabhumi Airport with 1140 Star Tortoises after arriving from South Asia".

Other information

Threats

Fragmentation and conversion of land to row crop agriculture also threaten the integrity of *G. platynota* habitat. Even within protected areas, shifting cultivation, illegal tree-felling, and bamboo harvesting are rampant, and it has also been suggested that uncontrolled wildfires pose a direct threat to tortoises.

Conservation, management and legislation

Included in Appendix II of CITES (1975). Myanmar became a CITES signatory in June 1997.

Future reintroduction plans will provide for monitoring of released animals.

While subsistence harvest of *G. platynota* is permitted, commercial harvest is not. Trade of this species is illegal under Myanmar law, as turtles are protected by both Fisheries and Forestry laws, and all wildlife is afforded complete protection in wildlife sanctuaries and national parks. Protective legislation is enforced by the Wildlife Division of the Forest Department and the Department of Fisheries, which does not issue permits for commercial harvesting of turtles, and Law 34 provides stiff penalties for those engaged in turtle trading. Although all wildlife is afforded complete protection in wildlife sanctuaries and national parks in Myanmar, enforcement is weak to non-existent in many protected areas. For example, *G. platynota* has been extirpated from the three wildlife sanctuaries where it was known to occur.

An attempt in 2007 to reintroduce G. platynota *into Minzontaung Wildlife Sanctuary was unsuccessful: tortoises were poached or disappeared for other reasons within six months of being released (Platt* et al., *2011a; Platt* et al., *2011b).*

Future conservation efforts hinge on developing and implementing successful captive-breeding and reintroduction programmes in Myanmar. Currently, offspring are being produced at several rearing facilities in Myanmar, but persistent rampant poaching precludes the reintroduction of tortoises into protected areas (Platt et al*., 2011b).*

Supporting Statement (SS)	Additional information
Similar species	
G. platynota is very similar in appearance to its close relative, the Indian Star Tortoise (*Geochelone elegans*). They can be distinguished because *G. platynota* has a greater star pattern on the carapace and a horny claw at the tip of the male's tail. Also, the plastron of *G. platynota* has dark blotches and lacks the "stars" found on the plastron of *G. elegans*. At first glance, because of the generalized "star" pattern on its carapace, *G. platynota* may also be somewhat confused with *Astrochelys radiata*, the Madagascar radiated tortoise endemic to Madagascar. However, they can be easily distinguished because *A. radiata* has a nuchal scute on the carapace, and its head is bicolored, brown-black on top and yellow below a line that originates at the back of the eye.	G. platynota *occurs both macro- and micro sympatrically with* Indotestudo elongata *(*Geochelone elegans*) (Platt* et al., *2011b).* Geochelone elegans *is listed in CITES Appendix II.*
Captive breeding/Artificial propagation	
With four government-run facilities and one private-run facility producing hundreds of hatchlings per year, captive breeding and head-starting may be the last option to restoring *G. platynota* to its functional role in the ecosystem. Although previous reintroduction efforts have not been successful because of apparent poaching, recent field assessments suggest that reintroducing star tortoises is feasible at selected sites within wildlife sanctuaries.	*Within Myanmar, captive-breeding colonies are maintained by the Forest Department in Mandalay and in the wildlife sanctuaries of Minzontaung, Shwe Settaw and Lawkanandar with the objective of eventual release of tortoises into the wild. There is also a commercial captive-breeding facility in Myanmar which is permitted to export. It is a requirement of this facility that a certain percentage of production be made available to the Forest Departments' conservation projects. The current capacity of this facility is not known, however an inspection in 2009 revealed over 300 hatchlings and juveniles in addition to the core group of breeding adults. The founder stock came from confiscations and, in some cases, locally collected tortoises (Platt* et al*., 2011b).*
Other comments	
The USA sent a consultation letter to Myanmar; however, did not receive a response.	

Reviewers: W. Ko Ko, K. Platt, S.G. Platt, C. Shepherd.

Proposal Part A. Inclusion of the following species of the Family Trionychidae in Appendix II: *Aspideretes leithii, Dogania subplana, Nilssonia formosa, Palea steindachneri, Pelodiscus axenaria, P. maackii, P. parviformis,* and *Rafetus swinhoei*

Proposal Part B. Transfer of the following species from Appendix II to Appendix I: *Chitra chitra* and *Chitra vandijki*

Proponent: China and the United States of America

Proposal Part A. Inclusion of the following species of the Family Trionychidae in Appendix II: *Aspideretes leithii, Dogania subplana, Nilssonia formosa, Palea steindachneri, Pelodiscus axenaria, P. maackii, P. parviformis,* and *Rafetus swinhoei*

Summary: This part of the proposal seeks to include eight species of Asian softshelled turtle of the family Trionychidae in Appendix II. Three species of these eight are not currently included in the CITES Appendices: *Aspideretes leithii, Dogania subplana, Nilssonia formosa*. The remaining five species were listed in Appendix III by China in 2005: *Palea steindachneri, Pelodiscus axenaria, P. maackii, P. parviformis,* and *Rafetus swinhoei*. The proposal would have the effect that all south and east Asian species of Trionychidae except the farmed *Pelodiscus sinensis* would be included in CITES (the Mid-East, African and North American species are excluded).

Half the species proposed for inclusion in Appendix II are globally threatened according to the current IUCN Red List: one (*Rafetus swinhoei*) is Critically Endangered, two are Endangered and one is Vulnerable. Of the remainder, one was assessed as Lower Risk/least concern and three (*Palea* spp.) were not evaluated. Recently the IUCN Tortoise and Freshwater Turtle Specialist Group has reviewed current listings and proposed some changes. Almost no quantitative information from assessment or monitoring studies of wild trionychid populations is available. There is good evidence that some of the species, particularly *Rafetus swinhoei,* have undergone marked decline, but trends and the level of risk faced by lesser-known species (such as the *Pelodiscus* spp.) are inferred mainly from the volume of trade and/or the relative availability of specimens in food and pet markets.

Turtles are heavily exploited in many range countries, particularly in China. Heavy exploitation and rising levels of trade between countries are believed to be putting almost all Asian turtles at increasing risk as the focus of collection shifts from one population to another. Softshell turtles are generally considered the most palatable chelonians in Southeast and East Asia, and appear to be more valuable commercially than other chelonian species in the food trade, with smaller specimens of a given species more desirable than larger ones as they are considered to have higher quality meat. Softshell turtles, notably *Pelodiscus sinensis* (not proposed for inclusion in the Appendices), are bred in China and Southeast Asia in very large numbers for consumption.

There is little information on levels of international trade in wild specimens of softshells, even where species have been listed in Appendix III. Loss or degradation of habitat, caused by sand or gold mining, dam construction, drainage and pollution also affects many species. Local subsistence use is high in several areas. Species are nominally protected by law in some parts of the range but it is considered that high levels of unreported trade occur, with substantial cross-border movement in parts of Asia.

Aspideretes leithii (Nilssonia leithii) Endemic to India where confined to large river systems and reservoirs of the central and southern peninsula. Formerly common but reportedly declining at the end of the 20th century, and absent from much of its range. Decline said to be mainly a result of siltation

and rivers drying up, although other sources attribute decline (perhaps as much as 90%) to excess collection for trade. There are no survey or monitoring data on population size or trade volume. Heavily used for food, mainly at local level. Assessed as Vulnerable by IUCN in 2000.

Dogania subplana Widely distributed in Southeast Asia, from Myanmar to the Philippines. Reported to be still locally common in much of the range. It is collected for subsistence consumption and trade. It was reported as exported from Medan in some quantity in the late 1990s, with around 200 kg per day received for export. There are no comprehensive data on population size or trade volumes. Present in some protected areas. Assessed as Lower Risk/least concern by IUCN in 2000.

Nilssonia formosa A riverine species largely restricted to Myanmar, but recently reported from Yunnan and may occur peripherally in Thailand. Uncommon to rare in the wild, and reported by fishermen to have declined over recent decades as a result of heavy fishing and egg collection, particularly with the spread of trade networks to formerly remote parts of the range. Also affected by gold-mining and accidental catch. There are no survey or monitoring data on population size or trade volume. Nominally protected by legislation. Assessed by IUCN in 2000 as Endangered.

Palea steindachneri Occurs in southern China (including Hainan), northern Viet Nam and adjacent Lao PDR (also introduced populations in Hawaii (USA) and Mauritius). Highly valued in the food trade. There are no survey data on population size or trade volume. Since its listing in Appendix III in 2005 no trade in this species has been recorded in the CITES trade database. Turtle farms in China produce more than 80 000 individuals annually from a captive stock of 252 000 adults. Considered endangered in the natural range, and assessed by IUCN in 2000 as Endangered globally.

Pelodiscus axenaria A Chinese endemic apparently restricted to Hunan province. Described in 1991, it remains poorly known. It was listed in CITES Appendix III in 2005. Since then the USA and Australia have imported 40 kg and 2 kg, respectively, of *P. axenaria* derivatives from China; Australia has imported 100 bottles of powder from China; the USA has reported import of 1312 live ranched specimens from Thailand (not in the known range), all for commercial purposes. Thailand produces very large amounts of farmed *Pelodiscus sinensis* and it is possible that these were misreported specimens of the latter. Not assessed by IUCN.

Pelodiscus maackii Fairly widespread in northeast Asia, ranging from China, the Korean Peninsula and Russia. Listed in CITES Appendix III (China) in 2005. There is a single subsequent trade record of 100 kg of shells (of wild origin) exported from Mexico to the USA for commercial purposes in 2007. Not assessed by IUCN.

Pelodiscus parviformis Present in southern China and northern Viet Nam. Listed in CITES Appendix III (China) in 2005; no trade subsequently reported. Not assessed by IUCN.

Rafetus swinhoei Formerly occurred in the Yangtse flood plain west of Shanghai, and in the Red River (China/Viet Nam). Can grow to a very large size. Not confirmed in the wild for around 15 years; only four live captive individuals are known to exist, a male and female at Suzhou Zoo in China (where breeding attempts have failed), and two males in separate lakes in and near Hanoi. There is a possibility some individuals remain in the wild. Decline is attributed to excess exploitation, also affected by water pollution and wetland modifications. China listed the species in Appendix III in 2005 and one record of a specimen is recorded as having been exported for educational purposes by China to the Republic of Korea in 2010.

Analysis: Information on population trends and trade volume is not comprehensive and for some included taxa little or no species-specific information is provided in the proposal. The following brief observations can be made regarding whether the species may meet the criteria for inclusion in Appendix II set

out in Annex 2 a to *Resolution Conf. 9.24 (Rev. CoP15)*, that is whether regulation in trade in the species is necessary to prevent it becoming eligible for inclusion in Appendix I in the near future, or to ensure that harvest for trade is not reducing the population to a level at which its survival might be threatened by continued harvest or other influences.

Aspideretes leithii (Nilssonia leithii) is endemic to India where it has reportedly undergone marked declines. Harvested for local consumption, although information on the extent and impact of use is conflicting; it is not known whether the species enters international trade. There is insufficient information to determine whether the species meets the criteria for inclusion in Appendix II in Annex 2 a to *Resolution Conf. 9.24 (Rev. CoP15)*.

Dogania subplana is widespread in Southeast Asia. Information on its desirability as a food item is conflicting, but it is known to be harvested for export in at least part of its range. The species may possibly meet the criteria for inclusion in Appendix II in Annex 2 a to *Resolution Conf. 9.24 (Rev. CoP15)*.

Nilssonia formosa is known from Myanmar and China and possibly occurs in Thailand. Believed to have declines as a result of overexploitation and other factors and known to occur in food markets in East Asia. The species may meet the criteria for inclusion in Appendix II in Annex 2 a to *Resolution Conf. 9.24 (Rev. CoP15)*.

Palea steindachneri occurs in China, Lao PDR and Viet Nam, with introduced populations in the USA (Hawai'i) and Mauritius. Valued in the food trade and reported to be captive-bred in China. There is no information on international trade in this species, or on harvest of wild populations for trade. There is thus insufficient information to determine whether the species meets the criteria for inclusion in Appendix II in Annex 2 a to *Resolution Conf. 9.24 (Rev. CoP15)*.

Pelodiscus axenaria is a poorly known species endemic to China. There is little information in international trade, other than report of export of just over 1000 ranched specimens from Thailand (not a range State) to the USA which may be misreported. There is insufficient information to determine whether the species meets the criteria for inclusion in Appendix II in Annex 2 a to *Resolution Conf. 9.24 (Rev. CoP15)*.

Pelodiscus maackii is the most northerly softshell species in Asia, occurring in China, the Korean Peninsula and Russia. The only recorded trade in the CITES trade database (the species was included in Appendix III by China in 2005) is of 100 kg of shells exported from Mexico to the USA in 2007. This is almost certainly a result of misreporting. There is insufficient information to determine whether the species meets the criteria for inclusion in Appendix II in Annex 2 a to *Resolution Conf. 9.24 (Rev. CoP15)*.

Pelodiscus parviformis occurs in southern China and northern Viet Nam. There is no information on status of or trade in this species; it is thus not possible to say whether it meets the criteria for inclusion in Appendix II in Annex 2 a to *Resolution Conf. 9.24 (Rev. CoP15)*.

Rafaetus swinhoei is only known from four specimens. It clearly meets the biological criteria for inclusion in Appendix I.

From the above, it would appear that *Dogania subplana* and *Nilssonia formosana* may meet the criteria for inclusion in Appendix II in Annex 2 a and that *Rafaetus swinhoei* does not, by virtue of already meeting the criteria for inclusion in Appendix I and there being little likelihood of any harvest for trade. For the remaining species there is insufficient information to determine whether the species do or do not meet the criteria. A general understanding of the dynamics of the turtle trade in Asia, and the fact that softshell turtles are said to be more highly sought after in the food trade than other species, might indicate that they are more likely to than not.

The different species all resemble each other to a greater or lesser degree, and can be distinguished from other chelonians in the region, though they cannot necessarily be told with ease from members of the Trionychidae from other parts of the world. If it is concluded that some of the species considered here meet the criteria for inclusion in Appendix II set out in Annex 2 a to *Resolution Conf. 9.24 (Rev. CoP15),* then it is likely that the other species would meet the criteria in Annex 2 b.

Proposal Part B. Transfer of the following species from Appendix II to Appendix I: *Chitra chitra* and *Chitra vandijki*

Summary: The genus *Chitra*, currently containing three species *Chitra chitra*, *C. indica* and *C. vandijki*, was listed in Appendix II in 2003. This part of the proposal is to transfer *Chitra chitra* and *Chitra vandijki* from Appendix II to Appendix I. There are no reliable estimates of actual population size or density, and the total area occupied within the drainage basins they occur in is not known in detail. There is strong evidence that both have declined and are rare or very rare in many parts of their known ranges, perhaps throughout. IUCN has assessed *C. chitra* as Critically Endangered but has not assessed *C. vandijki* because it was described after the 2000 evaluations. Freshwater turtles, especially trionychids, are heavily exploited in most range countries, and much trade is focused on China, where demand for turtles for food and medicinal uses has increased greatly, to the extent that collection pressure is depleting turtle populations across the region. There is also demand for the pet trade. Loss or degradation of habitat, caused by sand or gold mining, and the disruption of water flow following dam construction, has affected both these species. They are nominally protected by law in most of the range but it is clear that high levels of illegal trade occur, with substantial cross-border movement between countries in the region. There has been very little reported international trade in *Chitra* since the genus was listed in Appendix II in 2003.

Chitra chitra A large riverine species initially thought to be restricted to Thailand but now known from peninsular Malaysia, Sumatra and Java. Although quantitative population data are not available, the species seems everywhere rare and in serious decline, primarily because of excess exploitation, but also following river modification. Good evidence for increasing rarity in Thailand where collected for food and live animals. Eggs are highly sought after and sandbanks used for nesting are increasingly impacted by changing water flow following dam construction. Not recently confirmed in the wild in Malaysia; rare and poorly known in Sumatra; confirmed to occur in two rivers in northeast Java (treated as a distinct subspecies). Nominally protected by legislation in Thailand and Indonesia. There has been very little international trade in *Chitra* reported to CITES; Malaysia reportedly exported 183 live *Chitra chitra* in 2004, with between 0 and 84 in later years for an annual average of 32 live animals in the period 2000-2011 (CITES Trade Database). Assessed by IUCN in 2000 as Critically Endangered.

Chitra vandijki A large riverine species largely restricted to Myanmar where present in the Ayeyarwaddy (Irrawaddy) drainage and the Salween river, in which extends marginally into northwest Thailand. Although quantitative population data are not available, market surveys and consultation with fishermen suggest the species is everywhere rare or very rare. Fishermen in the remote Upper Chindwin reported that river turtles had declined over the past 20-30 years and attributed this mainly to increased human presence and fishing effort; illegal trade of turtles from here to China only developed around 2000, after turtle populations around Mandalay (a trade centre) became depleted. Sandbanks used for nesting are increasingly impacted by dam construction. Eggs are highly sought after and nests are easily located. Nominally protected by Fisheries and Forestry laws in Myanmar. Held in a captive breeding facility in Mandalay. First formally described in 2003 (from a market specimen in Yunnan believed to have derived from the Ayeyarwaddy in Myanmar) hence not assessed by IUCN in 2000.

Analysis: There is good evidence that both *Chitra chitra* and *C. vandijki* are rare or very rare in many parts of their known ranges, perhaps throughout, and that both have declined markedly in recent decades while habitat area and quality have also decreased in substantial parts of the range, and there is continuing trade demand. Accordingly both *C. chitra* and *C. vandijki* may meet the biological conditions for Appendix I listing under the criteria in

Paragraph C of Annex 1 to *Resolution Conf. 9.24 (Rev. CoP15)*. It is not straightforward to assess *Chitra* in relation to criteria in Paragraphs A and B, which require, respectively, a small population size and a restricted distribution area (with additional sub-criteria). Population size is not known for either species and comprehensive distribution information is lacking for both, however, both *C. chitra* and *C. vandijki* may be inferred to meet the basic requirement of Criterion B, and at least subcriteria Biii (vulnerability) and Biv (decrease in individuals and habitat) would apply.

Proposal Part A. Inclusion of the following species of the Family Trionychidae in Appendix II: *Aspideretes leithii, Dogania subplana, Nilssonia formosa, Palea steindachneri, Pelodiscus axenaria, P. maackii, P. parviformis*, and *Rafetus swinhoei*

Supporting Statement (SS)	Other information
Aspideretes leithii Leith's Softshell Turtle. IUCN Global Category: Vulnerable A1c ver 2.3 (ATTWG, 2000a; needs updating). (Draft Critically Endangered*). Range: India. Regarded as common until the 1990s but estimated to have declined by 90% by 2005 as a result of excess exploitation. Long harvested for local subsistence use but more recently in trade networks, also affected by changes to river habitats. ** see table footnote re "draft" categorisations*	*Recent opinion is that the generic name* Aspideretes *is a junior synonym of* Nilssonia*, in which case* A. leithii *would become* Nilssonia leithii *(Praschag* et al., *2007); see also Fritz and Havas (2007, appendix) and the Turtle Taxonomy Working Group checklist (van Dijk* et al.*, 2011).* *Rivers of peninsular India, including Bhavani, Godaveri, Moyer and others (Fritz and Havas, 2007), south at least to the Bharathapuzha River in Kerala (Kumar, 2004).* *Relatively common but declining; threatened by heavy local consumption and use in trade (Choudhury* et al., *2000). Populations in the southern part of its range are small, fragmented and scattered (van Dijk* in litt., *2012). Formerly common but has disappeared from much of its range, mainly due to siltation and drying up of rivers during the summer; also affected by trade up to the mid 1970s (ATTWG, 2000a).* *It has become subject to intensive exploitation over the past 30 years, plus has suffered habitat degradation, and is believed to have suffered a range-wide decline averaging over 90% during this period (van Dijk* in litt., *2012).*
Dogania subplana Malayan Softshell Turtle. IUCN Global Category: Lower Risk/least concern ver 2.3 (ATTWG, 2000b; needs updating). Range: Indonesia, Malaysia, Myanmar, Philippines, Singapore, Thailand. Harvest prohibited in Singapore.	*In general softshell turtles are regarded as the most palatable chelonians within Southeast and East Asia and are widely eaten by many ethnic groups and peoples of different denominations, with the exception of Muslims, who are forbidden to eat the meat (but not the eggs) of these and other chelonians under Islamic dietary rules. Palatability and desirability of different species appears to vary, although it is difficult to discern a consistent pattern (Jenkins, 1995).* *TFTSG and ATTWG, (2000) noted that the species was still locally common in Indonesia, Malaysia and Thailand, was exported in some numbers but was the least favoured softshell for food and was present in several protected areas. Shepherd (2000) reported that in 1999 the single exporter in Medan (Sumatra, Indonesia)*

Supporting Statement (SS)	Other information
	received some 200 kg daily for export, one fifth the amount of Amyda cartilaginea *but considerably more than the other softshell exported,* Pelochelys cantori*.* Dogania subplana *was more highly sought after than the latter. He also noted that softshell turtles were in general more valuable commercially than other turtles exported through Medan. Smaller specimens commanded higher prices per kg as their meat was considered of higher quality.* *Within the Philippines, present at least on Luzon, Mindanao, Mindoro and Palawan. Common in parts of Palawan where present in forested creeks at higher elevation than other freshwater species; some populations possibly depleted by excess harvest (Fidenci and Castillo, 2009).*
Nilssonia formosa Burmese Peacock Softshell Turtle. IUCN Global Category: Endangered A1cd+2d, B1+2c ver 2.3 (ATTWG, 2000c; needs updating). (Draft Critically Endangered*). Range: Myanmar. Considered uncommon to rare; harvested for food and exported in significant numbers, also impacted by gold-mining and other changes to river habitat. In Myanmar turtles are protected by Fisheries and Forestry laws, and all wildlife is protected in wildlife sanctuaries and national parks. Held in a captive breeding facility in Mandalay.	*Ayeyarwady (Irrawaddy), Sittaung, Thanklwin (Salween) rivers, probably also shared drainage in Thailand, also recently confirmed from the uppermost Mekong system in Yunnan (China) (Liebig* et al., *2012).* *Based on interviews with fishermen along the Upper Chindwin, Kuchling* et al*. (2004) reported this species was found at intermediate abundance compared with* Chitra vandijki *(higher) and* Amyda cartilaginea *(lower) in the main channel, and lowest in narrower side channels (Kuchling* et al. *stress that this is an indication of relative abundance only, not of overall population status). Fishermen reported that river turtles had declined over the past 20-30 years and attributed this mainly to increased human presence and fishing effort. Kuchling* et al. *(2004) note that illegal trade of turtles from the Upper Chinwin to China only developed around 2000, after turtle populations around Mandalay (a trade centre) became depleted. In addition to trade in turtles and shells, Win Ko Ko* et al*. (2006) note the following threats in the Upper Chindwin: gold mining, accidental entanglement in fishing gear (especially gillnets) and excess egg collection.* *Traded in some numbers in the East Asian food trade; uncommon to rare in the wild; not known to inhabit effectively protected areas (ATTWG, 2000c).*
Palea steindachneri Wattle-necked Softshell Turtle. IUCN Global Category: Endangered A1cd+2cd ver 2.3 (ATTWG, 2000d; needs updating). Range: China, Lao PDR, Viet Nam, (introduced Mauritius, USA: Hawaii).	*See general comment on softshell use under* Dogania above. *Southeast China (including Hainan Island), northern Viet Nam (Fritz and Havas, 2007). The current Red List does not include Lao PDR in the range (ATTWG, 2000d in IUCN, 2012).* *No reported international trade since listing in Appendix III in 2005 (CITES Trade Database).*

Supporting Statement (SS)	Other information
Not protected by law in Viet Nam. Most softshells are listed as national protected animals in China. It is estimated that turtle farms in China produce more than 80 000 individuals annually from a captive stock of 252 000 adults. Listed in CITES Appendix III (China, 2005).	*Highly valued in the food trade and considered Endangered in both China and Viet Nam (ATTWG, 2000d).*
Pelodiscus axenaria Hunan Softshell Turtle. IUCN Global Category: Not assessed (IUCN, 2012). (Draft Data Deficient*). Range: China. Most softshells are listed as national protected animals in China. Appendix III (China, 2005).	*See general comment on softshell use under* Dogania above. *Hunan Province (Fritz and Havas, 2007).* *Since listing in Appendix III in 2005 the USA and Australia have imported 39.55 kg and 1.9 kg, respectively, of P. axenaria derivatives and extract from Taiwan; Australia has imported 100 bottles of powder from China; the USA has imported 1312 live ranched specimens from Thailand (CITES Trade Database). All reported trade for commercial purposes. Thailand has many turtle farms that produce very large quantities of* Pelodiscus sinensis *and it is possible that these were misreported specimens of the latter (Jenkins, 1995).* *Genetic analysis (Fritz* et al.*, 2010) has provided evidence of at least seven distinct genetic lineages within* Pelodiscus; P. axenaria *is highly distinct and validity of* P. maackii *is confirmed, but it is not clear which names and rank should be applied to several taxa in the central and southern parts of the range. These findings suggest systematic revision is needed as a basis for improved assessment of the conservation status of* Pelodiscus *species.*
Pelodiscus maackii Northern Chinese Softshell Turtle. IUCN Global Category: Not assessed (IUCN, 2012). (Draft Data Deficient*). Range: China, DPR Korea (non-CITES Party), Republic of Korea, Russian Federation. Most softshells are listed as national protected animals in China. Appendix III (China, 2005).	*Amur, Ussuri, Sungari, & Liao-che rivers (Fritz and Havas, 2007).* *One transaction has been reported since listing in Appendix III in 2005: 100 kg* Pelodiscus maackii *shells of wild origin exported from Mexico to the USA in 2007 for commercial purposes (CITES Trade Database). This seems extremely likely to be a result of misreporting.* *Genetic analysis (Fritz* et al., *2010) has provided evidence of at least seven distinct genetic lineages within* Pelodiscus; P. axenaria *is highly distinct and validity of* P. maackii *is confirmed, but it is not clear which names and rank should be applied to several taxa in the central and southern parts of the range. These findings suggest systematic revision is needed as a basis for improved assessment of the conservation status of* Pelodiscus *species.*

Supporting Statement (SS)	Other information
Pelodiscus parviformis Lesser Chinese Softshell Turtle. Proposed for transfer from Appendix III (China, 2005) to Appendix II. IUCN Global Category: Not assessed (IUCN, 2012). (Draft Data Deficient*). Range: China, Viet Nam. Not protected by law in Viet Nam. Most softshells are listed as national protected animals in China.	*See general comment on softshell use under* Dogania above. *China: Guangxi, Hunan Province (Fritz and Havas, 2007).* *No reported international trade since listing in Appendix III in 2005 (CITES Trade Database).*
Rafetus swinhoei Yangtze Giant Softshell Turtle. Proposed for transfer from Appendix III (China, 2005) to Appendix II. IUCN Global Category: Critically Endangered A1cd+2cd ver 2.3 (ATTWG, 2000e; needs updating). Range: China, Viet Nam. Formerly occurred in the Red River (China/Viet Nam) and the Yangtse flood plain in China. Not confirmed in the wild for around 15 years; only four live captive individuals are known to exist. Decline is attributed to excess exploitation, also impacted by water pollution and wetland modifications. Not protected by law in Viet Nam. Most softshells are listed as national protected animals in China. Qingtian Reserve (Zhejiang Province, China) was reportedly designated specifically to protect *Rafetus swinhoei.* Breeding has been attempted by the pair in Souhou Zoo (China) since 2008 but no hatchlings have been produced. Appendix III (China, 2005).	*Le and Pritchard (2009) note the disjunct distribution, with two areas of occurrence: Tai Hu Lake and Suzhou area west of Shanghai, and the Red River system in Yunnan (China) and northern Viet Nam (possibly also formerly further south in Thanh Hoa Province).* *Probably already rare in the 1870s, although still found by fishermen up to around 2000; Pritchard found more than 20 museum specimens in China and Viet Nam, mostly decades old and misidentified (Le and Pritchard, 2009). Several surveys for* Rafetus swinhoei *have taken place recently in Vietnam, Laos and China. One of the two specimens in Vietnam (probably a middle-aged adult male) was discovered during such a survey in Dong Mo Lake in the Viet Nam sector of Red River drainage in 2007. A survey along the Red River in Yunnan confirmed the historic occurrence of the species and listed several individuals that were recorded up to 1998, but no firm evidence of captures or sightings has emerged since that date (Kuchling, 2012). There remains a possibility that turtles of this species remain in Yunnan because monitoring staff have been checking markets in the area for giant softshells (which would be* Rafetus swinhoei) *rather than looking for smaller (younger) turtles with other features diagnostic of the species (Kuchling, 2012). Only four known individuals remaining.* Rafetus swinhoei *was recently listed among the "Top 25" most highly threatened turtles (TCC, 2011).* *Wetland destruction and water pollution also contributed to decline of* Rafetus swinhoei*, and there is a fair chance that a few wild individuals remain in remote parts of the range (TCC, 2011).* *Since listing in Appendix III in 2005 there has been one record of trade in* Rafetus swinhoei*: one specimen exported from China to the Republic of Korea in 2010 for educational purposes (source code O) (CITES Trade Database).*

Proposal Part B. Transfer of the following species from Appendix II to Appendix I: ***Chitra chitra* and *Chitra vandijki***

Supporting Statement (SS)	Other Infomation
Chitra chitra Asian Narrow-headed Softshell Turtle. IUCN Global Category: Critically Endangered A1cd, B1+2c ver 2.3 (ATTWG, 2000). Range: Indonesia, Malaysia, Thailand. A riverine species subject to by-catch and targeted catch for food and live animals. Vulnerable because geographically and temporally concentrated during egg-laying. Sandbanks used for nesting are increasingly impacted by dam construction. Eggs are highly sought after and nests are easily located. Although quantitative population data are not available, populations are believed to be widely in serious decline, primarily because of excess exploitation, but also following river modification. Protected by law from all forms of exploitation in Thailand, including import and export. In Indonesia protected from commercial trade by Government Decree No.7/1999.	*See general comment on softshell use under* Dogania above. *Until the late 1980s (described 1990) regarded as conspecific with* Chitra indica*.* *Initially thought to be restricted to Thailand, populations currently regarded as this species are now known to occur in Java, Sumatra and in (West) Malaysia (McCord and Pritchard, 2003; TCC, 2011). In Thailand recorded from the Mae Klong and Chao Phraya drainages (Kitimasak and Thirakhupt, 2002; Kitimasak* et al., *2005). In Malaysia, the very few validated specimens known are from the Tahan-Pahang river system and the vicinity of Taman Negara; also reportedly found in southern and eastern parts of the peninsula (McCord and Pritchard, 2003). In Java, currently known from the Pasuruan and Solo drainages in the east (McCord and Pritchard, 2003).* *McCord and Pritchard (2003) note that* Chitra chitra *appears to have a relatively restricted range in Thailand and to be very rare or possibly extirpated in Malaysia, with recent instances where observers have failed to confirm the species during extended surveys. McCord and Pritchard (2003) cite a source (Samedi and Iskander, 2000) stating* Chitra chitra *is rare in Sumatra and Java.* *Kitimasak* et al. *(2005) consider on the basis of extensive consultation with fisheries staff and fishermen that both* Chitra *have declined rapidly in the previous two decades and describe both as very rare in Thailand. The habitat of* Chitra chitra *has certainly been decreasing in area and quality because of sand mining (affecting nesting habitat) and flow disruption caused by large dams (TCC, 2011). Kitimasak* et al*. (2005) note specific instances in the Mae Klong system where* Chitra chitra *have attempted to nest in unsuitable substrates, such as former hilltops that now form islands in the flooded area upstream of a dam, because the original nesting sandbanks have been submerged. Similarly, nesting attempts downstream are also usually unsuccessful because nests may be flooded when water is released from the dam for power generation or irrigation, or they may be left high and dry (too dry for hatchling emergence) if water levels fall.* *There have been no direct quantitative field surveys of population size and no direct monitoring of trends in* Chitra chitra *or* Chitra vandijki *(nor any other Asian trionychids). Some idea of abundance or rarity, and trends, may be estimated on the basis of consultation with villagers, fishermen or fisheries staff, and are often inferred more broadly from the demand for turtles, the relative occurrence of different turtles species in food or pet markets, and their changing availability over time.* *The Asian Narrow-headed Softshell* Chitra chitra *was recently listed among the turtle*

Supporting Statement (SS)	Other Infomation
	species regarded as at highest risk of extinction (TCC, 2011). *Intensively exploited for food and international pet trade (ATTWG, 2000).* *According to exporter records in the CITES trade database, 368 live specimens of* Chitra chitra *(180 wild and 188 captive-bred) were exported between 2003 and 2010. All except one record involved Malaysia as the exporting country. According to importers only 120 specimens were traded (six wild and 114 captive-bred). The main destinations in terms of quantities of specimens traded were Taiwan (238 live specimens according to exporter reports) Japan and the US. Other destinations were the Czech Republic and Spain.* Chitra chitra *is protected under WARPA (Wild Animals Reservation and Protection Act B.E. 2535) in Thailand but adults and eggs (sometimes for incubation and sale of hatchlings) are exploited continuously (Kitimasak* et al.*, 2005). It is reportedly protected by law (as* C. indica*) in Indonesia, (Government Regulation Act. No. 7 and 8 of 1999; Samedi and Iskandar, 2000).* *Although* Chitra chitra *is capable of extremely large clutch sizes, captive breeding for the purpose of head-starting turtles is difficult because hatchlings and juveniles are very susceptible to bacterial infections and juveniles are very sensitive to changes in temperature. It is recommended that the majority of hatchlings produced from captive breeding be immediately released into suitable habitat to avoid the high levels of mortality often associated with captive rearing (Horne* et al.*, 2012).*
Chitra vandijki Burmese Narrow-headed Softshell Turtle. IUCN Global Category: Not assessed (IUCN, 2012). (Draft Critically Endangered*). Range: Myanmar. A riverine species subject to by-catch and targeted catch for food and live animals. Market surveys and consultation with fishermen suggest the species is rare or very rare. Vulnerable because geographically and temporally concentrated during egg-laying. Sandbanks used for nesting are increasingly impacted by dam construction. Eggs are highly sought after and nests are easily located. Although quantitative population data are not available, populations are believed to be widely in serious decline, primarily because of excess exploitation, but also following river modification. In Myanmar, turtles are protected by Fisheries and Forestry laws, and all wildlife is	*See general comment on softshell use under* Dogania above. *Presence of* Chitra *in what was then Burma was reported in the 19th century (confused with* C. indica*) but not fully confirmed until 1994 (McCord and Pritchard, 2003).* Chitra vandijki *was only described in 2003 and so was not assessed by the Asian Turtle Trade Working Group in 2000 and does not appear in the online Red List (IUCN, 2012, accessed 7.xi.12).* *Also present in Thailand. In Myanmar, present in the Ayeyarwaddy (Irrawaddy) drainage, including the Chindwin, and in the Salween river, including the Salween along the border with Thailand (but not reported from the upper Salween which flows south through Yunnan Province of China). The holotype of this species, as designated in 2002, was found in a market in Yunnan but reportedly originated from the Ayeyarwaddy in northeast Myanmar (McCord and Pritchard, 2003). Occurs in Thailand in the stretch of the Salween River forming part of the border with adjacent Myanmar, and possibly in left-bank affluents (Kitimasak* et al.*, 2005).*

Supporting Statement (SS)	Other Infomation
protected in wildlife sanctuaries and national parks. Held in a captive breeding facility in Mandalay.	*McCord and Pritchard (2003) note that fishermen at two localities on the Ayeyarwaddy (Myanmar) reported* Chitra vandijki *to be rarely encountered, and at one of these sites they only saw about one specimen per year. Kitimasak* et al*. (2005) consider on the basis of extensive consultation with fisheries staff and fishermen that both* Chitra *have declined rapidly in the previous two decades and describe both as very rare in Thailand. Based on interviews with fishermen along the Upper Chindwin, Kuchling* et al. *(2004) reported this species was found at higher abundance in the main channel compared with* Nilssonia formosa *(medium) and* Amyda cartilaginea *(lower) (Kuchling* et al. *stress that this is an indication of relative abundance only, not of overall population status). Fishermen reported that river turtles had declined over the past 20-30 years and attributed this mainly to increased human presence and fishing effort. Kuchling* et al. (*2004) note that illegal trade of turtles from the Upper Chinwin to China only developed around 2000, after turtle populations around Mandalay (a trade centre) became depleted. In addition to trade in turtles and shells, Win Ko Ko* et al. *(2006) note the following threats in the Upper Chindwin: gold mining, accidental entanglement in fishing gear (especially gillnets) and excess egg collection.* *There have been no direct quantitative field surveys of population size and no direct monitoring of trends in* Chitra chitra *or* Chitra vandijki *(nor any other Asian trionychids). Some idea of abundance or rarity, and trends, may be estimated on the basis of consultation with villagers, fishermen or fisheries staff, and are often inferred more broadly from the demand for turtles, the relative occurrence of different turtles species in food or pet markets, and their changing availability over time. Has apparently not yet been bred in captivity (Horne* et al*., 2012).*

* “Draft” IUCN Red List assessments, as shown in Table 1 of the proposal Supporting Statement are by the Tortoise and Freshwater Turtle Specialist Group (the official authority for tortoises and freshwater turtles for the IUCN Red List); although some categorisations have been published (Van Dijk et al., 2011) they are subject to revision and not yet incorporated in the IUCN Red List itself (IUCN, 2012). The draft categories are only shown in the Table above if they differ from those in IUCN (2012) or if the species was not assessed for IUCN (2012).

Reviewers: C. Shepherd.

Inclusion of Machalilla Poison Dart Frog *Epipedobates machalilla* in Appendix II

Proponent: Ecuador

Background: *Epipedobates machalilla* (called *Colostethus machalilla* in the reference on which CITES amphibian taxonomy is currently based) is one of nearly three hundred currently recognized species of poison dart frogs or dendrobatids. Owing to concerns regarding the potential impact of the international pet trade on some species of poison dart frogs, two dendrobatid genera – *Dendrobates* and *Phyllobates* – were included in Appendix II in 1987. Soon after, taxonomic revision led to the genus *Dendrobates* being split into two genera, *Dendrobates* and *Epipedobates*, a change subsequently accepted in CITES taxonomy. It was agreed that the intent of the original listing was that all frog species included in the genus *Dendrobates* at the time of the listing were to be included in Appendix II. The listing in the Appendices was therefore changed to include all species in the genera *Dendrobates* and *Epipedobates*. Subsequent changes resulted in three species in the new genus *Epipedobates* being further renamed, two being recognized under current CITES taxonomy as in the large genus *Allobates* (*A. femoralis* and *A. zaparo*) and one in the monotypic genus *Cryptophyllobates* (*C. azureiventris)*. These are currently listed under those names in Appendix II.

When *E. machalilla* was described in 1995, it was included in the genus *Colostethus* which was not listed in the CITES Appendices. Taxonomy of dendrobatid frogs has been subject to extensive revision since the last CITES standard taxonomy for amphibians was adopted (the relevant parts of Frost, D.R. (2004) "Amphibian Species of the World, an online Reference" V. 3.0 (as of April 7 2006)). These changes are reflected in the standard taxonomy to be considered for adoption at CoP16 (Frost, D.R. (2011) Amphibian species of the world, with a revision of the genus *Ranitomeya* by Brown *et al.:* see Notification No. 2012/060). [See analysis below]. One of these changes was to transfer the species *machalilla* from *Colostethus* to *Epipedobates*. Under the revised taxonomy, *Epipedobates machalilla* would be the only currently recognized species in the genus *Epipedobates* not listed in the Appendices.

Summary: The Machalilla Poison Dart Frog *Epipedobates machalilla* is a dark-brown, non-venomous dendrobatid that occurs in the dry western lowland forests of Ecuador. It inhabits tropical thicket, thorny scrub and very dry tropical forest. It is reported to be not rare within its range, but is believed likely to be in decline because of widespread habitat loss as a result of conversion to agriculture and logging. It was assessed by IUCN in 2004 as Near Threatened. It is subject to conservation measures in Ecuador and its geographic range overlaps with Parque Nacional Machalilla and Reserva Ecológica Manglares Churute.

There is very little information on use or trade in *E. machalilla.* However, there is no indication that the species is in demand for the international pet trade, or that it is subject to any extensive domestic use, although some specimens are said to have been used in embryological studies. The species bears a resemblance to the Appendix-II listed *Epipedobates boulengeri;* the latter species is reported in trade as a live animal, albeit at low numbers – it is reportedly not highly sought-after by hobbyists. The CITES trade database records around 50 specimens a year traded between 1994 and 2010 most, particularly those reported in recent years, recorded as captive-bred. Ecuador and Czech Republic were the two major exporting countries. *E. boulengeri* occurs in Colombia and Ecuador and was assessed as Least Concern by IUCN in 2004.

E. machalilla is proposed for inclusion in Appendix II in accordance with Article II paragraph 2 b for look-alike reasons. If the proposal is adopted, all species in the genus *Epipedobates* as recognized in the proposed new standard taxonomy will be listed in Appendix II.

Analysis: There is no indication that regulation of international trade in *Epipedobates machalilla* is necessary to prevent the species itself becoming eligible for inclusion in Appendix I in the near future, nor that it is reducing the population to a level at which it might become threatened by continued harvesting or other influences (criteria for inclusion in Appendix II in Annex 2 a of *Resolution Conf. 9.24 (Rev. CoP15)*).

Under look-alike criteria, set out in Annex 2 b of *Resolution Conf. 9.24 (Rev. CoP15)*, the species could be included in Appendix II if it resembled a species included in the Appendices under the criteria in Annex 2 a of the Resolution. The species does resemble the Appendix-II listed *E. boulengeri* to some extent. *E. boulengeri* was included in Appendix II (as *Dendrobates boulengeri*) under the general listing for *Dendrobates* spp. in 1987. This was before formal criteria for amending the Appendices had been established in the original *Resolution Conf. 9.24.* However, there was no indication in the original proposal that the species was included for anything other than very general look-alike reasons, as comprising part of a genus for which concern had been expressed regarding some species. Subsequent experience appears to bear this out: *E. boulengeri* is classified as Least Concern and is reported in trade in low numbers (most now apparently captive-bred), indicating that this species does not itself meet criteria for inclusion in Appendix II under Annex 2 a of *Resolution Conf. 9.24 (Rev. CoP15)*. Moreover, *E. boulengeri* has been included in Appendix II for 25 years, and *E. machalilla* recognised as a species for 16 years, during which time there appear to have been no problems implementing the Convention for the former species.

Adoption of the new taxonomic standard for amphibians will result in a complicated series of listings of dendrobatid frogs in Appendix II, owing to the many taxonomic changes to the species originally included in the genus *Dendrobates* when it was listed in Appendix II in 1987. Under the new standard, the following will be listed:

- 11 of 12 species in the genus *Andinobates* (species currently included in *Dendrobates*, excluding that described since 2004);
- all 3 species in the genus *Adelphobates* (currently included in *Dendrobates*);
- 4 out of 46 species in the genus *Allobates* (two currently included in *Epipedobates* and two currently listed in Appendix II as *Allobates femoralis* and *Allobates zaparo*, all having originally been included in *Dendrobates*).
- 25 out of 31 species in the genus *Ameerega* (species currently included in *Epipedobates,* excluding six species described since 2004);
- all 5 species in the newly configured genus *Dendrobates;*
- 5 out of 6 species in the newly configured genus *Epipedobates* (excluding *E. machalilla*)*;*
- both species in the genus *Excidobates* (currently included in *Dendrobates*);
- 1 out of 58 species in the genus *Hyloxalus* (currently listed in Appendix II as *Cryptophyllobates azureiventris,* and at different times included in *Dendrobates, Ameerega* and *Phyllobates*);
- 1 species in the monotypic genus *Minyobates* (currently *Dendrobates steyermarki*);
- 8 out of 9 species in the genus *Oophaga* (species currently included in *Dendrobates*, excluding *Oophaga sylvatica*);
- 5 species in the unchanged genus *Phyllobates*;
- 11 out of 17 species in the genus *Ranitomeya* (species currently included in *Dendrobates,* excluding six species described since 2004);

The list above includes seven cases (including *Epipedobates*) where only part of a genus is included in the Appendices. The apparent intent of this proposal is to ensure that all members of the genus *Epipedobates* are now included in Appendix II. However, as the genus *Epipedobates* was not recognised at the time of the original listing, it is not evident that this would necessarily have been the intention of the original proponents. On its own merits *E. machalilla* does not appear to meet the criteria for inclusion in Appendix II, either under Annex 2 a of *Resolution Conf. 9.24 (Rev. CoP15)* or as a 'lookalike' species under Annex 2 b.

Given that, even if this proposal were accepted, under the proposed new taxonomy, six other genera of dendrobatid frog would only be partially included in Appendix II, it would appear that the inclusion of *E. machalilla* in Appendix II will make no significant contribution to facilitating implementation or enforcement of the Convention for this group of species.

Supporting Statement (SS)	Additional information
Taxonomy	
Epipedobates machalilla was discovered in 1995 and included in the genus *Colostethus* as *Colostethus machalilla.* In 2006, the species was transferred to the genus *Epipedobates.* *Colostethus machalilla* is treated as a synonym of *E. machalilla.*	*According to the standard references for Amphibia proposed for consideration at CoP16 (AC26 Doc. 20, Annex 3 – p. 3), there are currently six species within the genus* Epipedobates *(Frost, 2011):* • Epipedobates anthonyi • Epipedobates boulengeri • Epipedobates espinosai • Epipedobates machalilla • Epipedobates narinensis • Epipedobates tricolor *Under the current standard CITES taxonomy (adopted (Frost, D.R. (2004) "Amphibian Species of the World, an online Reference" V. 3.0 (as of April 7 2006)), the species is recognised as Colostethus machalilla.*
Range	
Ecuador.	
IUCN Global Category	
Near Threatened.	*Assessed 2004 (ver. 3.1)*

Biological and trade criteria for inclusion in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)

B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences

E. machalilla is endemic to Ecuador. The species is known in approximately thirty locations in the Pacific lowlands, in the Ecuadorian provinces of El Oro, Los Rios, Bolivar, Cotopaxi, Guayas and Manabi Cañar. The species is associated with dry coastal scrub, deciduous coastal forest, humid tropical Choco forest and western lowland forest habitats. *E. machalilla* lives in sympatry with *Hyloxalus awa* in the Chindul Mache Mountains in the Cordillera de la Costa and with *Hyloxalus infraguttatus* to 600 m in the Chimbo River basin and in the Cordillera de Chongón Colonche. The species has been found in high densities along the Ayampe river.	E. machalilla *is known from more than ten localities in the Pacific lowlands of Ecuador in the provinces of El Oro, Los Ríos, Bolívar, Guayas, Azogues, and Manabí, from 10 to 515 m above sea level (Coloma* et al*., 2004). It is associated with dry western lowland forests (Coloma, 1995).*

Supporting Statement (SS)	Additional information
Population status: *E. machalilla* is not rare within its range. It has been listed as Near Threatened by IUCN because the species is probably in significant decline owing to widespread habitat loss through much of its range, making it close to qualifying for a Vulnerable classification. Between February 2005 and January 2010, an inventory of amphibians was carried out across four localities of the Chongón region and the Colonche mountains. A total of 443 individuals were recorded across the four sites surveyed. Overall, the sites show a marked dominance of *E. machalilla* (Pi = 0.139). Although *E. machalilla* may be locally abundant, in some areas it is restricted to the edges of rivers and streams. **Levels of trade:** *E. machalilla* is primarily used in scientific studies of embryonic development. Levels of trade in *E. machalilla* are uncertain. The supporting statement states that there is no information available on the extent of national utilisation of *E. machalilla;* trade in *E. machalilla* parts or derivatives; or levels of legal and illegal trade. However, there is extensive trade in other species of the *Epipedobates* genus, particularly *Epipedobates tricolor* and *Epipedobates anthonyi*.	*Overall the four sites show a marked dominance of* Hyloxalus infraguttatus *(Pi = 0.273) recorded at all locations as well as* Pristimantis achatinus *(Pi = 0.151) and* E. machalilla *(Pi = 0.139) (Amador and Martinez, 2011).*

Inclusion in Appendix II to improve control of other listed species

A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I

E. machalilla is a dark brown Dendrobatid frog. Unlike other species of the *Epipedobates* genus, it is non-venomous. Males are generally associated with rostro-cloacal lengths of between 14.4 and16.0 mm. Females may have a rostro-cloacal length of up to 15.8 mm.	*The species currently recognised in the genus Epipedobates are distributed across the Pacific lowlands and western Andean slopes of southern Colombia, Ecuador, and northern Peru (Cisneros-Heredia and Yanez- Muñoz, 2010).*
E. machalilla is differentiated from other *Epipedobate* species by its pale olive brown dorsum with dark brown markings; solid oblique lateral stripes; yellow or yellowish-orange inguinal and posterior calf regions; and a large and strongly curved tarsal keel.	*The supporting statement for the original listing of* Dendrobates *spp. in Appendix II suggested that due to the large intraspecific variation in colouration of these species, combined with relatively small interspecific variation, look-alike problems may occur (Anon., 1987).*
While there is no detected trade in *E. machalilla* (possibly due to low international demand for the genus *Colostethus*), there is international market demand for other *Epipedobates* species. For example, *E. boulengeri* is in international trade and it is	*As regards other species in the genus* Epipedobates*, the species* E. boulengeri *would appear to be the most similar in appearance to* E. machalilla. *Diagnostic features of* E. boulengeri *include a dark brown to dark red dorsum; solid oblique lateral stripes; a*

Supporting Statement (SS)	Additional information
suggested that distinguishing between this species and *E. machalilla* may present difficulties for non-experts.	*solid labial stripe; a whitish-blue venter with dark spotting/reticulation/marbling; and a large and strongly curved tarsal keel (Cisneros-Heredia and Yanez- Muñoz, 2010).* E. boulengeri *occurs in the southern part of the Colombian Pacific Lowlands (in Gorgona Island, Nariño, Cauca, Valle del Cauca Departments) and in the northwestern lowlands of Ecuador (in Esmeraldas, Pichincha and Imbabura Provinces), at elevations of less than 1,460 m above sea level (Bolívar* et al.*, 2010). Distribution maps on the IUCN Redlist website indicate the distribution of* E. boulengeri *appears to abut that of* E. machalilla *in Ecuador with a possible slight degree of overlap in the ranges of these two species.* E. boulengeri *appears in the international pet trade (Bolívar* et al.*, 2010). According to CITES trade data during the period 1994-2010 around 800 live E.boulengeri were reported in trade (~ 50 per year) predominantly reported as captive-bred, particularly in recent years. Ecuador and the Czech Republic were the major reported exporters of* E. boulengeri *specimens during the period 1994-2010 (UNEP-WCMC CITES Trade Database, data extracted 5 November 2012).* *There has been no reported trade in Epipedobates spp. from Ecuador.* *While* E. boulengeri *is kept and bred by collectors in vivaria (Anon., 2012a), it appears that some amphibian collectors may regard it as an uninspiring pet due to its dull colouration (Anon., 2012b).*

Other information

Threats

The coastal forests of Ecuador are highly threatened due to human pressure, with only 2% of the original forests remaining. The destruction of the forests is mainly the result of human population growth, a doubling of agricultural production and increases in the extraction of wood and large-scale planting of forests with African Oil Palm (*Elaeis guineensis*) and eucalyptus (*Eucalyptus* spp.).

An environmental impact assessment for a proposed sediment dredging station at Severino in Manabi Province found that the development would likely impact negatively upon amphibians in this region, including *E. machalilla*.

The major threats to *E. machalilla* are agriculture, involving the cultivation of crops and rearing of livestock, and logging.

Supporting Statement (SS)	Additional information
Conservation, management and legislation	
All other species of the genus *Epipedobates* are listed in Appendix II of CITES. *E. machalilla* is subject to conservation measures in Ecuador. Ecuador has two environmental laws for the protection of biodiversity: the Environmental Management Act 2004 and the Forest Law and Conservation of Natural Areas and Wildlife Act 2004. The main legal instrument is the Unified Text of Secondary Environmental Legislation of the Ministry of the Environment TULAS, which establishes requirements for the management, conservation, protection and commercialisation of Ecuador's native wildlife. *E. machalilla* is included in the Strategic Plan for the Conservation of Amphibians in Ecuador. The species has been reported as present in Ecuador's Machalilla National Park and in the Cerro Blanco Protected Forest, a private protected area. The supporting statement states that there are no international or domestic control measures relating to this species.	*The geographic range of* E. machalilla *overlaps with Parque Nacional Machalilla and the Reserva Ecológica Manglares Churute (Coloma* et al.*, 2004).*
Captive Breeding/Artificial Propagation	
A captive breeding study found that the development of *E. machalilla* takes 19-20 days. The supporting statement notes that there is no information on captive breeding for trade.	E. machalilla *reproduces in captivity and deposits moderately sized eggs (1.6 mm in diameter) in terrestrial nests (Del Pino* et al., *2004).*
Other comments	
	Other species currently listed in the Appendices as part of the original genus level listing would be listed in the Appendices under their new nomenclature. This and other nomenclatural changes would result in some but not all species of the genera Ameerega *and* Allobates *being included in the appendices. A wider review of the species in trade within the genera and the issues of similarity would be useful to determine the listings continue to meet the relevant criteria and that the Appendices correctly reflect the conservation needs of species.* *Cisneros-Heredia and Yanez- Muñoz (2010) described a new species of the genus* Epipedobates*,* Epipedobates darwinwallacei*, from the area of Mindo in north-western Ecuador.*

Deletion of Southern Gastric-brooding Frog *Rheobatrachus silus* from Appendix II

Proponent: Australia

Summary: The Southern Gastric-brooding Frog *Rheobatrachus silus* was one of two species in the genus *Rheobatrachus*, both moderately large terrestrial frogs endemic to Australia. Sometimes included in the Australasian anuran (tail-less amphibian) family the Myobatrachidae, CITES taxonomy places the genus in its own family, the Rheobatrachidae. Unremarkable in appearance, both species had an extraordinary reproductive strategy in which the female swallowed fertilised eggs and brooded them in her stomach. *Rheobatrachus silus* was described in 1973 from specimens collected in 1972 and was known from a relatively small area (less than 1400 km^2) of south-east Queensland. The species was last seen in the wild in September 1981 and the last known captive specimen died in November 1983. Extensive searches for the species have been carried out in suitable habitat since 1981 without success.

Rheobatrachus spp. were included in Appendix II in August 1985, by which time both *R. silus* and its sister-species *R. vitellinus* (also the subject of a proposal for deletion from the Appendices (Prop. 41)) were probably extinct. No other species of Australian anuran is included in the Appendices, nor do the *Rheobatrachus* species closely resemble any other anurans listed in the Appendices.

In the highly unlikely event of the species being rediscovered, it would be covered by Australian legislation that prohibits the export of native amphibian species for commercial purposes and requires a permit for export for non-commercial purposes.

Analysis: *Rheobatrachus silus* is almost certainly extinct. It was never recorded in international trade under CITES and, with the exception of *R. vitellinus* (also the subject of a proposal for deletion from the Appendices), does not resemble any other species listed in the Appendices. It therefore does not meet the criteria for inclusion in Appendix II. In the highly unlikely event of its rediscovery, Australian national legislation would prohibit its export for commercial purposes.

Supporting Statement (SS)	Additional information
Taxonomy	
Family Myobatrachidae.	*CITES taxonomy includes the genus in its own family, the Rheobatrachidae. The IUCN Red List database includes the genus in Myobatrachidae (Hero* et al*., 2004).*
Range	
Australia.	
IUCN Global Category	
Extinct.	*Classified as Extinct in 2002.*

Supporting Statement (SS)	Additional information

Biological and trade criteria for retention in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)

A) Trade regulation needed to prevent future inclusion in Appendix I

The species is considered extinct. The Southern Gastric-brooding Frog was discovered in 1972, although some reports suggest that it was known as early as 1914. It was endemic to south-east Queensland in the Blackall and Cononale Ranges at elevations between 350 m and 800 m above sea level. The entire distribution of the species was estimated to be limited to an area of less than 1400 km^2. The Southern Gastric-brooding Frog was last sighted in the wild in September 1981 in the Blackall Range. The last known specimen died in captivity in November 1983. *R. silus* is listed as Extinct nationally under the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act) and internationally under the IUCN Red List 2011.	*IUCN Red List notes that extensive searches have been carried out since 1981 without success.*

B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences

The species is considered extinct. The EPBC Act regulates trade in CITES listed and Australian native wildlife and their products. Export of live Australian native amphibians is strictly prohibited for commercial purposes but may they be exported for specific non-commercial purposes (e.g. for research, education or exhibition). As an Australian native amphibian an Australian native export permit would be required for the export of *R. vitellinus* even if it were removed from the CITES Appendices. If the species was rediscovered, any take from the wild would be strictly regulated by relevant Australian domestic environmental legislation.	

Supporting Statement (SS)	Additional information
Retention in Appendix II to improve control of other listed species	
A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I	
The Southern Gastric-brooding Frog *R. silus* was one of two species of gastric brooding frog. Its sister species—the Northern Gastric-brooding Frog, *R.vitellinus*—is also considered to be extinct and has not been located in the wild since 1985.	Rheobatrachus vitellinus *is also the subject of a proposal for deletion from the Appendices. No other Australian frogs are included in the Appendices. The species does not resemble any other amphibians included in the Appendices.*
Other information	
Threats	
The most likely cause for the rapid decline and extinction of *R. vitellinus* was chytridiomycosis resulting from infection with the chytrid fungus.	
Other comments	
The Southern Gastric-brooding Frog had a unique reproductive mode in that once the eggs were fertilised externally, they were swallowed by the female for further development in her stomach. Fully formed metamorphs (i.e. a young frog that has almost completed metamorphosis from a tadpole into an adult) were then released through the female's mouth after 36 to 43 days.	

Deletion of Northern Gastric-brooding Frog *Rheobatrachus vitellinus* from Appendix II

Proponent: Australia

Summary: The Northern or Eungella Gastric-brooding Frog *Rheobatrachus vitellinus* was one of two species in the genus *Rheobatrachus*, both moderately large terrestrial frogs endemic to Australia. Sometimes included in the Australasian anuran (tail-less amphibian) family the Myobatrachidae, CITES taxonomy places the genus in its own family, the Rheobatrachidae. Unremarkable in appearance, both species had an extraordinary reproductive strategy in which the female swallowed fertilised eggs and brooded them in her stomach. *Rheobatrachus vitellinus* was discovered in early 1984 in eastern Queensland occupying a very limited range (less than 500 km^2) but common across it. A year later in January 1985 declines were noted at the edges of the distribution although it remained present at other sites. In March 1985 no specimens could be found, and none have been found since, despite extensive searches within suitable habitat. The species was assessed as Extinct by IUCN in 2002.

Rheobatrachus spp. were included in Appendix II in August 1985, by which time both *R. vitellinus* and its sister-species *R. silus* (also the subject of a proposal for deletion from the Appendices (Prop. 40)) were probably extinct. No other species of Australian anuran is included in the Appendices, nor do the *Rheobatrachus* species closely resemble any other anurans listed in the Appendices.

In the highly unlikely event of the species being rediscovered, it would be covered by Australian legislation that prohibits the export of native amphibian species for commercial purposes and requires a permit for export for non-commercial purposes.

Analysis: *Rheobatrachus vitellinus* is almost certainly extinct. It was never recorded in international trade and, with the exception of *R. silus* (also the subject of a proposal for deletion from the Appendices), does not resemble any other species listed in the Appendices. It therefore does not meet the criteria for inclusion in Appendix II. In the highly unlikely event of its rediscovery, Australian national legislation would prohibit its export for commercial purposes.

Supporting Statement (SS)	Additional information
Taxonomy	
Family Myobatrachidae.	*CITES taxonomy includes the genus in its own family, the Rheobatrachidae. The IUCN Red List database includes the genus in Myobatrachidae (Hero* et al*., 2004).*
Range	
Australia.	
IUCN Global Category	
Extinct.	*Classified as Extinct in 2002.*

Supporting Statement (SS)	Additional information
Biological and trade criteria for retention in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)	
A) Trade regulation needed to prevent future inclusion in Appendix I	
The species is considered extinct. The Northern Gastric-brooding Frog was discovered and described in January 1984. It occupied a small area of less than 500 km^2 of the Clarke Range in Eungella National Park and Mt Pelion State Forest of mid-coastal Queensland. It was found to be quite common across its range with up to six frogs occurring in a 2 x 5 m stream. Only one year after its discovery, in January 1985, surveys revealed that the population might be in decline as it could no longer be found in the areas at the edges of its range but was still present at other sites. By March 1985, the Northern Gastric-brooding Frog could not be found in the wild and extensive survey efforts since have failed to relocate it.	*The species was considered common across its range until January 1985 when the first signs of decline (reported by Winter and McDonald, 1986) were observed at lower altitudes (i.e., about 400 m asl) (McDonald, 1990). At higher altitudes the frogs remained common until March 1985 but were absent in June of that year (McDonald, 1990).*
B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences	
The species is considered extinct. The EPBC Act regulates trade in CITES listed and Australian native wildlife and their products. Export of live Australian native amphibians is strictly prohibited for commercial purposes but they may be exported for specific non-commercial purposes (e.g. for research, education or exhibition). As an Australian native amphibian an Australian native export permit would be required for the export of *R. vitellinus* even if it were removed from the CITES Appendices. If the species was rediscovered, any take from the wild would be strictly regulated by relevant Australian domestic environmental legislation.	
Retention in Appendix II to improve control of other listed species	
A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I	
The Northern Gastric-brooding Frog *R. vitellinus* was one of two species of gastric brooding frog. Its sister species—the Southern Gastric-brooding Frog, *R. silus*—is also considered to be extinct and has not been located in the wild since 1981 and the last known individual died in captivity in 1983.	Rheobatrachus silus *is also the subject of a proposal for deletion from the Appendices. No other Australian frogs are included in the Appendices. The species does not resemble any other amphibians included in the Appendices.*

Supporting Statement (SS)	Additional information
Other information	
Threats	
The most likely cause for the rapid decline and extinction of *R. vitellinus* was chytridiomycosis resulting from infection with the chytrid fungus.	
Other comments	
Rheobatrachus vitellinus was one of only two species known to brood their offspring within their stomach. Young are subsequently regurgitated through the mouth as fully formed metamorphs.	

Inclusion of Oceanic Whitetip Shark *Carcharhinus longimanus* in Appendix II

Proponent: Brazil, Colombia and United States of America

Summary: The Oceanic Whitetip Shark *Carcharhinus longimanus* is distributed worldwide in tropical and subtropical open ocean surface (epipelagic) waters between 42°N and 35°S. It has a relatively long life span (13–22 years), late age (4–7 years) and large size (168–200 cm total length) at maturity, relatively long generation time (around 10 years), long gestation time (9–12 months) and small litter size (5–9 pups). Its overall productivity is low (0.08–0.12 yr^{-1}). The species appears to show considerably more site fidelity than most pelagic sharks, and often associates with entities such as buoys, drifting objects and pods of cetaceans.

The Oceanic Whitetip Shark is retained as a valuable secondary catch for fins (and in some cases meat) throughout its range, mainly by longline and purse seine fleets targeting tuna and Swordfish *Xiphias gladius*. There are also a few small-scale targeted fisheries in the Gulf of Aden and the Pacific coast of Central America**.** The fins are in international trade and anecdotal information from traders indicates that their value is high. As with other shark species, information on quantities in trade is limited, chiefly because shark trade is not documented at species level in the Harmonized Commodity Description and Coding System (Harmonized System). However, on the basis of surveys of Hong Kong markets, it was estimated that in 2000 between 0.2 and 1.2 million Oceanic Whitetip Sharks were traded globally.

Historically abundant, various studies have indicated declines, some extreme, in recent decades. In the Central Pacific, there was a 93% decline in standardised catch rates between 1995 and 2010. In the Northwest Atlantic, two separate analyses of the same dataset for 1992–2005 indicated declines of 57% or 70%; two analyses of a different Northwest Atlantic dataset for the same period indicated a decline of 9% or 50%. A decline of 99% in the Gulf of Mexico from the 1950s to the late 1990s has been reported, although the methodology behind the analysis has been questioned. One study shows a recent decline of 40% in the Indian Ocean; however, the species is known to be taken there and is suspected to be undergoing similar declines to those experienced elsewhere. The Oceanic Whitetip Shark was assessed by IUCN in 2006 as Vulnerable globally and Critically Endangered in the Northwest Atlantic and Western Central Atlantic.

A large proportion of Oceanic Whitetip Shark by-catch by pelagic longlines is alive when brought on to the vessel (>75% in the US longline fishery, 76–88% in the Fijian longline fishery) and most individuals would be likely to survive if released unharmed.

Fins from Oceanic Whitetip Sharks are reported to be highly distinctive and easily identified by non-specialists.

The USA is the only country that has implemented any specific national protection for the Oceanic Whitetip Shark, through a combined pelagic quota of 488 t for Oceanic Whitetip Shark, Common Thresher *Alopias vulpinus* and mako *Isurus* spp. Internationally, the Oceanic Whitetip Shark is listed in Annex I, Highly Migratory Species, of the UN Convention on the Law of the Sea. While some countries and Regional Fisheries Management Organisations (RFMOs) have established regulations on the catch or finning of sharks, it is not clear how effective the implementation of these measures is. The International Commission for the Conservation of Atlantic Tunas, the Inter-American Tropical Tuna Commission and the Western and Central Pacific Fisheries Commission have established regulations banning retention on board, transshipment and landing of Oceanic Whitetip Sharks in fisheries covered by their respective agreements. Some other RFMOs have adopted prohibitions on finning, requiring the full use of sharks and promoting the release of live by-catch shark.

The Oceanic Whitetip Shark is proposed for inclusion in Appendix II under *Resolution Conf. 9.24 (Rev. CoP15)* Annex 2 a because it is caught as a valuable secondary catch (and occasionally targeted) for its fins, which are large and have a high international trade value, and because some populations have exhibited marked declines in population size. The proposed listing would include an annotation to delay entry into effect of the inclusion by 18 months to enable Parties to resolve related technical and administrative issues.

Analysis: The Oceanic Whitetip Shark is retained as a valuable secondary catch, driven by the value of the fins in international trade. The species is of low productivity and is consequently sensitive to over-exploitation. There are significant documented declines in major parts of its range, particularly in the Central Pacific and Northwest Atlantic. Little information is available on the status of populations in the Indian Ocean, but similar declines are expected. Information from 2000 indicates that large numbers of Oceanic Whitetip Shark fins were entering trade at that time, and there are no indications that demand has lessened since then. It would therefore appear that the species meets the criteria for inclusion in Appendix II under *Resolution Conf. (Rev. CoP15)* Annex 2 a Criterion A in the Atlantic and Pacific Oceans, in that regulation of the trade is required to ensure that the species does not become eligible for inclusion in Appendix I, assuming that some sub-populations do not already. In the Indian Ocean it would appear that the species meets Criterion B in the Indian Ocean, where regulation of trade is required to ensure that harvest from the wild is not reducing populations to a level where survival might be threatened by continued harvest or other influences.

Supporting Statement (SS)	Additional information
Range	
The Oceanic Whitetip Shark is distributed worldwide in epipelagic tropical and subtropical waters between latitudes 30°N and 35°S.	*In the western North Atlantic it is known to follow warm Gulf Stream currents as far as 42°N (Grubbs* in litt., *2012).*
It is found in the following FAO Fishing Areas: 21, 27, 31, 34, 41, 47, 51, 57, 61, 71, 77, 81, 87.	*American Samoa; Angola; Anguilla; Antigua and Barbuda; Argentina; Aruba; Australia; Bahamas; Bangladesh; Barbados; Belize; Benin; Bermuda; Bouvet Island; Brazil; British Indian Ocean Territory (Chagos Archipelago); Brunei Darussalam; Cambodia; Cameroon; Cape Verde; Cayman Islands; Chile; China; Christmas Island; Cocos (Keeling) Islands; Colombia; Comoros; Congo, The Democratic Republic of the; Cook Islands; Costa Rica; Côte d'Ivoire; Cuba; Djibouti; Dominica; Dominican Republic; Ecuador; Egypt; El Salvador; Equatorial Guinea; Eritrea; Falkland Islands (Malvinas); Faroe Islands; Fiji; France; French Guiana; French Polynesia; French Southern Territories (the); Gabon; Gambia; Ghana; Grenada; Guadeloupe; Guam; Guatemala; Guinea; Guinea-Bissau; Guyana; Haiti; Heard Island and McDonald Islands; Honduras; Hong Kong; India; Indonesia; Israel; Jamaica; Japan; Jordan; Kazakhstan; Kenya; Liberia; Macao; Madagascar; Malaysia; Maldives; Marshall Islands; Martinique; Mauritania; Mauritius; Mexico; Montserrat; Morocco; Myanmar; Nauru; Netherlands Antilles; New Caledonia; Nicaragua; Niger; Niue; Northern Mariana Islands; Oman; Pakistan; Palau; Panama; Papua New Guinea; Peru; Philippines; Pitcairn; Portugal; Puerto Rico; Réunion; Saint Helena, Ascension and Tristan da Cunha; Saint Kitts and Nevis; Saint Lucia; Saint Vincent and the Grenadines; Samoa; Sao Tomé and Principe; Saudi Arabia; Senegal; Seychelles; Sierra Leone; Singapore; Slovenia; Solomon Islands; Somalia; South Africa; Spain;*

Supporting Statement (SS)	Additional information
	Sri Lanka; Sudan; Suriname; Taiwan, Province of China; Tanzania, United Republic of; Thailand; Togo; Tokelau; Tonga; Trinidad and Tobago; Turks and Caicos Islands; Tuvalu; USA; United States Minor Outlying Islands (Johnston I., Wake Is.); Uruguay; Vanuatu; Venezuela; Viet Nam; Virgin Islands, British (Baum et al*., 2006).*
IUCN Global Category	
Global: Vulnerable. North-western and Central Atlantic Ocean: Critically Endangered.	*Global: Vulnerable A2ad+3d+4ad (ver 3.1, assessed in 2006).* *Northwest Atlantic and Western Central Atlantic: Critically Endangered.*

Biological and trade criteria for inclusion in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)

A) Trade regulation needed to prevent future inclusion in Appendix I

Biological Characteristics
Max age: 13 years
Reproductive cycle: 2 years
Gestation 9-12 months
Litter size: 1-14 with a mean of 5-6 depending on geographic location
Age of maturity: 4-5 years (North Pacific); 6-7 years (equatorial Western Atlantic)
Size at maturity: females 168-196 cm; males 175-189 cm
Generation time: 10-11.4 years

In the western equatorial Atlantic Ocean, population growth rates have been calculated to be between 0.08-0.09 $yr^{-1}$and another study found population growth rates of 0.087 yr^{-1}. These indicate that Oceanic Whitetip Shark populations are vulnerable to depletion and will be slow to recover from overexploitation.

Ecological risk and productivity assessments determined that this species ranked 5th in their susceptibility to pelagic fisheries among 12 other Atlantic Ocean species. It has also been determined that Oceanic Whitetip Sharks have a moderate intrinsic recovery potential when compared to 26 other species of sharks, while another study found that population growth rates were low to moderate when compared to eight other pelagic species.

Biological Characteristics
Maximum reported age = 22 years (Smith et al*., 1998, as cited in IUCN and TRAFFIC, 2010).*

Another study has cited maximum age as 14 years for males (m) and 17 years for females (f) for both the Pacific and Atlantic Oceans (Dulvy et al*., 2008). Size at maturity was 175–200 cm (f) and 175–190 cm (m), generation time of 11 years and productivity of 0.110 yr^{-1}.*

García-Cortés et al*. (2012) report a mean litter size in the Indian Ocean of 8.9 with a range of 1–20 (N=104 litters).*

Productivity = 0.094 (0.060–0.137) and classed as "highly vulnerable" in comparison with 10 other elasmobranchs (Cortes et al*., 2010).*

More recent data have shown that productivity = 0.121 (0.104–0.137), generation time = 10.4 years, and female longevity = 17 years in the South Atlantic (ICCAT, 2012).

*Grubbs (*in litt*., 2012): Oceanic Whitetips associate with entities like buoys, specific isobaths, cetacean pods and drifting objects and they seem to exhibit much more site fidelity than most pelagic sharks. In Hawaii, the same sharks are often seen at the same offshore buoys over long periods. In the Bahamas, there are areas where large numbers of adult Oceanic Whitetip Sharks are known to aggregate. Lucy Howey-Jordan and colleagues recently tagged >50 adult Oceanic Whitetips off one small point near Cat Island, Bahamas. This behaviour can potentially make Oceanic Whitetip Sharks more susceptible to local extirpation than most wide-ranging species.*

Supporting Statement (SS)	Additional information
	For this reason, fisheries that target insular slopes and seamounts, such as those in the Marshall Islands (Bromhead et al.*, 2012), may be of greater concern, even if overall landings are relatively low. This behaviour also may explain some of the interannual variability in fishery dependent data sets and adds uncertainty to any analysis of relative abundance data, especially from fishery-dependent sources. A very small shift in fishing effort geographically or in depth can translate to very large changes in relative abundance indices that are not reflective of population changes.* *Grubbs (*in litt.*, 2012): Like many sharks, Oceanic Whitetip Sharks apparently segregate sexually and ontogenetically (See García-Cortés* et al.*, 2012). Shifts in the distribution of the fishery can have dramatic effects on the portion of the population that is captured and overall sustainability. For example, a fishery in an area dominated by adult, pregnant females may be of much greater conservation concern than a fishery executed in an area inhabited by large juveniles.*
Historic accounts This species was historically described as the most common pelagic shark throughout the warm-temperate and tropical waters of the Atlantic and beyond the continental shelf in the Gulf of Mexico. The abundance of Oceanic Whitetip Sharks appears to be patchy in the south and central Atlantic, but evidence suggests it is declining where it was formerly abundant. In equatorial areas, this was the second most abundant species caught by Brazilian longline vessels between 1992 and 1997 and were present in 4.72% of tropical eastern Atlantic French and Spanish tuna purse-seine sets. In the central tropical Pacific, tuna longline survey data from the early 1950s indicated Oceanic Whitetip Sharks constituted 28% of the total shark catch in fishing south of 10 ºN. Oceanic Whitetip Shark catch rates ranged from 2 to 29 (mean 12.44) sharks per 1000 hooks with dragnet sets (all depths combined) in each 10°x10° area surveyed. Japanese research longline records during 1967–68 indicate that Oceanic Whitetip Sharks were still among the most common shark species taken by tuna longline vessels in tropical oceans. It was the second most abundant species, comprising 22.5% of the shark catch in the western Pacific, but the third most abundant, after silky sharks, *Carcharhinus falciformis*, at 21.3% of the shark catch in the eastern Pacific. Declines Summary of population and abundance trend data for Oceanic Whitetip Sharks	*Historical accounts* *According to Berkeley and Campos (1988, as cited in Baum* et al.*, 2006), Oceanic Whitetip Sharks constituted 2.1% of the shark by-catch in the Swordfish fishery along the east coast of Florida in 1981 to 1983.* *The Oceanic Whitetip Shark was one of the most common pelagic sharks beyond the continental shelf in the Gulf of Mexico (Wathne 1959, as cited in Baum* et al.*, 2006) and throughout the warm-temperate and tropical waters of the Atlantic and Pacific (Strasburg 1957, as cited in Baum* et al.*, 2006).* *There is anecdotal information that Oceanic Whitetips were very abundant in the middle decades of last century in the Atlantic (Backus* et al.*, 1956 and references therein). For example, Backus* et al. *(1956) write: "Until recently little has been known about the common, pelagic shark,* Pterolamiops longimanus*—previous name for* Carcharhinus longimanus*. Data gathered during recent offshore cruises show it to be abundant and widely distributed in the warm waters of the western North Atlantic".* *Declines*

Supporting Statement (SS)				Additional information
	Year	Location	Data	Trend	
	A - 1992-2005	Northwestern Atlantic	Logbook	57% decline*	*Year range for A should be 1992–2000.*
	B - 1992-2003	Northwestern Atlantic	Logbook	70% decline*	*Year range for B should be 1992–2005.*
	C - 1992-2003	Northwestern Atlantic	Observer Logbook	9% decline*	*A+B and C+D (below) analysed the same data sets but reported different results.*
	1954-1957 and1995-1999	Gulf of Mexico	Fishery Survey and Logbook	99% decline*	*D - An analysis of US pelagic longline fishery observer data showed a 50% decline between 1992 and 2005 in the Northwest Atlantic, but the high degree of inter-annual variability in the individual year estimates limits what can reasonably be inferred about the relative abundance of these species (Baum and Blanchard, 2010).*
	1951-1958 and1999-2002	Central Pacific	Fishery Survey and Observer Logbook	90% decline*	
	1967–1970 and1992–1995	Central Pacific	Fishery Survey	No changes	
	1967–1970 and1992–1995	Central Pacific	Fishery Survey	40-80% increase	
	1967–1970 and 1992–1995	Central Pacific	Fisher Survey	30-50% decline	
	1996 –2006	Eastern Pacific	Observer logbook	~90% decline (inferred from figure)	
	E - 1995–2000 and 2004-2006	Central Pacific	Observer logbook	78% decline in deep water sets 54% decline in shallow water	*E—This 78% decline is outdated. Walsh and Clarke (2011) presented an updated analysis of this data set to 2010. They suggested there was a 90% decline in standardised catch rates between 1995 and 2010 in the Central Pacific. Also, they provide an update and correction to the shallow (91% Catch Per Unit Effort (CPUE) decline)* versus *deep (89.6% CPUE decline). However, these declines in CPUE may not reflect equally severe declines in the population (Grubbs* in litt*., 2012). The authors show that sea surface temperature is a very important explanatory variable for CPUE and there was a shift in the fleet to cooler waters in later years. Much more effort in later years was outside the thermal range of Oceanic Whitetip Sharks. Therefore both a population decline and fleet behaviour may be responsible for the CPUE decline.*
	1995 - 2010	Hawaii-based pelagic longline	CPUE	90% #	
	2000 - 2009	Indian Ocean	CPUE	~40% #	
	1954-1957 and1995-1999	Gulf of Mexico	Mean size	35 decline%	

Supporting Statement (SS)	Additional information

1951-1958 and1999-2002	Central Pacific	Mean Size	50% decline

*Indicates the data have been statistically standardised to correct for factors unrelated to abundance.
These declines were included in the text of the SS.

The SS notes that for the 99% decline between 1954/57 and 1995/99 changes in fishing gear and practices over this period were not fully taken into consideration in the analysis, and there is currently debate as to whether or not these changes may have resulted in an overestimation of the magnitude of these declines. Nevertheless, when trends in abundance from the former analyses (1992 - 2000) are extrapolated back to the mid-1950s, they match abundance declines in the latter analysis for Oceanic Whitetip Sharks.

The note about these data may not be valid (Grubbs in litt.*, 2012)—taking a trend from an analysis of one 12-year data set and extrapolating it back 40 years is questionable.*

Additional declines
CPUE of the Oceanic Whitetip Shark in a Swordfish fishery off Florida's coast was 0.87 in 1981/1983 and 0.32 during 1992/2000, a decline of 63%. However, sampling was very different from one time period to the next and Beerkircher et al*. (2002) state that "such significant spatial and vessel differences reduce direct comparability" between the time periods. An ongoing decline in CPUE within the latter time period was noted (Berkeley and Campos 1988; Beerkircher* et al*., 2002, cited in IUCN and TRAFFIC, 2010) but the authors noted that while the nominal CPUE for Oceanic Whitetip Sharks declined over the period, the weighted CPUE index actually increased.*

Clarke et al*. (2012) found an annual decline of 17% over 1995–2010 in the Central Pacific. This equates to a 93% decline over the period as a whole. These estimates did take account of operational changes in the fishery (i.e. these declines are estimated based on standardised catch rates). Median lengths of the Oceanic Whitetip Shark also declined significantly.*

Additional Information

Additional Information

Atlantic Ocean

Atlantic Ocean
Guitart Manday (1975, as cited in Baum et al*., 2006) demonstrated a marked decline in the Oceanic Whitetip Shark landings in Cuba from 1971 to 1973.*

Pacific Ocean
In 2012 a study concluded that the species is overexploited, and there is consistent evidence of declines in catch, CPUE, size composition, spawning biomass,

Supporting Statement (SS)	Additional information
recruitment and total biomass from 1995-2009. Estimated fishing mortality was found to have increased to levels far in excess of fishing mortality rateat maximum sustainable yield (FMSY) (F = fishing mortality rate; FCURRENT / FMSY = 6.5) and across the entire model estimated mortality values were much higher than FMSY. In 2007, the Oceanic Whitetip Shark was categorizsed as being at "medium" ecological risk for both deep and shallow longline sets in the Pacific Ocean, and in 2011 the western and central Pacific Ocean population was described as being in a depleted state. Indian Ocean The Indian Ocean Tuna Commission (IOTC) states "The population dynamics and stock structure of Oceanic Whitetip Sharks in the Indian Ocean are not known."	
B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences	
Trade International shark trade information is not documented to the species level for sharks in the Harmonized Commodity Description and Coding System (Harmonized System). Therefore, species-specific information about quantity or value of imports or exports is not available in the Harmonized System. In addition, most parties do not report catches to species level to FAO or Regional Fisheries Management Organisations (RFMO). However, information on the trade in Oceanic Whitetip Shark fins can be obtained by examining the Hong Kong fin market, whose global trade in fins represented 65-80% from 1980-1990 and 44-59% of the market from 1996-2000. Using commercial data on weights and sizes of traded fins, the Chinese category for Oceanic Whitetip Shark, coupled with DNA and Bayesian statistical analysis to account for missing records, it was estimated that between 220 000 and 1 210 000 Oceanic Whitetip Sharks were traded globally in 2000.	*Trade* *The estimates of Oceanic Whitetips represented in the Hong Kong shark fin market are based on an assumption that Hong Kong comprised 44–59% of the global trade not of the Hong Kong market itself (Clarke* in litt*., 2012).* *Given the method of calculation this should be rounded to 0.2 to 1.2 million (Clarke* in litt*., 2012).* *The weight traded was 1.8% (1.6–2.1%) of the annual trade (Clarke* et al*., 2006).* *Oceanic Whitetips in the Western and Central Pacific Fisheries Commission (WCPFC) area are more frequently retained whole than they are finned or discarded. This is unlikely to be due to the enforcement of finning regulations as these were not widely enforced during the study period (see Clarke* et al*., 2012): rather, it suggests that the Oceanic Whitetip meat has sufficient value to warrant retention (Clarke* in litt*.,*

Supporting Statement (SS)	Additional information
	2012).
As the meat is of generally low value, Oceanic Whitetip Shark fins are retained because of their high value (USD45 to USD85 per kg) in international trade.	*The figures documenting the value of fins cannot be verified because no citation was provided in the supporting statement.* *An average wholesale auction price for dried/unprocessed Oceanic Whitetip Shark fins in 2001 was USD122/kg (range USD27–357/kg) (Clarke 2009, as cited in IUCN and TRAFFIC, 2010).*

Inclusion in Appendix II to improve control of other listed species

A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I

Oceanic Whitetip Shark fins are so distinctive that it is also easy for non-experts to identify the fins. A recent fin identification guide showed the steps for distinguishing an Oceanic Whitetip Shark fin from any other type of shark fin. The large rounded fins with white parts help to confirm identity via simple observation.A fin guide exists for the identification of the fins in trade.	*A survey of sharks contained within the Princeton Field Guide "Sharks of the World" (Compagno* et al., *2005) revealed that 26 out of 461 species in the guide had white-tipped first dorsal fins. None of them are broadly rounded like those of the Oceanic Whitetip, however (Chapman* in litt*., 2012).*
Six shark species of the Order Carcharhiniformes have white-tipped fins, but it is unlikely that they will be taken for Oceanic Whitetip Shark fins. These six species are *Hemitriakis leucoperiptera, Hemigaleus microstoma, Paragaleus leucolomatus, Carcharhinus albimarginatus, C. amblyrhynchos and Triaenodon obesus*. Nonetheless, these six species are rarely caught in pelagic fisheries and have not been identified on the Hong Kong fin market. While all these species have white-tipped fins, those of Oceanic Whitetip Sharks are larger and generally more broadly rounded, whereas fins on the aforementioned species are falcate (sickle-shaped), the tips are pointed and the white markings are on the tip and the trailing edge.	*While these six species have not been genetically identified nor quantitatively estimated from the Hong Kong shark fin market, Clarke (*in litt*., 2012) notes that there is anecdotal information that at least some of them are used and predicts that all of them would be found if a complete survey could be performed, although perhaps an unlikely event, given that these species are not particularly abundant, but it remains a possibility that look-alike issues may arise. Clarke (*in litt*., 2012) observes that the fin guide does not provide a complete key for the Oceanic Whitetip and does not focus on those fins which are most likely to be mistakenly identified as those of Oceanic Whitetip. A visual identification guide that specifically addresses the issue of how to distinguish fins of these six species fins from the Oceanic Whitetip's fins would help.*

Other information

Threats

The Oceanic Whitetip Shark is retained as a valuable secondary catch for their fins throughout their range, mainly in tuna and swordfish fisheries. Demand from international shark fin markets is the driving economic force behind the retention and mortality of Oceanic Whitetip Sharks. There are also a few small-scale fisheries in the Gulf of Aden and the Pacific coast of Central America that target the species. When carcasses are not discarded at sea, Oceanic Whitetip Sharks are utilised for	*Oceanic Whitetips in the Western and Central Pacific Fisheries Commission (WCPFC) area are more frequently retained whole than they are finned or discarded. This is unlikely to be due to the enforcement of finning regulations, as these were not widely enforced during the study period (see Clarke* et al*., 2012): rather, it suggests that the Oceanic Whitetip meat has sufficient value to warrant retention (Clarke* in litt*., 2012).*

Supporting Statement (SS)	Additional information
human consumption. The meat is consumed fresh, smoked or dried and salted. Fins may be dried and utilised locally. It has also been reported that Oceanic Whitetip Shark meat is eaten fresh and smoked in Mexico and the US, and fresh, dried and salted in the Seychelles and Sri Lanka. The livers are sometimes also harvested for oil, and the skin used as leather.	
Conservation, management and legislation	
National Bans on shark finning has been implemented by 21 countries and the European Union (EU), as well as by nine Regional Fisheries Management Organisations. These may help somewhat in reducing shark mortality.	*National* *Shark fishing prohibition* *Mexico—Pacific Ocean May 1st to July 31st; Gulf of Mexico and Caribbean Seas—May 1st to June 30th; Campeche Banks August 1st to 31st*
Colombia - Shark fishing is prohibited in the Colombian Caribbean (San Andres, Providencia and Santa Catalina Archipelago) and shark finning is banned throughout Colombia.	*By-catch mitigation strategies for Australian pelagic fisheries that capture the species include a trip limit of 20 sharks per boat, restrictions on finning sharks at sea, and the banning of wire traces (Gilman* et al*., 2007, cited in IUCN and TRAFFIC, 2010; Clarke, 2011).*
US – combined pelagic quota of 488 metric tonnes for Oceanic Whitetip Shark, Common Thresher and mako	
US – Atlantic sharks must be landed with their fins naturally attached.	
Oceanic Whitetip Sharks could benefit from legislation enacted by French Polynesia (2006), Palau (2003, 2009), the Maldives (2010), Honduras (2011), the Bahamas (2011), Tokelau (2011) and the Marshall Islands (2011) prohibiting shark fisheries throughout their Exclusive Economic Zones (EEZ) but the benefit of these prohibitions has not been established. Other countries have protected areas where shark fishing is prohibited, such as Isla del Coco in Costa Rica, Isla Malpelo in Colombia, the Galápagos Islands in Ecuador, the Banc d'Arguin National Park in Mauritania and the Protected Marine Areas in Guinea-Bissau.	
Bangladesh - At present, the government does not allow trade or any type of trophy involving this species.	
International Oceanic Whitetip Sharks are listed in Annex I, Highly Migratory Species, of the UN Convention on the Law of the Sea.	*International*
ICCAT (International Commission for the Conservation of Atlantic Tuna), IATTC (Inter-American Tropical Tuna Commission), WCPFC and the Indian Ocean Tuna	*While prohibitions on finning have recently been established by a number RFMOs, the effectiveness of these prohibitions to reduce shark catch has not been definitively*

Supporting Statement (SS)	Additional information
Commission (IOTC) and some other RFMOs have adopted prohibitions on finning, requiring the full use of sharks and promoting the release of live by-catch sharks.	*demonstrated and a number of loopholes can remain that allow nations to continue this practice. For example, in the WCPFC (Clarke* et al*., 2012), coastal nations are allowed to establish their own alternative measures in their EEZ, and implementation of the prohibition is the responsibility of the coastal state: of all 32 WCPFC members, only half had confirmed full implementation of the finning prohibition and few were able to provide information on the degree of compliance. Furthermore, in the WCPFC there is evidence that even if the prohibition were fully implemented it would not actually lead to a reduction in catch; results of this study indicated that Oceanic Whitetip, Silky, and Mako Sharks in longline fisheries were more likely to be retained than finned.*
Retaining on board, transshipping, landing, storing, selling, or offering for sale any part of Oceanic Whitetip Sharks is prohibited in fisheries covered by the ICCAT Convention and the IATTC. In addition, in WCPFC Convention areas retaining on board, transshipping and landing of Oceanic Whitetip Sharks is prohibited. OSPESCA (Central America Fisheries and Aquaculture Organization) member countries in Central America issued the OSP-05-11 regulation with respect to finning in the region.	*In addition, some RFMOs have established prohibitions on the retention of sharks (ICCAT and IATTC for Oceanic Whitetip and Silky Shark, WCPFC for Oceanic Whitetip). While these measures "are likely to reduce shark mortality to a greater extent than finning prohibitions, gear-retrieval practices can have a large effect on shark mortality…It would therefore not be correct to assume that no retention will result in no mortality" (Clarke* et al*., 2012).* *The WCPFC prohibition will be as of 1 January 2013 (Clarke* in litt*., 2012).* *Satellite and conventional tagging show that Oceanic Whitetips move long distances and cross international boundaries, which indicates that marine protected areas and domestic regulations in the absence of broader international management can only provide partial protection for this species. Musyl* et al*. (2011) fitted 16 individuals with pop-off satellite tags in the Central Pacific and documented displacements from point-of-origin of up to 4285 km within a year. Howey-Jordan* et al*. (in revision) fitted 12 individuals with similar satellite tags and recorded displacements of 290 to 1940 km after periods of one to nine months, with individuals reaching the northern Lesser Antilles, the US EEZ and the Windward Passage. From 1962 to 1997, 73 Oceanic Whitetips were conventionally tagged and four were recaptured as part of the US National Marine Fisheries Service Cooperative Shark Tagging Program. The documented distances travelled were as high as 2811 km (Kohler* et al*., 1998).*
Captive Breeding/Artificial Propagation	
n/a	
Other comments	
Despite their prevalence in pelagic fisheries, catches are unrecorded or unreported and, in many cases, not reported to species level; Oceanic Whitetip Shark catch thus may be higher than documented for some areas. For example, an analysis of trade	*This statement regarding a 50-fold underestimation of the actual catch of this species is attributed to Clarke (2008), however this gives a comparison between trade estimates and ICCAT catch reporting for Blue Shark and Shortfin Mako Sharks, not*

Supporting Statement (SS)	Additional information
data suggests that catches reported to ICCAT may seriously underestimate (by 50-fold) the actual catch of this species in the Atlantic Ocean.	*for Oceanic Whitetip Sharks.* *Catch of the Oceanic Whitetip Shark has declined between 2000 and 2006 from 638 t to 14 t. However, trends in the data are difficult to interpret: this could be a decline in abundance or deterioration in reporting of catch data. Furthermore, declines in overall shark catch may reflect the impact of stricter national and/or regional controls on shark catch and by-catch, or on fisheries for species in which sharks are taken as by-catch (Lack and Sant, 2009).*
A large proportion of the Oceanic Whitetip Sharks caught on pelagic longlines are alive when brought to the vessel (more than 75%) in the US Atlantic longline fishery, and 65%–88% in the Fijian longline fishery. Thus, most would likely survive if released unharmed, in accordance with several RFMO shark resolutions.	*Oceanic Whitetips released from longlines or after being captured on similar gear typically survive, based on satellite-tagging results in the Pacific and Atlantic (Musyl* et al*., 2011, Howey-Jordan* et al*., in revision).* *Clarke* et al*. (2011) indicate mortality rates at haulback of 0% for the Atlantic and 31% for the Western and Central Pacific.*
<u>Atlantic Ocean</u> Information collected by at-sea scientific observers on US-flagged longline vessels in the northwestern Atlantic Ocean indicates that Oceanic Whitetip shark is the 8th most likely pelagic species to be caught. However, the scant abundance of this species likely reflects the distribution of the fishery, as most US-flagged vessels fish at the northernmost part of the Oceanic Whitetip Shark's range. The US reports that very few Oceanic Whitetip Sharks are landed by commercial fisheries. Except for two peaks of about 1250 and 1800 fish landed in 1983 and 1998, respectively, total catches have never exceeded 450 individuals per year. Oceanic Whitetip Sharks comprised less than 1% of the shark by-catch of the Japanese Atlantic longline fleet during 1995–2003, and 0.2% of Atlantic shark catch by the Spanish fleet in 1999. However, the proportion of the catch of Oceanic Whitetip Sharks increases in areas of the Atlantic Ocean that are more tropical than temperate. For example, Oceanic Whitetip Sharks were present in 4.72% of eastern tropical Atlantic French and Spanish tuna purse-seine sets. It has been reported that the Uruguayan longline fleet observer programme in 1998–2003 recorded catch rates of 0.006 sharks/1000 hooks in Uruguayan and adjacent high seas south Atlantic waters (latitude 26°–37°, 16–23°C), but catch rates increased to 0.09 sharks/1,000 hooks in international waters off western equatorial Africa. This species has been recorded as part of the catch of longline industrial fisheries in the Colombian Caribbean, with mean catch sizes of 128 +/- 62.35 cm TL for	<u>*Atlantic Ocean*</u> *Oceanic Whitetip Sharks are significant in by-catch of Brazilian longline fisheries in the South Atlantic (Hazin* et al*., 2008, cited in previous proposal analysis).*

Supporting Statement (SS)	Additional information
juveniles that could be impacting possible development areas. Similarly infrequent records of individuals of this species are obtained by Brazilian and Ecuadorian Atlantic longline fleets. The species comprised less than 1% of the shark by-catch of the Japanese Atlantic longline fleet during 1995–2003, and 0.2% of Atlantic shark catch by the Spanish fleet in 1999.	
<u>Pacific Ocean</u> According to the Inter-American Tropical Tuna Commission (IATTC), Oceanic Whitetip Sharks are most often taken as by-catch by ocean purse-seine fisheries. Information collected by observers between 1993 and 2004 indicates Oceanic Whitetip Sharks made up 20.8% of the total shark by-catch. Total observed numbers over the 11-year period indicated that 32 000 sharks were caught in combined dolphin, unassociated, and floating object purse-seine sets. Sampling coverage of the western Pacific Ocean purse-seine fishery by IATTC observers varied by set type, but was generally greater than 60% of the sets of large vessels since 1994.	<u>*Pacific Ocean*</u> *Recent average annual catches of sharks by tuna longline vessels fishing in the Republic of the Marshall Islands (RMI) are estimated to be between 1583 and 2274 t. Although 22 shark species have been recorded by the observer programme for this fishery, 80% of the annual catch comprises only five species: Blue Shark* Prionace glauca*, Silky Shark* Carcharhinus falciformis*, Bigeye Thresher Shark* Alopias superciliosus*, Pelagic Thresher* Shark Alopias pelagicus *and Oceanic Whitetip Shark* Carcharhinus longimanus *(Bromhead* et al*., 2012). Furthermore, while Oceanic Whitetip Sharks were 8% of the catch, 59.7% were retained and 97.4% of those discarded were finned.*
It has been estimated that by-catch in longline fisheries equal 7253 Oceanic Whitetip Sharks (about 145 t) annually in the north Pacific, and 539 946 sharks (1799 t) in the central and south Pacific.	*These estimates, derived from Bonfil (1994), are likely to be over 20 years old.*
Recent increases in longline fishery effort along with the purse-seine fishery in the equatorial region of the western and central Pacific could imply large increases in fishing mortality over the last two decades.	*Clarke* et al*. (2012) found an annual decline of 17% over the period 1995–2010 in the Central Pacific. This equates to a 93% decline over the period as a whole. These estimates did take account of operational changes in the fishery (i.e. these declines are estimated based on standardised catch rates).*
<u>Indian Ocean</u> While catches of Oceanic Whitetip Sharks are not reported to the Indian Ocean Tuna Commission (IOTC), information on the catch level for this species can be derived from other studies. In the Maldives, it has been reported that Oceanic Whitetip Sharks are taken commercially by pelagic shark longliners and as by-catch by tuna fisheries and that this represented 23% of all sharks caught. Oceanic Whitetip Sharks were present in 16% of French and Spanish tuna purse-seine sets in the western Indian Ocean.	<u>*Indian Ocean*</u> *The lack of information on Oceanic Whitetip Shark catches to the Indian Ocean Tropical Tuna Commission is likely to be because species-level reporting is not required in this region (McManus 2009, cited in IUCN and TRAFFIC, 2010).*
	<u>*Other*</u> *Traders in Hong Kong sort Oceanic Whitetip Shark fins into a separate market category, Liu Qiu (Clarke* et al*., 2006, cited in IUCN and TRAFFIC, 2010). A genetic study of 23 Liu Qiu fins showed all were correctly identified as Oceanic Whitetip Shark (Clarke* et al*., 2006).*

Supporting Statement (SS)	Additional information
	The value of Oceanic Whitetip fins could encourage retention of the carcass when there are finning regulations. It could also encourage illicit landing or finning in contravention of RMFO regulations if enforcement is weak. CITES would add another layer of surveillance and enforcement to bolster these other management measures (Chapman in litt*., 2012).* *Clarke* et al*. (2012) reported that Oceanic Whitetips were generally landed, as opposed to being finned, in the Central Pacific. This raises doubts that finning restrictions alone would reduce landings of this species. The high value of fins encourages landing of whole fish even if the meat is not especially valuable (Chapman* in litt*., 2012).*

Reviewers: D. Chapman, S. Clarke, D. Grubbs, G. Sant.

Inclusion of Scalloped Hammerhead Shark *Sphyrna lewini* Great Hammerhead Shark *Sphyrna mokarran* and Smooth Hammerhead Shark *Sphyrna zygaena* in Appendix II

Proponents: Brazil, Colombia, Costa Rica, Ecuador, Honduras, Mexico and Denmark (on behalf of the European Union Member States acting in the interest of the European Union)

Summary: The Scalloped Hammerhead *Sphyrna lewini,* Great Hammerhead *S. mokarran* and Smooth Hammerhead *S. zygaena* are the three most widely distributed of the seven currently recognised species of hammerhead shark in the genus *Sphyrna*. *S. lewini* is a circumglobal shark species residing in coastal warm temperate and tropical seas in the Atlantic, Pacific and Indian Oceans between 46°N and 36°S to depths of 1000 m. It is relatively long-lived (possibly living 12–32 years) and matures late, with populations in temperate waters evidently maturing later than those in tropical waters; in the north-west Atlantic males mature at six years and females at 15-17, while in the Pacific males and females mature at around four years. It has a relatively small litter size (12–41 pups) after an 8-12 month gestation period and has low productivity. Populations are spatially highly structured by age and sex and may exhibit complex migratory patterns. Aggregations of adults form at seamounts and pregnant females are known to move into coastal waters (between 10 and 20 m) to give birth. Generation times have been calculated as between 5.7–22 years. *S. mokarran* and *S. zygaena* are much less well known, but it is assumed that their life history parameters and productivity are similar.

The three species, most notably *Sphyrna lewini,* are subject to target and non-target fisheries driven by the international demand for their fins, which are highly valued because of their large size and high fin ray count. International shark trade is not documented at the species level for sharks in the World Customs Organisation's Harmonized Commodity Description and Coding System (Harmonized System). However, a study has estimated that between 1.3 and 2.7 million sharks of *S. lewini* and *S. zygaena* (in a 2:1 ratio) are taken for the fin trade each year and that all three species account for nearly 6% of identified fins entering Hong Kong markets. A sample of *S. zygaena* fins sourced from the Hong Kong fin market have been shown to be derived from the Indo-Pacific and eastern and western Atlantic Ocean Basins. Hammerhead meat is also traded internationally; however, it is unlikely that the amount is significant when compared to the volume of fins in trade**.**

All three species generally experience high at-vessel mortality in industrial, artisanal and recreational fisheries. Newborn and juveniles are captured by large- and small-scale fisheries in nursery zones through most of the range.

Trends in stocks are mostly derived from analysis of catch per unit effort (CPUE) information, with some direct stock assessment and landings data. Analysis is hampered because much information is recorded at a generalised level covering either all hammerheads *Sphyrna* spp. or the three species considered here. Such assessments indicate a range of declines in hammerheads in the Northwest Atlantic, Mediterranean, Pacific and Indian Oceans over various time periods, ranging from a 25% decline for 1994–2005, indicated in one study in the Northwest Atlantic, to 85% for 1963–2000 in the West Pacific Ocean, and 99% in the Mediterranean, from historical baselines. One assessment of the Southwest Atlantic detected no trend. Various assessments, specifically of *S. lewinii,* indicate marked declines in the Northwest Atlantic (ranging from 44% for 1995–2005 to 98% for 1972–2003), Southwest Atlantic (60–90% for 1993–2001), East Pacific (71% for 1992–2004) and West Indian Ocean (64% for 1978–2003). There is little specific information on trends in *S. mokarran* or *S. zygaena.*

Sphyrna lewini is listed globally as Endangered on the IUCN Red List, with two of the five subpopulations listed as Vulnerable and three as Endangered. *S. mokarran* is globally listed as Endangered and *S. zygaena* as Vulnerable.

Species-specific management policies for *Sphyrna lewini* have been implemented in some countries and most Regional Fisheries Management Organisations and a number of range States have implemented some form of finning regulation; the three proposed species could be benefitting from these wherever they are effectively enforced. *S. lewini* or hammerheads as a complex are listed on various international conventions.
Identification of fins of hammerhead sharks to species level is difficult. However, a guide has been created that may help to distinguish between fins of the three hammerheads proposed here and those of other shark species. Fins from other members of the genus *Sphyrna* apparently do not closely resemble those of the three species proposed here.

Sphyrna lewini is proposed for inclusion in Appendix II under *Resolution Conf. 9.24 (Rev. CoP15)* Annex 2 a. The proposed listing would include an annotation to delay entry into effect of the inclusion by 18 months to enable Parties to resolve related technical and administrative issues. *S. mokarran* and *S. zygaena* are proposed for listing in Appendix II under *Resolution Conf 9.24 (Rev. CoP15)* Annex 2 b criterion A for look-alike reasons.

Analysis: *Sphyrna lewini, S. mokarran* and *S. zygaena* are harvested for the international trade of their valuable fins. *S. lewini* is believed to be the main species in trade, although *S. zygaena* also appears to be traded in large quantities. *S. lewini* has low productivity and is highly vulnerable to exploitation; *S. mokarran* and *S. zygaena* are less well known but are assumed to have similar productivity. Significant declines have been reported in a number of populations of *S. lewini* (and in the three species together), ascribed to over-exploitation. Most of these declines are consistent with the indicative guidelines for inclusion in Appendix II of commercially exploited aquatic species with low productivity suggested in the footnote to Annex 5 of *Resolution 9.24 (Rev. CoP15).* Some reported declines are consistent with guidelines for inclusion in Appendix I.

The fins of the three species resemble each other and are frequently traded together. It would appear that *S. mokarran* and *S. zygaena* meet the criteria for listing in Annex 2 bA of *Resolution Conf. 9.24 (Rev CoP15)* based on the difficulty of distinguishing their fins from those of *S. lewini*. It is possible that one or both species meet the criteria for inclusion in Appendix II under Annex 2 a, although information is lacking in this regard.

Supporting Statement (SS)	Additional information
Range	
Sphyrna lewini is a circumglobal shark species residing in coastal warm temperate and tropical seas in the Atlantic, Pacific, and Indian Oceans between 46°N and 36°S to depths of 1000 m. In the western Atlantic Ocean, this shark is found from south of New Jersey (USA) to Brazil, including the Gulf of Mexico and the Caribbean Sea; in the eastern Atlantic it is distributed from the Mediterranean Sea to Namibia. A range extension of the species to the central Mediterranean off southern Italy has been recently documented. Distribution in the Indo-Pacific Ocean includes South Africa and the Red Sea, throughout the Indian Ocean, and from Japan to New Caledonia, Hawaii (US), and Tahiti; it is found on both east and west coasts of India, with higher abundance along the east coast. *S. lewini* is found in the eastern Pacific Ocean from the coast of southern California to Ecuador and perhaps as far south as Peru. In Australia, *S. lewini* may be found off the north-western, northern, and eastern Australia coast. It is found in the following FAO Fishing Areas: 21, 31, 34, 41, 47, 51, 57, 61, 71, 77, and 87.	

Supporting Statement (SS)	Additional information
S. mokarran occurs circumglobally between 45°N - 37°S at depths to 300 m. In India they are found on both the southeast and southwest coasts. They are coastal-pelagic and can be found close inshore as well as far offshore. They can be bottom-oriented in depths of 1-80 m. It is found in the following FAO Fishing Areas: 21, 27, 31, 34, 37, 41, 47, 51, 57, 71, 77, 81, 87.	
S. zygaena is a circumglobal coastal-pelagic and semi-oceanic species that occurs in temperate and tropical seas between 59°N - 55°S. They occur from the surface to 200 m, but are most common to depths to 20 m. They can be found both inshore and well offshore. It is found in the following FAO Fishing Areas: 21, 31, 27, 34, 37, 41, 47, 51, 57, 61, 71, 77, 81, 87.	
Range States	
S. lewini Also in central Mediterranean off southern Italy.	S. lewini *Angola; Anguilla; Antigua and Barbuda; Aruba; Australia; Bahamas; Bahrain; Barbados; Belize; Benin; Brazil; Cameroon; Cape Verde; Cayman Islands; China; Colombia; Congo; Costa Rica; Côte d'Ivoire; Cuba; Djibouti; Dominica; Dominican Republic; Ecuador; Egypt; El Salvador; Equatorial Guinea; Eritrea; French Guiana; Gabon; Gambia; Ghana; Grenada; Guadeloupe; Guinea; Guinea-Bissau; Guyana; Haiti; Honduras; India; Indonesia; Iran, Islamic Republic of; Iraq; Jamaica; Japan; Kuwait; Liberia; Maldives; Mauritania; Mexico; Myanmar; Namibia; New Caledonia; Nicaragua; Nigeria; Oman; Pakistan; Panama; Philippines; Puerto Rico; Qatar; Saint Kitts and Nevis; Saint Lucia; Saint Vincent and the Grenadines; Sao Tomé and Principe; Saudi Arabia; Senegal; Sierra Leone; South Africa; Suriname; Taiwan, Province of China; Thailand; Togo; Trinidad and Tobago; United Arab Emirates; USA; Uruguay; Venezuela; Viet Nam; Yemen (Baum* et al., *2007).* *Madagascar (Doukakis* et al., *2011).*
S. mokarran	S. mokarran *Algeria; Anguilla; Antigua and Barbuda; Aruba; Australia; Bahamas; Bangladesh; Belize; Brazil; British Indian Ocean Territory; Cambodia; Cape Verde; Cayman Islands; China; Colombia; Costa Rica; Cuba; Curaçao; Djibouti; Dominica; Dominican Republic; Ecuador; Egypt; El Salvador; Eritrea; France; French Guiana; French Polynesia; French Southern Territories (the); Grenada; Guadeloupe; Guatemala; Guyana; Haiti; Honduras; Hong Kong; India; Indonesia; Iran, Islamic Republic of; Iraq; Israel; Jamaica; Japan; Jordan; Kenya; Kuwait; Libya; Macao; Madagascar; Malaysia; Martinique; Mauritius; Micronesia, Federated States of; Montserrat; Morocco; Mozambique; Myanmar; Netherlands Antilles; Oman; Pakistan; Palau; Panama;*

Supporting Statement (SS)	Additional information
	*Philippines; Pitcairn; Puerto Rico; Qatar; Saint Barthélemy; Saint Kitts and Nevis; Saint Lucia; Saint Martin; Saint Vincent and the Grenadines; Saudi Arabia; Senegal; Seychelles; Somalia; South Africa; Spain; Sri Lanka; Sudan; Suriname; Taiwan, Province of China; Tanzania, United Republic of; Trinidad and Tobago; Tunisia; Turks and Caicos Islands; United Arab Emirates; USA; Venezuela; Viet Nam; Yemen (*Denham et al., 2007*).*
S. zygaena Also in central Mediterranean off southern Italy.	S. zygaena *Albania; Algeria; Argentina; Australia; Bahrain; Belgium; Bosnia and Herzegovina; Brazil; Canada; Chile; China; Croatia; Cyprus; Denmark; Egypt; Estonia; Finland; Germany; Greece; Greenland; Iceland; India; Iran, Islamic Republic of; Iraq; Ireland; Israel; Italy; Japan; Korea, Democratic People's Republic of; Korea, Republic of; Kuwait; Latvia; Lebanon; Libya; Lithuania; Madagascar; Mexico; Montenegro; Morocco; Mozambique; Namibia; Netherlands; New Zealand; Norway; Oman; Pakistan; Peru; Poland; Portugal; Qatar; Russian Federation; Saudi Arabia; Slovenia; South Africa; Spain; Sweden; Syrian Arab Republic; Tunisia; Turkey; United Arab Emirates; UK; USA; Uruguay; Western Sahara (Casper* et al.*, 2005).*
IUCN Global Category	
S. lewini Globally: EN. Western Atlantic: EN.	S. lewini *Globally: EN A2bd+4bd (version 3.1, assessed 2007).* *Eastern Central and Southeast Pacific subpopulation: EN A4bd (version 3.1, assessed 2007).* *Eastern Central Atlantic subpopulation: VU A4bd (version 3.1, assessed 2007).* *Northwest and Western Central Atlantic subpopulation: EN A2bd+4bd (version 3.1, assessed 2007).* *Southwest Atlantic subpopulation: VU A4bd (version 3.1, assessed 2007).* *Western Indian Ocean subpopulation: EN A4bd (version 3.1, assessed 2007).*
S. mokarran Globally: EN.	S. mokarran *(version 3.1, assessed 2007)* *Globally: EN A2bd+4bd version 3.1.*
S. zygaena Globally: VU.	S. zygaena *(version 3.1, assessed 2005)* *Globally: VU A2bd+3bd+4bd version 3.1.*

Supporting Statement (SS)	Additional information

Biological and trade criteria for inclusion in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)

A) Trade regulation needed to prevent future inclusion in Appendix I

S. lewini
S. lewini is inherently sensitive because it is long-lived, matures late, has a relatively small litter size and has a low intrinsic rate of increase.

Overall estimates of the intrinsic rate of increase for *S. lewini* (r~0.08-0.105 yr^{-1}) indicate that populations are vulnerable to depletion and will be slow to recover from over-exploitation based on FAO's low productivity category (<0.14 yr^{-1}). More recent studies have calculated productivity rates for the south Atlantic Ocean (0.121 yr^{-1}) and north Atlantic (0.096 yr^{-1}) (the full Ecological Risk Assessment (ERA) analysis will be completed and presented as an International Commission on the Conservation of Atlantic Tuna Standing Committee on Research and Statistics (ICCAT SCRS) document at the September 2012 species group meeting of ICCAT). It has been stated that *S. lewini* has among the lowest productivity when compared to 26 other species of sharks; and other studies have found *S. lewini* to be 8th out of 11 species or 6th (south Atlantic) and 9th (north Atlantic) out of 20 stocks/16 species.

Longevity is estimated to be 12.5 years in the east Pacific, 14 years in the west Pacific, and 31.5 years in the north-west Atlantic. Another study calculated that, off the east coast of Australia, the oldest male was 21.5 and female was 15 years.

S. lewini
The full Ecological Risk Assessment analysis from the September 2012 species group meeting of ICCAT can be found here-- http://www.iccat.int/Documents/Meetings/Docs/2012_SHK_ASS_ENG.pdf. The values remain the same as those documented in the SS.

S. lewini *was found to have a high intrinsic vulnerability score (2.5/3) in a vulnerability assessment of 61 shark species (Oldfield* et al., *2012).*

The information presented in the proposal on longevity of this species is confused. Longevity (years) is presented here in more detail from the original and additional papers for clarity:
SW Atlantic (Kotas et al., *2011)*
29.5 (m), 31.5 (f)
E Pacific (Anislado-Tolentino and Robinson-Mendoza 2001)
11 (m), 12.5 (f)
W Pacific (Chen et al., *1990)*
10.6 (m), 14 (f)
Australia (Harry et al., *2011)*
21 (m)
North West Atlantic and Gulf of Mexico (Piercy et al., *2007)*
30.5 (both m and f)
The longevity of S. lewini *has yet to be validated and the current estimates are confounded by likely methodological differences between studies and interspecific geographical differences. Earlier studies in the east and west Pacific estimated longevity to be 12.5-14 years, although more recent studies in the Atlantic and west Pacific have suggested the species is longer lived, to at least 30 years (Harry* in litt*., 2012).*

Supporting Statement (SS)	Additional information
Age at maturity has been calculated at 6 years for males and 15-17 years for females in the north-west Atlantic and was found to differ significantly between male sharks caught in tropical waters (5.7 years) and those caught in temperate waters (8.9 years) in Australia.	*Age at maturity (years) is presented here in more detail from the original papers for clarity:* *Australia (Harry* et al., *2011)* *5.7 (tropical m), 8.9 (temperate m), >12 (f)* *W Pacific (Chen* et al., *1990)* *3.8 (m), 4.1 (f)* *NW Atlantic (Piercy pers. comm.)* *6 (m), 15-17 (f)*
Generation time has been determined at 16.7 years (Atlantic) and 5.7 years (Pacific) though the much higher population growth rate (low generation time) in the Pacific may be due to the growth information used in the model, rather than real differences. However, the proposal indicates an overall generation time of 20 years in Annex 1.	*Generation period is greater than 15 years in the Gulf of Mexico (Baum* et al., *2007), therefore three generation lengths is at least 45 years.* *The full ICCAT ERA analysis indicates that the generation time = 21.6 years.*
Reproductive cycle analysis from all studies indicates an 8-12 month gestation period followed by a one-year resting period. A few studies have examined life history parameters for *S.lewini*. In the north-western Atlantic Ocean, *S. lewini* appear to grow more slowly and have smaller asymptotic sizes than conspecifics in the eastern and western Pacific Ocean. Average litter size ranges from 12 to 41 pups and in comparison with other hammerhead species, *S. lewini* in Mexico has low to intermediate fertility levels. Furthermore, pregnant females come in to the birth zone (10-20 m depth) where they pup and a number of coastal areas have been identified as important to juveniles and sub-adults.	*Chen* et al. *(1988) indicated that reproduction was likely annual in* S. lewini. *Also, Capape (1998), Hazin* et al. *(2001), De Bruyn* et al. *(2005) and White* et al. *(2008) reported that oocytes were well developed in pregnant females, potentially indicating annual reproduction. Despite evidence that* S. lewini *may reproduce annually, most studies have been based on small sample sizes so it is not possible to establish this conclusively. Indeed, it should be noted that most large sharks (including the congeneric* S. mokarran*) have a resting year between pregnancies, so an annual cycle in* S. lewini *would be unusual (Harry* in litt., *2012).*
Recent studies indicate that the Northwest Atlantic, Caribbean Sea, and Southwest Atlantic populations of this species are genetically distinct from each other, as are the Eastern Central Atlantic and Indo-Pacific populations.	
<u>*S. mokarran*</u> Litter sizes: 13-42 Reproduces every other year. Age at maturity: 8 years from one study	<u>S. mokarran</u> *ICCAT ERA (September 2012) – In the North Atlantic Productivity = 0.070 yr^{-1}; Generation time = 27.1.*
<u>*S. zygaena*</u> Litter size: 30-40 Gestation period: 10-11 months Maximum age: approximately 18 years from one study	<u>S. zygaena</u> *Productivity: 0.110 yr^{-1} and ranked 8th out of 11 species in terms of vulnerability (Cortes* et al., *2009).* *ICCAT ERA (September 2012) –In the North Atlantic Productivity = 0.225 yr^{-1} and Generation time = 13.4 years.* Sphyrna zygaena *was found to have a high intrinsic vulnerability score (2.5/3) in a vulnerability assessment of 61 shark species (Oldfield* et al., *2012).*

Supporting Statement (SS)	Additional information
A) Small wild populations	*A) Small wild populations*
<u>*S. lewini*</u> Few population assessments are available for *S. lewini*. In the northwest Atlantic Ocean, an assessment using two surplus production models has been conducted. Population size in 1981 was estimated to be between 142 000 and 169 000 sharks, but decreased to about 24 000 sharks in 2005.	
C) Decline in number of wild individuals	*C) Decline in number of wild individuals*
It appears that a number of directed and by-catch fisheries are occurring in newborn and juvenile habitat, where they are sensitive to even the simplest fishing methods; a number of fisheries catch exclusively juveniles.	
<u>*S. lewini*</u> Estimates of decline of *S. lewini* are given in the table below.	<u>*S. lewini*</u>

<u>*Sphyrna lewini*</u>

Year	Location	Data	Trend
1972-2003	NW Atlantic Ocean	CPUE	98% decline*
1992-2003	NW Atlantic Ocean	CPUE	89% decline*
1994-2005	NW Atlantic Ocean	CPUE	56% increase*
1995-2005	NW Atlantic Ocean	CPUE	44% decline*
1981-2005	NW Atlantic Ocean	Stock assessment	83-85% decline*
1993-2001	SW Atlantic Ocean	Landings or CPUE	60-90% decline
1992-2004	E Pacific Ocean	Sightings	71% decline*
1978-2003	W Indian Ocean	CPUE	64% decline*

*Indicates the data has undergone a statistical standardisation to correct for factors

Supporting Statement (SS)	Additional information
unrelated to abundance Further detail with less explicit trend information are described below. **Pacific Ocean** In the Mexican Pacific Ocean, the catch per unit effort (CPUE) of the longline fishing fleet (100 fish hooks) for *S. lewini* showed a declining trend of 0.19 in 1987 to 0.03 in 1999. In the Gulf of Tehuantepec the captures of *S. lewini* declined from the maximum of 300 t in 1997 to a few tonnes in 2006. From 2008 to 2010, the annual catch of *S. lewini* in the south zone of the Mexican Pacific showed a declining trend. Catch of S. lewini in Costa Rica shows a decrease of 60% in the relative abundance between 1991 and 2001. In Colombia, although there are capture data for *S. lewini* in industrial and artisanal fisheries, there is no information on CPUE; nevertheless, it is evident that the majority of captured individuals (74%) are captured below the maturity size (200 cm LT). There has also been a decrease of juveniles seen in the shrimp trawling fishery between 1995 and 2004, and no reports of the species in 2007. The incidental catches of Hammerhead Sharks (*S. lewini*) by tuna vessels which use purse seine nets in the East Pacific show a declining trend from a peak of 1009 specimens in 2002 to 247 specimens in 2011. Data from 1996-2006 from mesh net and drumline fisheries in north-eastern Australia from the Queensland Shark Control Program were analysed and a significant decline in *S. lewini* female total length was found but an increase in CPUE. Large catches of newborn *S. lewini* by prawn trawlers on the Tugela Bank, South Africa, have been reported ranging from an estimated 3288 sharks in 1989 to 1742 sharks in 1992. <u>*S. mokarran*</u> From 2000-2002 *S. mokarran* comprised 0.75% of total shark landings at Cochin Fisheries Harbour, India. However, from 2007-2011 very few were landed. There has been a suspected decline of at least 80% in the past 25 years for populations of *S. mokarran* off West Africa. The incidental catches of *S. mokarran* by tuna vessels which use purse seine nets in	***Pacific Ocean*** *A 62% decline in landings of* S. lewini *is reported from the Southern Mexico Pacific Coast (Soriana* et al*., 2006, as cited and TRAFFIC 2010).* *The 60% reduction cited in the SS is for pelagic sharks in general. Standardised catch rates were not presented and the reduction is only based on two widely spaced data points. Changes in fishing operations between these time periods were not taken into account (Arauz* et al., *2004; Clarke* in litt*., 2012).*

Supporting Statement (SS)	Additional information

the East Pacific peaked at 189 in 2003 and declined to 21 in 2011.

S. zygaena
During 2000-2002, *S. zygaena* formed 0.36% of the total shark landings at Cochin Fisheries Harbour, India, but during 2007-2011, only stray numbers were landed.

In New Zealand, there is some anecdotal evidence from game fishers that large adults may be less abundant than they used to be, but juveniles and sub-adults are still abundant around the northern North Island.

The incidental catches of *S. zygaena* by tuna vessels which use purse seine nets in the East Pacific peaked at 1205 in 2004 and declined to 436 in 2011.

Species Complex
Given the difficulties in differentiating the species, *S. lewini, S. mokarran*, and *S. zygaena,* and the amalgamation of catch records, estimates of trends in abundance are listed below for hammerheads as a complex either for the three proposed species or for *Sphyrna* spp.

Species Complex

Sphyrna complex (*S. lewini, S. mokarran,* and *S. zygaena*)

Year	Location	Data	Trend
1981-2005	NW Atlantic Ocean	Stock assessment	72% decline*
1978-2007	SW Atlantic Ocean	CPUE	None/Stable
1898-1922 1950-2006 1978-1999 1827-2000	Mediterranean Sea	CPUE	99% decline*

*Indicates the data have undergone a statistical standardisation to correct for factors unrelated to abundance

Supporting Statement (SS)	Additional information

Sphyrna spp. (Hammerhead sharks)

Year	Location	Data	Trend
1992-2005	NW Atlantic Ocean	CPUE	76% decline*
1994-2005	NW Atlantic Ocean	CPUE	25% decline*
1983-1984 and 1991-1995	NW Atlantic Ocean	CPUE	66% decline
2004-2006	E Pacific Ocean	Landings	51% decline
1963-2007	W Pacific Ocean	CPUE	85% decline
1997-1998 and 2004-2005	E Indian Ocean	CPUE	50-75% decline

*Indicates the data have undergone a statistical standardisation to correct for factors unrelated to abundance

Atlantic Ocean

Although there is evidence of declines in the northwest Atlantic (1983-1984 and 1991-1995; 66% decline), time series analysis conducted since 1995 has suggested that the northwest Atlantic population may be stabilized but at a very low level.
In the eastern Atlantic Ocean, data indicating trends in abundance are generally not available. However, it has been suggested that similar population trends for hammerheads (grouped) documented in the northwest Atlantic could be expected in the northeast and eastern central Atlantic. This is because longline fleets in these areas exert comparable fishing effort, and effort is seen to shift from western to eastern Atlantic waters.

Off the Belize coast, hammerheads have declined dramatically in the past ten years as a result of over-exploitation, leading to a halt in the Belize-based shark fishery. However, the pressure is still sustained by fishers entering Belizean waters from Guatemala.

In the southwest Atlantic Ocean off Brazil, data from fisheries targeting hammerhead sharks indicate bottom gillnet CPUE declined by 80% from 2000-2008. The targeted hammerhead fishery was abandoned after 2008 because the species had become rare.

However, nominal CPUE from commercial fishing logbook data of the hammerhead

Atlantic Ocean

The previous CITES proposal (CoP15 Prop. 15) cited Carlson et al. *(2005) regarding a time series analysis conducted since 1995 that suggested that the Northwest Atlantic population may be stabilised but at a very low level. However, Carlson* et al. *(2005) also suggest that these populations may have possibly "increased from mid-1990s levels" but this text was omitted from the proposal.*

Supporting Statement (SS)	Additional information
shark complex caught by the Brazilian tuna longline fleet from 1978-2007 indicated a relatively stable trend (in table above) and this indicated that declines may be more severe in coastal areas where *S. lewini* are more common. In the southeast of Brazil the catch statistics include *S. lewini* and *S. zygaena* into the category of "hammerhead sharks", of which about 80% are *S. lewini*. CPUE reductions (kg/trip) of 96% and 93% were observed for this "category" from bottom gillnet and longline vessels, respectively, in the State of Santa Catarina, south of Brazil. Industrial landings of the hammerhead shark complex (mainly *S. lewini* and *S. zygaena*) in the State of Santa Catarina, south of Brazil, were of 6.7 t in 1989, coming to a peak of 570 t in 1994, due to the fast development of net fishing. Later a decrease occurred to 202 t in 1998, 353 t in 2002 and 381 t in 2005. Lastly, in 2008, production reached only 44 t without ever recovering any more to the levels of 1994. Observations of landings at the industrial fisheries in the port of Rio Grande (Rio Grande do Sul State) between June 2002 and July 2003, found that *S. zygaena* occurred in 25% of the landings of the gillnet fleet and 9% of the seines. However, the CPUE of the hammerhead sharks caught in gillnets diminished drastically, declining from 0.37 t per trip in 2000 to 0.13 t per trip in 2002. Utilising analysis of covariance models and generalised linear models applied to gill-net fishing along the south coasts of Brazil, a decline of over 80% in catch and CPUE of the hammerhead sharks complex was found during the period of 1995 to 2005. **Pacific Ocean** In Mexico, populations, catches and landings of various shark populations have diminished; shark catches indicate a sustained decline in the last ten years. The general trend of production of sharks in the states of Sinaloa and Sonora oscillates, with a clear negative trend. In Sonora, a maximum of 7000 t were caught in 1980, declining to 3000 t in 2000, while in Sinaloa a maximum of 5000 t were caught in 1980, declining to 1500 t in 2000. In Ecuador, catch records for combined *S. lewini*, *S. mokarran*, and *S. zygaena* indicated a peak in landings of approximately 1000 t in 1996, followed by a decline through 2001.	***Pacific Ocean*** *Many of the countries with the highest landings of sharks and rays currently and historically are nations in the Indian Ocean and Indo-Pacific region and while this area has the least available data, it is also an area where declines may have been particularly high (Harry* in litt., *2012.).*

Supporting Statement (SS)	Additional information
Indian Ocean For the Indian Ocean, there is a lack of available data, no quantitative stock assessment, and no fishery indicators for *S.lewini.* As a result, the stock status is highly uncertain. Often taken in a range of fisheries in the Indian Ocean, *S. lewini* are vulnerable to these fisheries, particularly the gillnet fishery. Inshore fisheries often exploit the pups found in the shallow coastal nursery grounds. If current fishing effort is maintained or increased, further declines in biomass and productivity will occur.	***Indian Ocean*** *Dudley and Simpfendorfer (2006) found that the CPUE of* S. lewini *in the KwaZulu Natal bather protection programme decreased significantly over a 25-year period.*
B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences	
Catches of sphyrnids have been reported in the FAO statistics, but only the S.lewini and *S. zygaena* are reported as individual species; most of the catch is reported at the family level, and many countries have only recently begun reporting data. Catches of *S. lewini* are often amalgamated as *Sphyrna spp.* with *S. zygaena*. Despite their distinctive head morphology, hammerheads are largely underreported; discrepancies are evident when compared to trade statistics. The FAO database reports hammerheads in three categories: “Hammerhead Sharks,” “Smooth Hammerhead,” and “Scalloped Hammerhead.” Reported worldwide landings for 2000-2010 increased between 2000 and 2002, decreased about 20% in 2003 and 2004, and then doubled from 2004 to 2005 to over 3750 t. An upward trend continued to a peak of 5486 t in 2007 and then decreased slightly through 2009 to 4900 t 2010 was a record year.	
Trade *S. lewini* are subject to target and non-target fisheries driven by the international demand for their high value fins. They are highly valued because of the fin size and high fin ray count.	*Trade*
International shark trade information is not documented at species level for sharks in the Harmonized Commodity Description and Coding System (Harmonized System); therefore, specific information about overall quantities or value of imports or exports is not available. International trade of *S. lewini* products is unregulated.	
However, using commercial data on traded weights and sizes of fins, the Chinese category for Hammerhead Shark fins, coupled with DNA and Bayesian statistical analysis to account for missing records, a study has estimated that between 1.3 and 2.7 million sharks of *S. lewini* and *S. zygaena*, equivalent to a biomass of 49 000–90 000 t, are taken for the fin trade each year.	

Supporting Statement (SS)	Additional information
An assessment of the Hong Kong shark fin market has revealed that various Chinese market categories contain fins from hammerhead species (*S. lewini* and *S. zygaena* in an approximately 2:1 ratio, respectively). It has been reported that traders stated that hammerhead fins were one of the most valuable fin types on the market – between USD88/kg and USD135/kg for unprocessed fins in 2003. More recently, hammerhead fins from the European Union (EU) sold to Asian ports for 27.50 €/kg (~ USD100/lb) (2010). Together, *S. lewini, S. mokarran,* and *S. zygaena* account for nearly 6% of the identified fins entering the Hong Kong shark fin market. News reports from May 2012 report that DNA tests of shark fins in Taiwan POC by the Fisheries Agency identified Scalloped Hammerhead fins in Taiwanese fish markets. Mitochondrial control region (mtCR) sequences have been used to trace the broad geographical origin of 62 Hong Kong market-derived *S. lewini* fins; of these fins, 21% were derived from the western Atlantic. A sample of *S. zygaena* fins sourced from the Hong Kong shark fin market have been shown to derive from the Indo-Pacific and eastern and western Atlantic Ocean basins.	*The 2:1 ratio is specifically for the category "Chun chi" (Clarke in litt., 2012.), not "various Chinese market categories":*
Hammerhead flesh is used for meat in some regions, most particularly in Europe, with northern Italy and France as the major consuming countries and Spain as the world's largest exporter of shark meat. Imports of hammerhead meat from the Seychelles to Germany have been noted. Although trade information is not documented to species, it has been indicated that hammerhead shark meat was a favoured imported species for meat in countries like Spain and Japan and that Uruguay indicated exports of hammerhead meat to Brazil, Spain, Germany, Netherlands and Israel. However, while the current volume of traded meat and other products specific to hammerheads is unknown, it is likely that this amount is insignificant when compared to the volume of fins in trade.	*Hammerhead meat is also consumed in Mexico and many parts of Latin America (Sosa-Nishizaki* in litt., *2012).* *Hammerhead products were imported in to the USA between 2000 and 2012 (LEMIS Database 2012). The major items are documented here:* S. lewini: *1008 bones (possibly jaws) and 1900 teeth for commercial purposes* S. mokkaran*: six items and 1215 kg bones (possibly jaws) and 179 teeth, mainly for commercial purposes, and 3000 items for personal medicinal use* S. zygaena: *49 862 teeth and 3237 bones (possibly jaws) for commercial purposes*

Inclusion in Appendix II to improve control of other listed species

A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I

Two of the species proposed for inclusion in Appendix II have been proposed on the basis of look-alike issues: *S. mokarran* (Great Hammerhead) and *S. zygaena* (Smooth Hammerhead) because their fins are morphologically similar to *S. lewini* and may be difficult to distinguish in trade.	*A large volume of fins (over half by weight) traded in unstudied and often non-specific categories could not be characterised (Clarke* et al., *2006, as cited in IUCN and TRAFFIC 2010), indicating that much of the trade consists of relatively indistinct fins. It is also unknown how the other* Sphyrna *spp. and* Eusphyrna *spp. are categorised in the markets and how to tell them apart (Clarke* in litt*., 2012.).*
While identification of hammerhead sharks by species may be difficult, the distinction between hammerheads and other shark species, including the fins can be done. Fin traders in the Hong Kong market are able to identify hammerhead fins from other shark fins sorting *S. lewini* and *S. zygaena* fins together and *S. mokarran* fins	*Although professional fin processors and traders may be able to sort visually many fins to species, this does not occur until late in the trade chain and certainly occurs after Customs would be officially required to identify fins to species (Sant, 2009, as cited in IUCN and TRAFFIC 2010). Also, it may not be possible to distinguish these*

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separately from other shark fins. It was demonstrated that fins from "chun chi" were 96% accurately identified as *S. lewini* or *S. zygaena* shark fins, and fins from "gu pian" were 86% accurately identified as *S. mokarran* fins by fin traders. The majority of the hammerhead fins that were misidentified were found to be of another species of hammerhead, demonstrating that fin traders are able to differentiate between hammerhead fins and other shark species, but not always to the species level. An assessment of the Hong Kong shark fin market has revealed that various Chinese market categories contain fins from hammerhead species (*S. lewini* and *S. zygaena* in an approximately 2:1 ratio, respectively) and together, *S. lewini, S. mokarran,* and *S. zygaena* account for nearly 6% of the identified fins entering the Hong Kong shark fin market. According to a fin identification guide (provided in the proposal), hammerhead fins can be distinguished from other shark fins as they have a uniform light brown colour and the fin is considered "tall". To further confirm identity, a PCR-based assay has been published for hammerhead sharks and DNA tests are also available. Additionally, because of the difficulty in identification of some hammerhead species, catches of *S. lewini* are often amalgamated with *S. mokarran* and *S. zygaena*. A cryptic lineage of Scalloped Hammerheads has been identified and is likely to have entered trade as well since it is sympatric with *S. lewini* in the western Atlantic. As fins in trade, *S. mokarran* and *S. zygaena* fins are morphologically similar to *S. lewini*. Fins from all three species are thin and falcate with the dorsal fin height longer than its base.	*fins from other* Sphyrna *spp*. *and* Eusphyrna *spp. (Clarke* in litt*., 2012.).* *The 2:1 ratio is specifically for the category "Chun chi" (Clarke,* in litt*., 2012), not "various Chinese market categories":* *The previous CITES proposal (CoP15 Prop. 15) for hammerheads included two additional species—the Sandbar Shark* Carcharhinus plumbeus *and the Dusky Shark* Carcharhinus obscurus*—as additions to Appendix II on the basis of look-alike issues. These have not been included in the present proposal. The previous proposal stated that as fins in trade, hammerhead fins, along with those of* C. plumbeus *and* C. obscurus*, were morphologically similar to those of* S. lewini*. It was also shown* C. plumbeus *and* C. obscurus *experienced declines from unexploited levels of 64-71% and at least 80%, respectively.*

Other information

Threats

S. lewini
The principal threat to adults, juveniles and neonates is from over-exploitation in by-catch and target fisheries, as well as at-vessel mortality in industrial, artisanal and recreational fisheries. This threat is widespread throughout Exclusive Economic Zones (EEZs) and in multinational fisheries on the high seas

This species is highly desired for the shark fin trade because of the fin size and high fin ray count.

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S. lewini is a preferred species for production of leather and liver oil. There is utilisation of jaws and teeth as marine curiosities. In some countries, shark fins are retained for local consumption. Other types of *S. lewini* products, including skin, liver oil, cartilage, and teeth, are not traded in large quantities or are not separately recorded in trade statistics. Habitat degradation and pollution affect coastal ecosystems that juvenile *S. lewini* sharks occupy during early life stages. However, the effects of these changes and their ultimate impact on populations of *S. lewini* are currently unknown. <u>*S. mokarran*</u> There is a regular directed fishery for *S. mokarran* in India. Meat is used for human consumption fresh, frozen, dried, salted or smoked. The liver is used for oil, the fins for soup, the hide for leather, and the carcass for fish meal. Fins have very high market demand. <u>*S. zygaena*</u> *Sphyrna zygaena* is caught with pelagic longlines and gillnets. It is utilised fresh and dried/salted/smoked for consumption; the liver oil is used for vitamin extraction, the fins for the oriental fin trade, offal for fishmeal, and the hide for leather. Hide, fins and cartilage are exported. <u>Species complex</u> Hammerhead sharks have been documented in illegal, unreported, and unregulated (IUU) fishing activities including 120 longline vessels in the Western Indian Ocean, Brazil, northern Australia, the Galapagos, Colombia, Palau, and the Marshall Islands (not an exhaustive list). Furthermore, an assessment on illegal hammerhead shark fishing (non-declared nor regulated) extracted from the available literature found *Sphyrna* spp. and Silky Shark *Carcharhinus falciformis* to be the most frequently cited species taken in illegal fishing. Although hammerhead meat is considered unpalatable because of high urea concentrations, some harvest for meat, usually for local consumption (Mexico, Mozambique, Philippines, Seychelles, Spain, Sri Lanka, Taiwan POC, China , Tanzania, and Uruguay). The aggregating behaviour of hammerheads makes them very vulnerable to capture.	

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Conservation, management and legislation

National

Fins attached/total weight of shark fins landed or found onboard to not exceed 5% of total weight of shark carcasses: Australia; Brazil (*S. lewini* and *S. zygaena* listed specifically) – all operating vessels in Brazilian waters; Canada; Cape Verde; Chile; Colombia (*S. lewini*) – in Colombian waters; Costa Rica; Ecuador; Egypt; El Salvador; European Union; French Polynesia; Honduras (all sharks); Israel; Japan; Mexico; Morocco; Namibia; Nicaragua; Oman; Palau; Panama; Seychelles; South Africa; Taiwan POC; Venezuela; US.

An increasing number of States have prohibited shark fishing in their waters but the benefit of these prohibitions has not been established.

Additional Policies

US – quotas, limited entry, time area closures and recreational bag limits for all three species
US – stock assessment of *S. lewini* in 2011 has a 2 year deadline to implement a rebuilding plan to end overfishing
US – prohibit retention of all three species caught in association with ICCAT fisheries
US – catch of hammerhead sharks is prohibited in US Atlantic pelagic longline fishery
US – quota for other US Atlantic fisheries catching hammerheads
US – Endangered Species Act listing is currently being considered
Ecuador – prohibits fin export from Ecuador but implication is that there is not illegal trade via Peru and Colombia
EU – prohibits catch of hammerhead sharks throughout the ICCAT convention area
Brazil – Minimum size policy for *S. lewini* and *S. zygaena*
Morocco – logbook requirements, prohibition on oil extraction
Spain – prohibition on capture of *S. lewini*
Mexico – utilisation of *S. lewini* is regulated
Mexico – prohibition on gillnets from vessels of medium and high height from fishing for hammerheads in Mexican waters
Senegal – a size limit for the Scalloped hammerhead shark (*Sphyrna lewini*) is being proposed

Mexico—prohibition on gillnets from vessels of medium and large size from fishing for all sharks in Mexican waters (Sosa-Nishizaki in litt*., 2012).*

International

Hammerheads are listed in Annex I of UNCLOS.

International

Supporting Statement (SS)	Additional information
Sphyrna lewini has been included in Appendix III of CITES by Costa Rica, entering into force in September 25 of 2012. Prohibited to retain onboard, tranship, land, store, sell or offer for sale any part of whole carcass of any hammerhead shark within family Sphyrnidae within the fisheries covered by the Convention area of ICCAT (except *S. tiburo*). Developing coastal States are exempt from this prohibition but they are to ensure that hammerhead sharks do not enter into international trade. Many RFMOs have adopted finning bans which require full utilisation of captured sharks and encourage the live release of incidentally caught sharks though enforcement varies. Eight member countries of the Central American Integration System (SICA; Belize, Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua and Panama) prohibit shark finning. This applies to domestic and foreign vessels that catch and land sharks in SICA countries, but also to vessels fishing in international waters that fly the flag of a SICA country. Members can only permit landing sharks when fins are still naturally attached to the whole body or to a portion of the shark body.	*While prohibitions on finning have recently been established by a number RFMOs, the effectiveness of these prohibitions to reduce shark catch has not been definitively demonstrated and a number of loopholes can remain that allow nations to continue this practice. For example, in the WCPFC (Clarke* et al., *2012), coastal nations are allowed to establish their own alternative measures in their EEZ, and implementation of the prohibition is the responsibility of the coastal state: of all 32 WCPFC members, only half had confirmed full implementation of the finning prohibition and few were able to provide information on the degree of compliance. Furthermore, in the WCPFC there is evidence that even if a prohibition was fully implemented it would not actually lead to a reduction in catch.* *Alternatively, some RFMOs have established prohibitions on the retention of sharks. While these measures "are likely to reduce shark mortality to a greater extent than finning prohibitions, gear-retrieval practices can have a large effect on shark mortality…It would therefore not be correct to assume that no retention will result in no mortality" (Clarke* et al., *2012).*

Other comments

The recent observation in the western North and South Atlantic Oceans of a rare hammerhead shark closely related to but evolutionary distinct from *S. lewini* suggests that this new lineage had been previously combined in catch data and assessments with *S. lewini* - as a result, populations may be lower than previously reported. Adult aggregations of *S. lewini* are common at seamounts, especially near the Galapagos, Malpelo, Cocos, and Revillagigedo Islands, and in past times within the Gulf of California. In the nursery zones (<10 m) south and southeast of Brazil the aggregating newborn are intensively fished through coast gillnets, prawn trawls and pair trawls, as well as recreational capture. Males are found to disperse long distances, but female *S. lewini* show no evidence of trans-oceanic movement, instead displaying site fidelity to certain coastlines or nursery areas. As a result, males help to facilitate gene flow but females define the mitochondrial lineage for *S.lewini*, which has been found to be discrete with a traceable point of origin. Thus, females are critical to sustaining or rebuilding the *S.*	*Hammerheads are known to suffer high mortality from capture. Estimated online mortality of* S. lewini *in the North Atlantic was 91.4% (Morgan and Burgess, 2007, as cited in IUCN and TRAFFIC 2010). Therefore mandates for live release are not likely to be sufficient to offset captures to conserve hammerhead populations (Camhi* et al., *2009, as cited in previous proposal analysis).* *Populations of hammerhead sharks are, like populations of many other species of shark, highly structured spatially by both size and sex. Indeed, for* S. lewini *in particular, males, females and juveniles have often been observed to reside in entirely different areas. This has made it difficult to document the complex life cycles of these species, whose behaviour may involve migrations between discrete nursery habitats and pelagic or meso-pelagic habitats spanning multiple government jurisdictions. For instance, within a single Australian net fishery in northern Australia Harry* et al*. (2011) documented a strongly male biased sex-ratio for* S. lewini *but a strongly female biased sex ratio was observed for* S. mokarran*. In nearby Indonesia, where* S. lewini *forms a genetically-contiguous stock with northern Australia, females were also five times more likely to be caught than males (White* et al*., 2008).*

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lewini populations. Consequently, recovery is dependent on the reduction of fishing pressure on these female sharks. Furthermore, a highly female-biased harvest has been found in the Great Barrier Reef of Australia of *S. mokarran*. Female-biased harvest likely exacerbates the status of the species there.	
A fin guide exists for the identification of the fins in trade.	*However, some species that are potential look-alike species are not covered in the fin guide (Clarke,* in litt., *2012.).*

Reviewers: S. Clarke, A. Harry, O. Sosa- Nishizaki, G. Sant.

Inclusion of Porbeagle *Lamna nasus* in Appendix II

Proponent: Brazil, Comoros, Croatia, Egypt and Denmark (on behalf of the European Union Member States acting in the interest of the European Union)

Summary: The Porbeagle *Lamna nasus* is a large (up to 3.6 m) warm-blooded shark found in the North Atlantic (mostly between 30–70°N), the Mediterranean and in a circumglobal band around ~30–60°S in the Southern Hemisphere. It matures late, has a long life span (25–46 years in the North Atlantic), has small numbers of young (average litter size is four pups) and a long gestation time (8–9 months). Northeast Atlantic sharks are slightly slower growing than those from the Northwest Atlantic. Porbeagles in the southern hemisphere are smaller, slower growing and longer lived (to around 65 years) than those in the North Atlantic. The estimated generation time is at least 18 years in the North Atlantic and 26 years in the Southern Oceans. Natural mortality (0.05–0.2 y^{-1}) indicates that the Porbeagle is a low productivity species in both the Northwest Atlantic and Southwest Pacific.

The species is harvested chiefly for its high-value meat, considered among the most palatable of that of any shark species, similar to and sometimes marketed as Swordfish *Xiphias gladius*. It is taken in targeted fisheries and retained as a valuable secondary catch, particularly in longline pelagic fisheries for tuna and Swordfish, but also in gill nets, driftnets, trawls and handlines. Sports fishers catch Porbeagle in the USA, Canada, New Zealand and in some EU Member States; some are taken for meat or trophies, while others may be tagged and released. Recent global reported Porbeagle landings have decreased from 1700 t in 1999 to 750 t in 2009 and 250 t in 2010.

Porbeagle meat is traded in fresh and frozen form. Prior to 2010, a lack of species-specific landings and trade data made it impossible to assess the proportions of global catches entering international trade. However, market survey findings indicated that the demand for fresh, frozen or processed Porbeagle meat was sufficiently high to justify the existence of an international market at that time.

In 2010, the EU introduced new species-specific Customs codes for fresh and frozen Porbeagle products, excluding fins, allowing some assessment of international trade in the species in the last two years. The EU has historically been both a major harvester and a major user of Porbeagle. EU Member States were responsible for 60–75% of FAO's global records of Porbeagle catch in 2006 and 2007, prior to establishment of a total allowable catch (TAC), which was reduced to zero for EU waters and EU fleets in 2010. EU market demand must now therefore be met by imports, of which just over 50 t were recorded 2010–2011. Reported sources of imports were Faroe Islands, Japan, Morocco, New Zealand, Norway and South Africa. Porbeagle fins are in trade, but they have been reported to be of relatively low value per unit weight. It was reported in 2011 that in New Zealand about half of Porbeagles caught by tuna longliners were processed, and the rest discarded. Of those processed, about 80% were finned only and 20% processed for their flesh and fins. Virtually all shark fins landed in New Zealand are exported to Hong Kong. A fin identification guide is now available that may help to identify Porbeagle fins.

Population trends show declines to between 1–32% of baseline in the Northeast Atlantic, Northwest Atlantic and Mediterranean. The three studies of declines in the Southern Hemisphere are over much shorter time periods; two show trends to 25–30% of baseline and one shows no trend. There are also records of a number of fisheries for Porbeagle that have collapsed in the North Atlantic. Porbeagles are listed globally as Vulnerable on the *IUCN Red List of Threatened Species*, with sub-populations assigned individual listings: North East Atlantic (Critically Endangered), Mediterranean (Critically Endangered), North West Atlantic (Endangered).

Various management measures have been introduced, particularly in the North Atlantic, in addition to the current zero quota for EU fishing fleets. Canada

established catch guidelines of 1500 t for Porbeagle up to 1997, reduced to a total allowable catch (TAC) of 1000 t for 1997–1999. Following analytical stock assessments, the TAC was further reduced to 250 t, provisionally for 2002–2007, but was reduced again to 185 t (60 t by-catch, 125 t directed fishery) from 2006. The USA adopted a TAC of 92 t in 1999, reduced in 2008 to 11 t, including a commercial quota of 1.7 t. In 2007, Norway banned all direct Porbeagle fisheries; from 2007 to 2011 specimens taken as by-catch had to be landed and sold; since 2011, live specimens have had to be released, whereas dead specimens can be landed and sold (though this is not obligatory), and the regulations have been adjusted to include recreational fishing.

In the Southern Hemisphere, Porbeagle has been included in New Zealand's Quota Management System since 2004, with a TAC set at 249 t (considerably higher than recent reported catches). Finning and discard of carcasses is permitted. Discards must be reported, but observer coverage is low and the accuracy of the discard data are therefore unknown.

The lower productivity of Porbeagle in the Southwest Atlantic makes stocks here intrinsically more vulnerable to over-exploitation than the largely depleted northern stocks. With the serial depletion of stocks and increasing restrictions on major fisheries in the North Atlantic, it is believed that harvest pressure will increase on the previously relatively lightly fished Southern Hemisphere populations. While there are few data for this region, the New Zealand catch of Porbeagle has increased from just over 40 t in 2008 to 75 t in 2011, and by-catch over the same period has increased from around 4000 to 10 000 sharks (of which approximately 36% were retained).

The Porbeagle is proposed for inclusion in Appendix II under *Resolution Conf. (Rev. CoP15)* Annex 2 a because of marked historic and recent declines to significantly less than 30% of baseline for the largest Atlantic populations and largely unmanaged smaller stocks in the Southern Hemisphere where fisheries are unlikely to be sustainable. The proposed listing would include an annotation to delay entry into effect of the inclusion by 18 months to enable Parties to resolve related technical and administrative issues.

Analysis: The Porbeagle is the target of fisheries mainly driven by the international trade of their valuable meat to Europe. It is also retained as a valuable secondary catch by longline pelagic fisheries for tuna and Swordfish. A recent change in policy has meant that there is a zero catch quota for EU waters and EU fleets, meaning that all market demand within the EU must now be met by imports. The species is sensitive to exploitation and harvest has led to well-documented, significant declines in a number of North Atlantic stocks. These stocks would appear to meet the criteria for inclusion in Appendix II set out in Annex 2 aA to *Resolution Conf. 9.24 (Rev. CoP15);* in some cases, stocks may already be eligible for inclusion in Appendix I. Declines in the Southern Hemisphere are less well documented; however it is known that at least a proportion of the catch enters international trade. Given the serial depletion and closure of fisheries in the North Atlantic, the Southern Hemisphere is likely to become more targeted in the future to meet demand. Furthermore, these stocks are intrinsically more vulnerable to exploitation and in at least some places subject to unregulated fishing. These stocks would appear to meet the criteria for inclusion in Appendix II under the criteria in Annex 2 aB to *Resolution Conf. 9.24 (Rev. CoP15).* It seems likely that the species meets the criteria for inclusion Appendix II.

Supporting Statement (SS)	Additional information
Range	
Lamna nasus is found in a circumglobal band of ~30-60°S in the Southern Hemisphere and mostly between 30-70°N in the North Atlantic Ocean and Mediterranean. Range States Albania, Algeria, Antarctica, Argentina, Australia, Azores Is., Belgium, Bermuda, Brazil, Canada, Canary Islands, Cape Verde, Channel Islands (UK), Chile, Croatia, Cyprus, Denmark, Egypt, Faroe Islands, Falkland Islands, Finland, France, French Polynesia, Germany, Gibraltar, Greece, Greenland, Iceland, Ireland, Isle of Man, Israel, Italy, Kerguelen Is., Lebanon, Libya, Madeira Islands (Portugal), Malta, , Monaco, Morocco, Netherlands, New Zealand, Norway, Portugal, Russian Federation, Slovenia, South Africa, Islas Georgias del Sur y Sandwich del Sur/South Georgia and the South Sandwich Islands, Spain, Sweden, Syria, Tunisia, Turkey, United Kingdom, United States of America, Uruguay. FAO Fisheries Areas 21, 27, 31, 34, 37, 41, 47, 48, 51, 57, 58, 81 and 87.	*Range States* *Montenegro.*
IUCN Global Category	
Global: VU. North East Atlantic: CR. Mediterranean: CR. North West Atlantic: EN. Southern Ocean: NT.	*Global species assessment: Vulnerable A2bd+3d+4bd. (Assessed 2006, Criteria version 3.1).* *There is no NT assessment for the Southern Ocean (Stevens* et al*., 2006).*
Biological and trade criteria for inclusion in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)	
A) Trade regulation needed to prevent future inclusion in Appendix I	
Lamna nasus matures late, has a long life span (25-46 years; up to 65 years for the Southern Hemisphere stock), large body size (up to 357 cm), small numbers of young (average litter size is four pups), long gestation time (8-9 months), a long generation time (18-26 years) and a low intrinsic rate of population increase (5-7 % in the unfished North Atlantic; 2.6% from MSY in south-western Pacific). Productivity (y^{-1}) Natural mortality calculated for certain sub-populations are indicated below. Most are below that of levels for a medium productivity species (one is equal to) as defined in	Lamna nasus *is a warm-blooded shark; it grows faster than many cold-blooded sharks (previous proposal).* *Productivity* *These calculations of natural mortality are only for a certain proportion of the population.*

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Annex 5 of *Resolution Conf. 9.24 (Rev. CoP15*) for the application of decline for commercially exploited aquatic species. Therefore this would be defined as a low productivity species. Northwest Atlantic Immature – 0.10 Mature Males – 0.15 Mature Females – 0.2 Southwest Pacific – 0.05-0.1 Northeast Atlantic sharks are slightly slower growing than the north western stock. Both northern stocks are much larger, faster growing and have a shorter life span than the smaller, longer-lived (~65 years old) southern Porbeagles, which are therefore of even lower productivity and more vulnerable to overfishing than the North Atlantic stocks.	*Cortés* et al. *2010—An ecological risk assessment was used to assess the vulnerability of the most important pelagic shark species subject to ICCAT (International Commission for the Conservation of Atlantic Tunas) surface longline fisheries in the Atlantic Ocean. Of the 11 species assessed* L. nasus *was 9th most vulnerable, or 'less vulnerable' when compared to other species. Median productivity for the species was calculated as 0.048 y^{-1}.*
<u>Generation Length</u> The estimated generation time for *L. nasus* is at least 18 years in the North Atlantic, and 26 years in the Southern Oceans. The three-generation period against which to assess recent declines is therefore 54 to 78 years, greater than the historic baseline for most stocks.	*<u>Generation Length</u>*
Genetic studies identified two isolated populations, in the North Atlantic and the Southern Oceans. There are possibly separate stocks in the Northeast and Northwest Atlantic (these were historically the largest global stocks), likely also in the Mediterranean, and in the Southeast and Southwest Atlantic.	*The stock structure of Porbeagle Sharks in the Southern Hemisphere is unknown. However, given the scale of movement of tagged sharks, it seems likely that sharks in the Southwest Pacific comprise a single stock. It is not known whether this stock extends to the eastern South Pacific or Indian Ocean (Ministry of Fisheries Science Group, 2011).*
A) Small wild populations The only stock for which population size data are available is in the Northwest Atlantic. Recent stock assessments estimated the total population size for this stock as 188 000–195 000 sharks (22–27% of original numbers prior to the fishery starting; possibly 800 000 to 900 000 individuals) but only 9000–13 000 female spawners (12–16% of their original abundance and 83–103% of abundance in 2001). Stock size elsewhere is unknown.	*A) Small wild populations*
C) Decline in number of wild individuals Where no stock assessments are available, catch per unit effort (CPUE), mean size and landings are used as metrics of population trends for this valuable commercial species in unmanaged fisheries elsewhere, while recognizing that other factors may also affect catchability.	*C) Decline in number of wild individuals* *Of the 19 examples of decline presented, seven are based on landings or catch that have not been adjusted for effort.*
Almost all population trend indices (percentage declines from baseline, or recent	

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declines) are clearly within the threshold for at least an Appendix II listing, if not Appendix I.

Table 1. Indices of percentage decline (trends recorded as % of baseline) illustrated in Figure 2.

	Index	Trend
Northeast Atlantic		
1	All landings	13%
2	Norwegian landings	1%
3	Danish landings	1%
4	Biomass (surplus production model)	15-39%
5	Biomass (age structured production model)	6%
6	Stock abundance (age structured production model)	7%
Mediterranean		
7	All observations	1%
8	Ligurian Sea catches	1%
9	Ionian Sea CPUE	2%

See Table 3 (Annex) for Table 1 data sources.

	Index	Trend
Northwest Atlantic		
10	All landings	4%
11	Stock biomass (surplus production model)	32%
12	Stock abundance (age structured production model)	22-27%
13	Mature female abundance (age structured production model)	12-16%
14	Stock biomass (Bayesian surplus production model)	3%
Southwest Atlantic		
15	Stock biomass (surplus production model)	18-39%
16	Spawning Stock Biomass (age structured production model)	18%
Southern Oceans		
17	Recent NZ landings (see comments in 4.2.2)	25%
18	Recent NZ longline CPUE (see comments in 4.2.2)	30%
19	Recent Japanese bluefin tuna bycatch CPUE	no trend

Decline details included in the previous proposal (CoP15 Prop 17) or previous analysis (IUCN and TRAFFIC, 2010).
1936–2007; NE Atlantic (all targeted catches); Catch; 80% decline since post WWII (Norwegian data; French data; ICES WGEF, 2008)
1982–2002; SW Atlantic; Stock assessment; 60% decline (ICCAT/ICES 2009)
1983–2000; SW Atlantic (Uruguay); CPUE; 80-95% (Domingo et al.*, 2002)*

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Additional population and catch trend data (Table 3 in Annex)

Year	Location	Data used	Trend
1926–2008	NE Atlantic	SA	94% decline in biomass, 93% decline in numbers
1933/37–2004/08	NE Atlantic	L	87% decline
1936–2007	NE Atlantic	L	>99 % decline from historic baseline
1950/54–2004/08	NE Atlantic	L	99% decline from historic baseline
1986–2007	NE Atlantic	CPUE	No trend
1972–2007	NE Atlantic	CPUE	Approximately one third decline in two most recent generations
Various, 1800–2006	Mediterranean	Records of *Lamna nasus*	Virtual disappearance from landings and research survey records
1950–2006	Ligurian Sea, Mediterranean	Abundance &/or biomass of lamnids	>99% decline
1978–1999	Ionian Sea, Mediterranean	CPUE of lamnids	>98% decline
1961–2005	NW Atlantic	SA	84–88% decline
1961–2005	NW Atlantic	SA	73–78% decline
1961–2005	NW Atlantic	SA	68% decline
1961–2004	NW Atlantic	SA	97% decline
1963–1970	NW Atlantic	L	~90% decline
1961–2008	NW Atlantic	Catch	~96% decline
1994–2003	North Atlantic	Catch	Decline, 1000 to near zero/year
1993–2003	North Atlantic	CPUE	Decline with slope -0.6
1961–2008	SW Atlantic	SA	82% decline
1992–2002	SW Pacific (NZ)	CPUE	70% decline
1998–2005	SW Pacific (NZ)	L	75% decline

Northeast Atlantic

The Northeast Atlantic age structured production model stock assessment estimated

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a decline from baseline of over 90%, to 6% of biomass and 7% of numbers (far below the maximum sustainable yield (MSY)). An alternative surplus production model estimated that biomass had declined to between 15% and 39% of baseline, and by more than 50% from the level in 1972, to well below MSY. During this period, total Northeast Atlantic landings declined to 13% of their 1930s levels, tracking the decline in stock biomass. Mediterranean Sea *L. nasus* has virtually disappeared from Mediterranean records. A review of historic logbook data, reporting declines in tuna traps of >99.99% during a range of time series (135 to 56 years). FAO's FishStat only records very small landings. In the North Tyrrhenian and Ligurian Sea, just 15 specimens of *L. nasus* were reported during a few decades of observation. Only 15 specimens were caught during research conducted in 1998–1999 on large pelagic fisheries (mainly driftnets) in the southern Adriatic and Ionian Sea. Northwest Atlantic Spawning stock biomass (SSB) is currently estimated to be about 22–27% of the historic baseline in 1961, when fishing commenced. The average size of sharks and catch rates were the smallest on record in 1999 and 2000, catch rates of mature sharks in 2000 were 10% of those in 1992, biomass was estimated as 11–17% of virgin biomass, and fully recruited F as 0.26. Total population numbers have remained relatively stable since quotas were reduced in 2002, although female spawners may have continued to decline slightly. The ICCAT Standing Committee on Research and Statistics (SCRS) and (International Council for the Exploration of the Sea (ICES) estimated that SSB is now about 12–16% of baseline. The estimated number of mature females in 2009 is in the range of 11 000 to 14 000 individuals, or 12% to 16% of its 1961 level and just 6% of the total population. A Bayesian Surplus Production (BSP) model is more pessimistic, estimating the 2004 population to be just 3% of the 1961 biomass. Historical Fisheries Trends (Annex 4 of SS) Northeast Atlantic *L. nasus* has been fished by many European countries, principally Denmark, France, Norway, Faroes and Spain. Norway's target *L. nasus* longline fishery began in the 1920s and first peaked at 3,884t in 1933. About 6000 t were landed in 1947, when the fishery reopened after the Second World War, followed by a decline to between 1200–1900 t from 1953–1960. The collapse of this fishery led to the redirection of fishing effort by Norwegian, Faroese and Danish longline shark fishing vessels into	*Mediterranean Sea* *The 15 specimens referred to in the supporting statement were caught using both longlines and driftnets and were caught exclusively in the southern Adriatic and Ionian Sea, while no specimens were caught anywhere else in the Mediterranean (Megalofonou* et al*., 2000).*

Supporting Statement (SS)	Additional information
the Northwest Atlantic. Norwegian landings from the Northeast Atlantic subsequently decreased to a mean for the past decade of 20 t. Average Danish landings fell from over 1500 t in the early 1950s to a mean of ~50 t. Reported landings from the historically most important fisheries, around the UK and in the North Sea and adjacent inshore waters (ICES areas III & IV) have decreased to very low levels during the past 30–40 years. Catches from offshore ICES sub-regions west of Portugal (IX), west of the Bay of Biscay (VIII) and around the Azores (X) have increased since 1989. This is attributed to a decline in heavily fished and depleted inshore populations and redirection of effort to previously lightly exploited offshore areas. French longliners have targeted *L. nasus* since the 1970s in the Celtic Sea and Bay of Biscay. The fleet has declined from eleven vessels in 1994 to five in 2008. Mean CPUE fell from 1 to 0.73 kg per hook; from 3 t/vessel in 1994, to less than 1t in 2005. Reported landings fell from over 1092 t in 1979 to 3–400 t in the late 1990s to present. Spanish longliners took *L. nasus* opportunistically in the 1970s and since 1998, as bycatch from the longline swordfish fishery in the Mediterranean and Atlantic and from a target Blue Shark fishery that also catches Mako and Porbeagle. Biomass and numbers have declined 94% and 93%, respectively, from baseline, and by more than 50% from the level in 1972, to well below MSY. <u>Northwest Atlantic</u> Targeted *L. nasus* fishing started in 1961, when the Norwegian and subsequently the Faeroese shark longline fleets moved from the depleted Northeast Atlantic to the coast of New England and Newfoundland. Catches increased rapidly from ~1,900 t in 1961 to > 9000 t in 1964. By 1965 many vessels had switched to other species or fishing grounds because of the population decline. The fishery collapsed after six years, landing less than 1,000 t in 1970. It took 25 years for only very limited recovery to take place. Norwegian and Faroese fleets have been excluded from Canadian waters since 1993. Canadian and US authorities reported all landings after 1995. Three offshore and several inshore Canadian vessels entered the targeted Northwest Atlantic fishery in the 1990s. Catches of 1,000–2,000 t/year reduced population levels to a new low in under ten years: the average size of sharks and catch rates were the smallest on record in 1999 and 2000, catch rates of mature sharks in 2000 were 10% of those in 1992, and biomass estimated as 11–17% of virgin biomass and fully recruited F as 0.26. The annual catch quota was reduced for 2002–2007 to allow population growth and reduced again in 2006. Landings have since ranged from 139 t to 229 t. Total population numbers have remained relatively	

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stable since 2002, although female spawners may have continued to decline slightly. ICCAT/ICES estimate that SSB is now about 12–16 % of baseline. In addition to the Canadian quota of 185 t, in 1999 a quota of 92 t was set in the US Exclusive Economic Zone (EEZ), which is presumed to share the same stock. The total allowable catch (TAC) for all US fisheries was reduced to 11 t, including a commercial quota of 1.7 t, in 2008. Tuna longliners from Taiwan POC, Republic of Korea and Japan take a largely unknown by-catch of *L. nasus* on the high seas in the North Atlantic. Most of the catch is reportedly discarded or landed at ports near the fishing grounds. It's also been noted that the unreported Porbeagle bycatch observed on Japanese vessels could have amounted to ~200 t in 2000 and 2001. Spanish catches are usually also unreported. These levels of combined Northwest Atlantic landings will prevent stock recovery.	
B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences	
C) Decline in number of wild individuals Declines in the Southern Hemisphere are over time periods less than three generations or 50 years and from three studies.	*C) Decline in number of wild individuals* *Decline details included in the previous proposal (Cop 15 Prop 17) or previous analysis (IUCN and TRAFFIC, 2010).* *1973–2007; NE Atlantic (Norway); Landings; 96% decline (Norwegian data; ICES WGEF, 2008).* *1973–2007; NE Atlantic (Denmark): Landings; 90% decline (ICES WGEF, 2008)* *1973–2007; NE Atlantic (Faroe Islands); Landings; Decline and closure (ICES WGEF, 2008).*
Southern Hemisphere Exploitation of smaller stocks in Southern Hemisphere oceans is largely unmanaged and unlikely to be sustainable. FAO FishStat data have improved in recent years; southern hemisphere catch data are available for several countries since the mid-1990s and are relatively low, with the exception of New Zealand, Spain and Uruguay. However, some of the largest shark fishing nations are still not reporting catches. Japan's *L. nasus* catch in southern ocean fisheries is largely unreported, but must be significant: Porbeagle was the second most abundant shark species after blue shark and comprised 5.5% of observer records of shark catches in the Japanese tuna fishery operating under an access agreement in Australian waters.	*Southern Hemisphere* *Semba* et al*. (2012) provide some figures on catch of Porbeagle in the Japanese Southern Bluefin Tuna fleet (both logbook data and observer data). Observer records suggest 11 954 Porbeagles (by number) were taken by the fleet between 1992 and 2012 and logbook data indicate 24 163 between 1994 and 2011.* *This agreement ceased in 1997 and therefore this information is at least 15 years out of date (AFMA, 2008).* *Clarke and Harley (2010) note that Porbeagle comprised 1% of observed catches in the Western and Central Pacific Fisheries Commission (WCPFC) tuna longline fleet between 1994 and 2009.*
Estimates of tuna longline by-catch of *L. nasus* in New Zealand are not available for	*There is no target commercial fishery for Porbeagle in New Zealand. The majority of*

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all years and are imprecise because of low observer coverage. There has been an 86% decline in the total weight of *L. nasus* reported by New Zealand since 1998–99, to a low of 41 t in 2007-08. This decline was steepest during a four-year period of rapidly increasing domestic fishing effort in the tuna longline fishery, but has stabilised since tuna longline effort dropped during the last four years. Unstandardised CPUE recorded by observers from 1992–93 to 2005–06 varies considerably, but has been extremely low in recent years. This trend may not reflect stock abundance because of low observer coverage and other potential sources of variation (e.g. vessel, gear, location and season), but these data were used to assess the stock as unlikely (<40%) to be at or above MSY.	*the commercial catch taken is valuable secondary catch by tuna longliners, with the rest largely coming from midwater and bottom trawlers. Catch by gear type indicates that while longline by-catch has trended downwards since about 2003, midwater and bottom trawl catches have trended upwards. Longline by-catch accounted for 50% of the total catch of Porbeagle in 2011, midwater trawl 30% and bottom trawl 20%, compared to percentages of around 95% of the catch by longline and less than 1% each by midwater and bottom trawl in 2003 (Ministry for Primary Industries, 2012).* *New Zealand's annual report to the Western and Central Pacific Fisheries Commission (WCPFC) Scientific Committee (WCPFC, 2012) indicates that:* *- catch of Porbeagle in NZ waters has increased since the low of just over 40 t in 2008 to reach 75 t in 2011.* *- estimated numbers of Porbeagles taken as by-catch in the longline fishery between 2008 and 2011 are 3966, 4244, 4679 and 9929 per year, respectively* *- It is estimated that in 2011, 36% of Porbeagles were retained and that 83% of the catch was taken alive.*
After Blue Sharks, Porbeagle is one of the sharks commonly caught by Japanese Southern Bluefin Tuna longline vessels. Most of the catch is reportedly discarded or landed at ports near the fishing grounds, but do not appear in FAO or most Regional Fisheries Management Organisations' (RFMO) databases. A study reports an increase in catch from very low levels during 1989–1995 followed by a decline in annual landings to around 40% of original levels between 1997 and 2003. Standardised reported CPUE has varied from 1992 to 2002, but recent stock trends were deemed to be stable. There was no reported catch trend of *L. nasus* in the same fishery from 1992 to 2007, but these data are difficult to interpret.	
Different catches for all sharks were reported by Japan to the CITES Animals Committee and to FAO in 2011 and 2012 and the reliability of Japanese catch data has been questioned by the Commission for the Conservation of Southern Bluefin Tuna (CCSBT).	*Questions of reliability of Japanese catch data in CCSBT, raised in the SS, relate to Southern Bluefin Tuna data; care should be taken about inferring that data on other species, such as sharks, are unreliable (Clarke* in litt.*, 2012; Lack* in litt.*, 2012).*
<u>More detail</u> Recent global reported *L. nasus* landings have decreased from 1 719 t in 1999 to 746 t in 2009 and 252 t in 2010. The highest catches in 2009 and 2010 were from France (305 t, 9 t), Spain (239 t, 70 t), Canada (63 t, 83 t) and New Zealand (63 t, 56 t), although ICCAT/ICES notes that reported landings "*grossly underestimate actual landings*" and FishStat has no *L. nasus* data from Japan, Taiwan POC or Republic of Korea. A zero quota has since been set for EU waters, all EU fleets, and the North East Atlantic Fisheries Commission (NEAFC) area. USA and Canadian fisheries are under strict quota management. However, other fisheries are also declining, even in the absence of management (e.g., in the southern hemisphere).	*<u>More detail</u>* *Global catches reported by FAO do not include discards (Lack* in litt.*, 2012).* *As a result of the listing of Porbeagle as a migratory species under the* Environment protection and Biodiversity Conservation Act (1999) *in Australia in 2010, interactions with and catches of the species must be reported to the Commonwealth Environment Agency. Reports indicate that in the years 2009/10 to 2010/11, 33 Porbeagles were taken in Commonwealth-managed fisheries in Australia. Of these, 27 were taken in longline fisheries, two in trawl fisheries and four in gillnet fisheries (AFMA, 2012).* *It is likely that Porbeagle is also taken in fisheries managed by some Australian States*

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	(Lack in litt*., 2012).*
	In March 2012, the Ecologically Related Species Working Group (ERSWG) of the CCSBT agreed that Japan, New Zealand and Australia should work together to progress a stock assessment/ecological risk assessment for Porbeagle (CCSBT ERSWG, 2012). This was in response to the presentation by Japan of a paper describing the distributional pattern and the trend of relative abundance of Porbeagle in the Southern Hemisphere (Semba et al*., 2012).*
L. nasus is a valuable secondary target of many fisheries, particularly longline pelagic fisheries for tuna and swordfish but also gill nets, driftnets, trawls and handlines. This catch is often inadequately recorded or unreported.	*The statement 'often inadequately recorded or unreported' is from Clarke and Harley 2010 and the proposal refers to the non-reporting of catches to the WCPFC, including by some of the largest shark-catching nations. Clarke and Harley (2010) refer to all sharks, not to Porbeagles* per se*. Furthermore, the overlap between the Southern Hemisphere Porbeagle range and the fishing effort in the WCPFC is small and occurs in the EEZ of Australia and New Zealand, which do report Porbeagles. While underreporting of Porbeagle catch is undoubtedly a problem, it is not clearly so in the WCPFC (Clarke* in litt*., 2012).*
It has been noted that "*effort has increased in recent years in pelagic longline fisheries for bluefin tuna (Japan, Republic of Korea and Taiwan Province of China) in the North East Atlantic. These fisheries may take Porbeagle as a bycatch. This fishery is likely to be efficient at catching considerable quantities of this species.*" It has also been warned that increased effort on the high seas could compromise stock recovery efforts.	
Important but largely unreported secondary fisheries include demersal longlining and trawling for Patagonian toothfish and mackerel icefish around Heard and Macdonald Islands and in the southern Indian Ocean, and the Chilean artisanal and industrial longline swordfish fishery, between 26–36ºS, which records *L. nasus*. It has also been found that *L. nasus* made up 1.7% of all fins tested in the north-central Chilean shark fin trade, and that 98% of fins labelled 'Tintorera' (50 specimens) were *L. nasus* (i.e. were correctly identified by the traders). Overall catches of *L. nasus* by Argentina were 30.1 t, 17.7 t, 19.8 t and 69.7 t between 2003 and 2006 (these data did not appear in FAO FishStat), but *L. nasus* captures by the Argentinean fleet are probably now limited to incidental captures by three Patagonian toothfish fishing vessels, and with strict measures in force to protect sharks in Argentinian waters (live sharks greater than 1.5 m must be released if caught), catches are likely to be minimal.	*The Patagonian Toothfish and mackerel icefish fisheries around Heard Island and MacDonald Island (HIMI) are not "unreported". These fisheries are managed by Australia with two observers on board at all times and all catch is reported to both Australian management agencies and to CCAMLR. No interactions with Porbeagle have been reported from the HIMI fisheries (Lack* in litt*., 2012).* *Clarke (*in litt*., 2012) expects the percentage of the fin trade composed of Porbeagle fins to be considerably lower than that seen in Chile.*
<u>*Lamna nasus* in trade</u> *L. nasus* has long been one of the most valuable (by weight) of marine fish species	<u>Lamna nasus *in trade*</u>

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landed in Europe, similar in value to and sometimes marketed as swordfish. *L. nasus* meat can be a very high value product, one of the most palatable and valuable of shark species, and is traded in fresh and frozen form. All international trade in *L. nasus* products is unregulated and legal, unless involving those States that have prohibited the possession of and/or trade in shark products.	
However, prior to 2010, a lack of species-specific landings and trade data made it impossible to assess the proportions of global catches that supply national demand and enter international trade, although the high commercial value of the species has been documented through market surveys. Survey findings indicated that the demand for fresh, frozen or processed *L. nasus* meat and fins was sufficiently high to justify the existence of an international market. The extent of national consumption *versus* export by range States can vary considerably, depending upon local demand.	*The proposal and SS suggest that the value of fins is sufficiently high to justify the existence of an international market. However, Clarke (*in litt*., 2012) states that the value of the fins is very low, based on anecdotal information from shark fin markets in Hong Kong.*
In 2010, the EU introduced new species-specific Customs codes for fresh and frozen *L. nasus* products (excluding shark fins) and amended previous codes covering most shark species accordingly. Other countries/territories still do not have species-specific codes in place for trade in this species, and continue to report its trade under general shark commodity codes, preventing analysis.	
There is a considerable market for *L. nasus* products within the European Union. EU Member States were responsible for 60–75% of FAO's global records of *L. nasus* catch in 2006 and 2007, prior to establishment of a TAC (which was reduced to zero for EU waters and EU fleets in 2010). EU market demand must now therefore be met by imports. The following range States (excluding other EU countries) were the principal suppliers of fresh and frozen *L. nasus* meat to the EU in 2010 and 2011 (the EU importer is shown in brackets): South Africa (Italy), Japan (Spain), Morocco (Spain), Norway (Germany and Denmark), the Faroe Islands (Denmark) and New Zealand (Bulgaria). A total of 50 500 kg of *L. nasus* meat, worth EUR 128 425, was imported during this two-year period.	*It is possible that the reduced availability of Porbeagle meat from EU sources may see any domestic demand met through substitution by other products rather than necessarily looking to import larger quantities of Porbeagle (Lack* in litt*., 2012).* *The level of imports 2010-2011 does not necessarily imply an increase over import levels in previous years, since data for those years are not available (Lack* in litt*., 2012).*
The EU also reported significant exports of *L. nasus*, totalling 141 300 kg in 2010 and 2011. These may have been exports of catches landed and frozen in 2009, before the zero quota, or re-exports. Morocco was by far the largest destination of *L. nasus* exported from the EU, followed by Afghanistan.	*The fact that these were exported, despite the zero TAC (introduced in 2010), may suggest that domestic demand in the EU is not that strong (Lack* in litt*., 2012).*
Earlier studies had reported that Canada exports *L. nasus* meat to the US and the EU, Japan exports to the EU, EU Member States export *L. nasus* to the US, where it is mainly consumed in restaurants and that it is also imported by Japan. The new EU trade data confirm exports from Japan to the EU, but there were no records of the EU importing *L. nasus* from Canada, or of the EU exporting (or re-exporting) it to the	

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US, as reported in earlier studies. South Africa does not have any directed fisheries for *L. nasus*, which is only occasionally caught in the South African pelagic long-line fishery. Therefore, the high quantities imported from South Africa into the EU are likely to be derived from foreign flagged vessels fishing outside South Africa's EEZ and landing in South African ports, including vessels form Japanese, Republic of Korean and Taiwan POC targeting tuna and tuna-like species. Porbeagle appears in the list of preferred species for fins in Indonesia, but it has been reported to be of relatively low value. The large size of *L. nasus* fins nonetheless means that these are a relatively high value product. They have been identified in the fin trade in Hong Kong and are one of six species frequently used in the global fin market. The raw fins are also readily recognised to species level by fin traders in Chile. Porbeagle hides can be processed into leather, and liver oil extracted, but trade	*Porbeagle appears on a list of preferred species for fins in Indonesia from 1999 (Vannuccini, 1999). However, Clarke (*in litt*., 2012) doubts that Porbeagle fins are now traded to a large extent through Indonesia because 1) the range States are far away, and 2) Indonesia produces a large number of shark fins from other more valuable species.* *The proposal suggests that the Porbeagle is one of the six species frequently used in the global fin market. However, the publication cited actually refers to a set of six species (which include Porbeagle) as frequently utilized but in fact it is the other species that are common (Shivji* et al*. 2002; Clarke* in litt*., 2012).* *In a study of the Hong Kong shark fin market (Clarke* et al*. 2006) Porbeagle fins were so uncommon that they could not be quantified.* *Fin traders are aware of the low needle count in Porbeagle fins, which means that they are less valued than other shark species' fins, despite their large size, meaning that they are less desirable and rarely appear in trade (Clarke 2009, as cited in previous proposal analysis).* *Fins are exported from Norway to Asian countries as by-products of meat processing (Fleming and Papageogiou 1997, as cited in IUCN and TRAFFIC 2010).* *Of the landings of Porbeagle in New Zealand, 85% were fins (with the carcasses discarded at sea), and virtually all shark fins landed in New Zealand are exported (mainly to Hong Kong) (Francis 2007, IUCN and TRAFFIC 2010).* *In New Zealand, about 50% of Porbeagle sharks caught by tuna longliners are processed, and the rest are discarded. Of the sharks that are processed, about 80% are finned only and 20% are processed for their flesh and fins (New Zealand Ministry of Fisheries Scientific Committee, 2011). No mention is made of the retention or rate of finning in the midwater trawl/bottom trawl fisheries in which Porbeagle are taken and which now account for 50% of the catch (Lack* in litt*., 2012).*

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records are not kept. Cartilage is probably also processed and traded. Other shark parts are used in the production of fishmeal, which is probably not a significant product from *L. nasus* fisheries because of the high value of its meat. There is limited use of jaws and teeth as marine curios.	

Inclusion in Appendix II to improve control of other listed species

A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I

B) Compelling other reasons to ensure that effective control of trade in currently listed species is achieved

n/a

Other information

Threats

The principal threat is from over-exploitation in target and by-catch fisheries, which catch both adults and juveniles of all life stages (in the absence of management). Intensive directed fishing for valuable *L. nasus* meat was the major cause of 20th century population declines (see Annex 4 of proposal). ICES (2005) noted: "*The directed [Northeast Atlantic] fishery for Porbeagle stopped in the late 1970s due to very low catch rates. Sporadic small fisheries have occurred since that time. The high market value of this species means that a directed fishery would develop again if abundance increased*."

As well as meat, Porbeagle may also be utilised nationally in some range States for liver oil, cartilage and skin, however no significant national use of *L. nasus* parts and derivatives has been reported, partly perhaps because records at species level are not readily available, and partly because quantities landed are now so small, particularly in comparison with other shark species.

A target fishery for the meat of *L. nasus* still operates in Canada.

Porbeagle meat is a valuable secondary target of many fisheries, particularly longline pelagic fisheries for tuna and swordfish, but also gill nets, driftnets, trawls and handlines.

Sports fishers catch Porbeagle in the USA, Canada, New Zealand and in some EU Member States. Catches may be retained for meat and/or trophies, or tagged and released.

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Conservation, management and legislation	
No species-specific legislation has been adopted by range States or trading nations to regulate national or international trade in *L. nasus*.	
International Porbeagles are listed in: - Annex I (Highly Migratory Species) of the UN Convention on the Law of the Sea (UNCLOS) - Appendix II of the Convention on the Conservation of Migratory Species (CMS) and the Annex to the Migratory Sharks Memorandum of Understanding - Annex II (Endangered or Threatened Species) of the Barcelona Convention Protocol (Mediterranean population only) – uplisted since last Proposal/CoP15. In May 2012, GFCM prohibited the retention on board, transhipment, landing, transfer, storage, sale or display for sale of all shark species listed in Annex II of this Protocol. - Appendix III of the Bern Convention (Mediterranean population only) as a species whose exploitation must be regulated in order to keep it out of danger - Annex V list of Threatened and /or Declining Species and Habitats of the OSPAR Convention for the Protection of the Marine Environment of the North-east Atlantic.	*International* *Porbeagles are listed as a high priority species on the Convention on the Protection of the Marine Environment of the Baltic Sea Area (the Helsinki Convention), although no management action to address this has been taken (Lack and Sant 2009, as cited in IUCN and TRAFFIC 2010).* *A Conservation Plan for sharks was adopted by the signatories to the CMS Memorandum of Understanding (MOU) on Sharks in September 2012.*
L. nasus is listed as a “High Priority” species in Uruguay’s Shark Action Plan.	
Many RFMOs have banned shark finning.	*While prohibitions on finning have recently been established by a number RFMOs, the effectiveness of these prohibitions to reduce shark catch has not been definitively demonstrated and a number of loopholes can remain that allow nations to continue this practice. For example, in the WCPFC (Clarke* et al*., 2012), coastal nations are allowed to establish their own alternative measures in their EEZ, and implementation of the prohibition is the responsibility of the coastal state: of all 32 WCPFC members, only half had confirmed full implementation of the finning prohibition and few were able to provide information on the degree of compliance. Furthermore, in the WCPFC there is evidence that even if a prohibition were fully implemented, it would not actually lead to a reduction in catch.* *Alternatively, some RFMOs have established prohibitions on the retention of sharks. While these measures “are likely to reduce shark mortality to a greater extent than finning prohibitions, gear-retrieval practices can have a large effect on shark mortality…It would therefore not be correct to assume that no retention will result in no mortality” (Clarke* et al*. 2012).*
ICCAT has required Parties since 2007 to reduce the mortality of *L. nasus* in directed Atlantic fisheries where a peer-reviewed stock assessment is not available,	

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but compliance is not monitored. Parties to the NEAFC, which covers fisheries not under ICCAT's remit, have agreed since 2010 not to target *L. nasus* and to release incidental catches alive. Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR). CCAMLR (2006) adopted a moratorium on directed shark fishing until data become available to assess the impacts of fishing on sharks in the Antarctic region. Live release of sharks taken as bycatch is encouraged (not mandated). The WCPFC has not yet addressed *L. nasus*, even though it has been identified as a key species. Commission Members, Cooperating non-Members, and participating Territories are required to report catch, effort and discard data since 2011. <u>National</u> *L. nasus* range and/or fishing States with an International Plan of Action (IPOA) for the Conservation and Management of Sharks include Argentina, Australia, Canada, the EU, Japan, New Zealand, Spain, Taiwan POC, Uruguay and USA. The list below is based upon consultation with range States and may be incomplete. Argentina - requires live by-catch of large sharks to be released alive. Canada - Pelagic shark Fisheries management plans in Atlantic Canada established non-restrictive catch guidelines of 1500 t for *L. nasus* prior to 1997, followed by a provisional TAC of 1000 t for 1997–1999, based largely on historic reported landings and observations of decreased recent catch rates. Following analytical stock assessments, the Shark Management Plan for 2002–2007 reduced the TAC to 250 t, followed by a further reduction to 185 t (60 t bycatch, 125 t directed fishery) from 2006. Stock projections indicate that the population will eventually recover if harvest rates are kept under 4% (~185 t.). Finning is prohibited. Canada - The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) designated *L. nasus* as Endangered in 2004. The Federal Government of Canada declined to list it under Schedule 1 of Canada's Species at Risk Act because recovery measures were being implemented. Europe - EC Regulations have prohibited fishing for *L. nasus* in EU waters since 2010, and EU vessels may not fish for, retain on board, tranship or land *L. nasus* from international waters (EU Regulation 43/2012 and Council Regulation 44/2012). Fisheries management measures are described under 8.1.	<u>*National*</u> *Croatia has listed Porbeagle as a strictly protected species within waters under Croatian jurisdiction (Soldo, 2009, as cited in IUCN and TRAFFIC 2010).* *Following the listing of Porbeagle on the Convention on Migratory Species, Australia listed Porbeagle as a migratory species under the* Environment Protection and Biodiversity Conservation Act 1999*. Porbeagles are caught as by-product in pelagic longline fisheries, although the numbers caught are low due to reductions in longline effort since the late 1990s. Targeted commercial fishing of Porbeagle is prohibited. Porbeagles may be retained as by-catch if caught in accordance with approved management arrangements, but if landed alive they must be returned to the water. Recreational targeting of Porbeagle sharks is permitted,* *General shark management in Australian longline tuna fisheries specifies:* *- a ban on the use of wire trace. Australia implemented a ban on wire traces to minimize the retention, incidental catch of sharks, and consequently the number of sharks that die on the longlines;* *- licence holders' permission to process (trunked, headed and gutted) at sea but prohibition from removing, carrying, retaining, or landing all shark (Class Chondricthyan) livers and fins (dorsal, pectoral, caudal, pelvic and anal) that are not attached in/to the carcass;* *- in the Australian exclusive economic zone, licence holders have a trip limit of a maximum of 20 pelagic sharks;* *- on the high seas, licence holders are permitted to take up to 100 pelagic sharks of which no more than 80 can be Blue Whaler Sharks* Prionace glauca

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Europe - The conservation and management of sharks in EU waters falls under the European Common Fishery Policy, which manages fish stocks through a system of TACs or annual catch quotas and reduction of fishing capacity. The Community Action Plan for the Conservation and Management of Sharks (CPOA) sets out to rebuild depleted shark stocks fished by the EC fleet within and outside EC Waters. The CPOA's Shark Assessment Report pays particular attention to *L. nasus*, which has been under legally-binding EU management in EC and international waters since 2008.	*and no more than 20 can be sharks or rays from the following species: Crocodile Shark* Psuedocarcharias kamoharai *Shortfin Mako* Isurus oxyrinchus *Porbeagle Shark* Lamna nasus *Silky Shark* Carcharhinus falciformis *Oceanic Whitetip Shark* Carcharhinus longimanus *Smooth Hammerhead Shark* Sphyrna zygaena *Pelagic Stingray* Dasyatis violacea. *(Department of Sustainability, Environment, Water, Population, and Communities, 2012; IOTC, 2012).*
Malta - *L. nasus* is listed in appendices to the Flora, Fauna and Natural Habitats Protection Regulations 2006.	
New Zealand - *L. nasus* has been included in New Zealand's Quota Management System since 2004, with a TAC set at 249 t. Finning and discard of carcasses is permitted, but discards must be reported.	*In New Zealand, the latest advice to the Minister for 2012/13 is that the Porbeagle TAC be reduced from 249 t to 129 t, of which commercial fisheries could take a maximum of 110 t. The reduction reflects "concerns that fishing under the current TAC/TACC would put the stock under considerable pressure should the full allocation be reached" (Ministry for Primary Industries, 2012). The Minister's decision is yet to be announced—129 t remains substantially above the most recent catches. At the same time, however, the Minister has been advised almost to double the TAC for Southern Bluefin Tuna. The Southern Bluefin Tuna fishery is one of the longline fisheries in which Porbeagle is taken, so it might be expected that increased by-catch of Porbeagle would result from any increase in the SBT TAC (Lack* in litt*., 2012).*
Norway - In 2007 adopted ICES advice and banned all direct fisheries for *L. nasus*. From 2007–2011 specimens taken as bycatch had to be landed and sold. From 2011, live specimens must be released, whereas dead specimens can (not must) be landed and sold. Reporting was extended to include the number of specimens landed in addition to weight. From 2011, the regulations also include recreational fishing.	
Spain - Included in Spanish National List of Endangered Species (RD 139/2011) Sweden - Illegal to catch and land *L. nasus* since 2004.	
US - There is quota management for *L. nasus* in US Atlantic waters. A 92 t TAC was adopted in US waters in 1999 and reduced in 2008 to 11 t for all US fisheries, including a commercial quota of 1.7 t. When exceeded, the fishery is closed. An increasing number of States are prohibiting all trade in shark products or just trade in shark fins – none are *L. nasus* range States. Others have prohibited all shark fishing in their waters but the benefit of these prohibitions has not been established.	*Even where TACs (zero or otherwise) are in place, this does not ensure that mortality is restricted to this level. In target fisheries this will depend on the level and effectiveness of enforcement and in by-catch fisheries the reduction in mortality may only be equivalent to the proportion of the catch that was previously caught alive (Lack* in litt*., 2012).*
<u>Other</u> There are no controls or monitoring systems to regulate or assess the nature, level and characteristics of trade in *L. nasus*.	

Supporting Statement (SS)	Additional information

Captive Breeding/Artificial Propagation

L. nasus is not known to have been bred in captivity.

Other comments

L. nasus is one of five species in the family Lamnidae (mackerel sharks), including White Shark *Carcharodon carcharias* and two species of mako, genus *Isurus*. Salmon Shark *L. ditropis* occurs in the North Pacific. Porbeagle and Mako *Isurus oxyrinchus* may be confused in some fisheries, despite good keys being available.

Stocks segregate (at least in some regions) by age, reproductive stage and sex and undertake seasonal migrations within their stock area.

Stock assessment models in the Canadian fishery have determined that recovery is possible, but there have been warnings that the trajectory is extremely low and sensitive to human-induced mortality. Human-induced mortality of ~2 to 4% of the vulnerable biomass of 4 500 t to 4 800 t (equivalent to catching the 2005 quota of 185–192 t) should allow recovery to 20% of virgin biomass ($SSN_{20\%}$) in 10–30 years. Recovery to maximum sustainable yield (SSN_{msy}) will take much longer: between 2030 and 2060 with no human-induced mortality, or into the 22nd century (or later) with an incidental harm rate of 4%. At an incidental harm rate of 7% of the vulnerable biomass, corresponding to a catch of only 315 t, the population will not recover to SSN_{msy}, but there have been warnings that the high seas fisheries exploiting this stock jeopardize Canada's fisheries management and recovery plan – the population would crash at these exploitation rates.

Tuna longliners from Taiwan POC, Republic of Korea and Japan take a largely unknown catch of *L. nasus* on the high seas in the North Atlantic. Most of the catch is reportedly discarded or landed at ports near the fishing grounds. Stocks and catches are "under investigation". Estimates for Japan's mostly unreported high seas North Atlantic catch ranged from 15 t to 280 t annually during 2000–2002, or ~200 t in 2000 and 2001. Furthermore, estimates have shown that about 30 t/yr of *L. nasus* die following discard from commercial Canadian fisheries alone. Stock assessments indicate that these levels of combined North Atlantic landings will prevent stock recovery.

A fin guide exists for the identification of the fins in trade.

An ecological risk assessment process conducted by the Secretariat of the Pacific Community on behalf of the WCPFC identified Porbeagle as at higher risk from Western and Central Pacific Oceans fisheries than most other shark species encountered in those fisheries (Kirby and Molony 2006, as cited in IUCN and TRAFFIC, 2010).

An ecological risk assessment calculated risk values for the species taken in Atlantic pelagic longline fisheries. Of the 10 species assessed, Porbeagle was ranked as 6th most vulnerable, with moderately high levels of risk (Simpfendorfer et al*., 2008)*

The fin identification guide has not been validated for its use to allow the unique identification of Porbeagle fins from all potentially similar fins. It only distinguishes between a small number of species, which in the case of Porbeagle, are not the most similar species (Clarke in litt*., 2012).*

Climate change (changes in sea temperature, changes in oceanography and ocean

Supporting Statement (SS)	Additional information
	acidification) and marine debris have been identified as sources of potential concern for Porbeagle in Australian waters (Department of Sustainability, Environment, Water, Population, and Communities 2012).
The latest review of trend data for the Porbeagle indicates that populations formerly proposed for listing under the criterion of Annex 2b A ("look-alike") qualify for listing under Annex 2 aB.	

Reviewers: S. Clarke, M. Lack, G. Sant, A. Soldo.

Transfer of Freshwater Sawfish *Pristis microdon* from Appendix II to Appendix I

Proponent: Australia

Summary: The Freshwater Sawfish *Pristis microdon* is an Indo-Pacific species occurring in rivers, estuaries and marine environments up to 100 km offshore and 400 km upstream. There are very few records from many parts of its extensive former range. This, and taxonomic uncertainty regarding the status of some *Pristis* populations, makes it difficult to determine current occurrence accurately. States where populations ascribed to this species are known to occur or to have occurred in the relatively recent past include Australia, Cambodia, India, Indonesia, Myanmar, Papua New Guinea; Philippines and Thailand. Sub-populations found in northern Australia are likely to comprise a high proportion of the remaining global population. Almost nothing is known about the reproductive biology of *P. microdon;* however, it is thought that females produce 1–12 pups after a five-month gestation period. It is not known if *P. microdon* produces pups annually or every two years. Maximum age of a known individual was 28 years, but theoretical modelling suggests that individuals could live as long as 80 years. Genetic studies have shown that Freshwater Sawfishes are thought to display strong sex-biased dispersal patterns, with females possibly remaining near their birth sites while males may move more broadly between populations. The sedentary nature of females may lead to effective fragmentation of populations, with limited opportunity for re-establishment if local extinctions occur. Of the few adults that have been recorded, most have been reported from marine and estuarine environments; young individuals, in contrast, are primarily recorded in the freshwater reaches of rivers and estuaries.

Pristis microdon is affected throughout its range by artisanal, commercial and recreational fisheries, and also by large-scale habitat modification, and destruction. Climate change and the impacts of diversification of energy sourcing are possible future threats. Sawfishes were once targeted in some parts of their range, but they are now mainly taken as incidental catch: the large toothed rostrum makes them very prone to entanglement in nets. There is very little quantitative information on changes in sawfish populations, but many anecdotal accounts indicating often drastic declines and local extirpations in much of their range. *P. microdon* is listed globally as Critically Endangered on the *IUCN Red List of Threatened Species*. There is national legislation to protect *P. microdon* in parts of its range.

The toothed rostra, fins and meat of sawfishes are all highly valued, and live individuals are highly prized exhibits in public aquaria. International trade in many sawfish products has been documented but few data are available to quantify the international trade. Sawfish fins are regarded as some of the highest quality elasmobranch fins (with high needle content), with a long history of international trade (since at least the 1870s). While pricing information for sawfish fins in the fin trade is hard to come by, some studies have shown the value of the fins (to around USD4000 per set) and rostrum (up to USD1450).

The family Pristidae was included in the CITES Appendices in 2007, with the entire family being included in Appendix I with the exception of *P. Microdon,* which was included in Appendix II for the exclusive purpose of allowing international trade in live animals to appropriate and acceptable aquaria for primarily conservation purposes. This was agreed because it was thought that populations in Australia were sufficiently robust to support a small harvest for the purposes of providing animals to recognised public aquaria. Since then, nine live animals have been exported by Australia. Prior to the listing, Australia issued permits for the export of 13 live animals during the period 2003 to 2006.

Pristis microdon is proposed for transfer from Appendix II to Appendix I because of the historical range decline, inferred and observed decreases in area of distribution and numbers of individuals resulting in fragmented populations, combined with its vulnerability to intrinsic and extrinsic factors. While *P. microdon* is listed in Appendix II for the exclusive purpose of allowing international trade in live animals to appropriate and acceptable aquaria primarily for conservation

purposes, in 2011 the Australian CITES Scientific Authority for Marine Species reviewed the 2007 non-detriment finding for the export of *P. microdon* and found that it was not possible to conclude with a reasonable level of certainty that any harvest of *P. microdon* for export purposes would not be detrimental to the survival or recovery of the species. Therefore, Australia has now stopped issuing non-detriment findings for this species. Inclusion of *P. microdon* in Appendix I would align the listing of this species with those of all other Pristidae species, ensuring easier enforcement of all listings of this family.

Analysis: *Pristis microdon* was included in Appendix II for the exclusive purpose of allowing international trade in live animals to appropriate and acceptable aquaria for primarily conservation purposes. All other species in the genus *Pristis* are listed in Appendix I. Sawfish were once targeted, but they are now mainly taken as incidental catch, notably because their large toothed rostrum makes them very liable to entanglement in nets.

Since the Appendix-II listing, Australia has exported nine live *P. microdon.* However, Australia has recently decided that it cannot determine that trade would be non-detrimental and has stopped issuing non-detriment findings for the species.

There are no estimates of population size for *P. microdon* across any part of its extensive range, nor are there empirical long-term data documenting population trends in *P. microdon.* However, anecdotal evidence and records suggest that, globally, populations of *P. microdon* have been extirpated or nearly extirpated from large areas of their former range. The species is vulnerable to exploitation because of several life history characteristics and also because of severe fragmentation of its population. Given the historic range decline, inferred and observed decreases in area of distribution and numbers of individuals resulting in fragmented populations, it is possible the species meets the biological criteria for inclusion in Appendix I.

Supporting Statement (SS)	Additional information
Taxonomy	
Synonyms- *Pristis leichhardti, Pristiopsis leichhardti, Pristis pristis.*	
There has been a recent revision of the Pristidae family and the scientific name of *Pristis microdon* may change to *Pristis pristis* however at this stage this work has not been published.	*Revision described in Faria* et al*. is* in press.
Range	
Pristis microdon is considered to occur/have once occurred widely in the Indo-West Pacific. Present or former range States include: Australia, Cambodia, India, Indonesia; Myanmar, Papua New Guinea, Philippines, Thailand. The occurrence of *P. microdon* elsewhere*,* including Madagascar, Mozambique, Nicaragua, Oman, Pakistan, the Red Sea, South Africa, Sri Lanka and Zimbabwe is dependent on the taxonomic understanding of the genetic relationship with other pristid species.	*CITES species database lists range States as: Australia, Cambodia, India, Indonesia, Madagascar, Malaysia, Myanmar, Papua New Guinea, South Africa, Thailand, Viet Nam.*

Supporting Statement (SS)	Additional information
IUCN Global Category	
Critically Endangered.	*Critically Endangered A2abcd+3cd+4bcd (Assessed 2006, Criteria version 3.1.*
Biological criteria for inclusion in Appendix I	
A) Small wild population. **(i)Population or habitat decline; (ii) small sub-populations; (iii) concentrated geographically during one or more life-history phases; (iv) large population fluctuations; (v) high vulnerability**	
There are no estimates of population size for *P. microdon* across any part of its range.	
P. microdon has high vulnerability given its long lifespan and slow reproduction. Although there is little information on the fecundity of *P. microdon*, there is evidence of one female that produced 12 pups after a 5-month gestation period. It is also uncertain if *P. microdon* produces pups annually or every two years. Maximum age of a known individual was 28 years but theoretical modelling suggests they could live as long as 80 years.	*Van der Elst (*in litt*., 2012) considers that some information in the supporting statement is misleading: pup number of 12 is too high and Chidlow (2007) does not report on pups and cites Wilson (1999) and a range of 1-12 pups per litter. The 28-year-old specimen may not have been* P. microdon *(van der Elst* in litt*., 2012).* *This information may be misleading; very little is known about the reproductive biology of* P. microdon *(Morgan* in litt*., 2012).*
B) Restricted area of distribution: **(i) Fragmented or localised population; (ii) large fluctuations in distribution or sub-populations; (iii) high vulnerability; (iv) decrease in distribution, population, area or quality of habitat, or recruitment)**	
P. microdon occurs in northern Australia (Western Australia, Northern Territory and Queensland) where it is found in rivers, estuaries and marine environments up to 100 km offshore and 400 km upstream. *P. microdon* has suffered severe declines since the 1960s and is considered to have been extirpated or nearly extirpated from large parts of its range, including considerable parts of its former Indo-West Pacific range. It is considered to have once occurred throughout the Indo-West Pacific (Indonesia, Papua New Guinea, Malaysia, Thailand, Cambodia, Philippines, Myanmar and India; possibly South Africa); however the extent of this occurrence is now unclear because there are few records and there has been little survey effort throughout the region. Furthermore, the occurrence of *P. microdon* in South Africa, Sri Lanka, Pakistan, Oman, the Red Sea, Madagascar, Mozambique, and Zimbabwe is dependent on the taxonomic understanding of the genetic relationship with other Pristid species.	

Supporting Statement (SS)	Additional information
Genetic studies have shown that *P. microdon* display strong sex-biased dispersal patterns, with females exhibiting patterns of natal philopatry while males move more broadly between populations. This means that any reduction in female abundance in one region is not likely to be replenished by migration from another region. Thus, the population is fragmented into sub-populations, with limited opportunity for re-establishment. Furthermore, sub-populations found in northern Australia are likely to comprise a high proportion of the remaining global population and the region therefore represents a globally significant area for the species.	*Philopatry is an important factor for this species, especially if the natal home is under threat. For example, the St Lucia estuary, South Africa, Africa's largest estuary, has effectively declined as a habitat for sawfish—whereas it once was central to the region's sawfish stocks (van der Elst* in litt*., 2012). In the early 1970s, up to 15* Pristis *individuals could be caught and tagged in two days: since drought and excessive water extraction, none has been recorded (van der Elst* in litt., *2012.).*
It is likely that suitable habitat has not only declined in quantity but quality from: agriculture, urban development, dam construction, channel dredging, boating and diversion of freshwater runoff.	*Poulakis (*in litt., *2012) considers that studies on showing philopatry give more of an indication of inter-annual site fidelity rather than true philopatry but still of great importance.*
<u>C) Decline in number of wild individuals</u> **(i) Ongoing or historic decline; (ii) inferred or projected decline due to decreasing area or quality of habitat, levels of exploitation, high vulnerability, or decreasing recruitment**	
There are no empirical long-term data documenting population trends in *P. microdon* across any part of its range. However, anecdotal evidence and records of sawfish landings in general suggest that globally, populations of all sawfish species including *P. microdon* have been extirpated or nearly extirpated from large areas of their former ranges.	
FAO landings of Pristids have declined rapidly from a peak in 1978 of 1759 metric tonnes to approximately 50 metric tonnes averaged over the past 5 years. There is also increasing evidence of large-scale disappearance and presumed extinction of *P. microdon* in parts of the Indo-West Pacific.	*Landings reported in FAO data may have been a mis-identification (van der Elst* in litt., *2012).*
There is anecdotal evidence that Australian populations of *P. microdon* have undergone a significant decline although the magnitude is unknown. Despite this, the Australian populations are the only remaining viable population of the species in the world. Data from the Australia Shark Control Program in Queensland show a clear decline in sawfish catch (non species-specific) over a 30 year period from the 1960s on the east coast and the complete disappearance from southern regions.	*While there are few quantitative species-specific data on sawfish abundance in Australia, their numbers appear to have declined drastically along the east coast with sawfish now virtually extinct in New South Wales and South East Queensland (Stevens* et al*., 2005 as cited in IUCN and TRAFFIC, 2007). Anecdotal reports from recreational fishers as far north as Townsville suggest that* P. microdon *was once "very common" in the Ross River but over the past 10–15 years has not been recorded (Stevens* et al*., 2005; as cited in IUCN and TRAFFIC, 2007).* *Reported by-catch of sawfish in Northern Territory, Australia declined from 1994–1999 (NTDPIF, 2000, cited in Pogonoski* et al*., 2002).*
There have been no confirmed sightings in South Africa since the 1990s and the	P. microdon *has been recorded in South African catches but due to challenges in*

Supporting Statement (SS)	Additional information
species may be locally extinct.	*species identification there are no certainties regarding identification as* P. microdon/P. zijsron *nor regarding previous levels of abundance of the species. The last recorded capture of any sawfish (not identified to species level) in KwaZulu-Natal was in 1999 and the genus is considered to be locally extinct (Everett* in litt., *2012).* *A survey amongst Mozambique fishers around Maputo indicated 1-2* Pristis spp. *caught in that region in the decade 1990–2000 (van der Elst* in litt., *2012.). A more recent rapid by-catch assessment for South West Indian Ocean Fisheries Project, including artisanal fisheries in Mozambique, Tanzania, Kenya and Mauritius, indicated that only in Zanzibar was there evidence of sawfish (1–2) capture for the previous year—2010. None in other countries surveyed. (Kiszka, 2012)*
P. microdon were historically regularly seen in the Cambodian Mekong, but none have been seen for several decades and numbers have decreased considerably. New Guinea, Lake Sentani – The demise of *P. microdon* has been recorded because of the increased use of gillnets. In Borneo *P. microdon* was once reported as common in the 1970s but almost absent 20 years later. In Indonesia between 2001 and 2005, 200 days of surveys were undertaken and 40 000 elasmobranchs were recorded, among which only two were *P. microdon*. It is suspected that these two were actually caught in Australian waters. Dried rostra were observed in some Indonesian landing sites but fishers indicated that they were caught “many” years ago and that the species has not been seen in at least 20 years.	*Sawfish are now absent or very rare in the Great Lake of Tonle Sap, Cambodia, with the most recent capture 40 years ago which may have been of either* P. microdon *or* P. clavata (*Roberts and Warren, 1994, as cited in IUCN and TRAFFIC, 2007*).

Trade criteria for inclusion in Appendix I

The species is or may be affected by trade

International trade in *P. microdon* is presently allowed to appropriate and acceptable aquaria primarily for conservation purposes and since the 2007 listing nine live *P. microdon* have been exported from Australia (six to the USA and three to Europe). Prior to the CITES listing, Australia issued permits for the export of 13 live animals between 2003 and 2006.	*In the CITES trade database, reported exports from Australia number eight, however, an additional live specimen has been reported as imported by Germany in 2011. The records for 2011 are likely to be incomplete.*
In addition to these live specimens, since 2005 100 mg of sawfish ear bones were exported for scientific research purposes, as well as the export or re-export of three rostra since 2005 as personal effects.	*The 2007 proposal (CoP14 Prop. 17) stated that there was evidence from some countries that demand for rostra and fins continued to drive sawfish fisheries and that demand for the aquarium trade also drove some fisheries, particularly in northern*

Supporting Statement (SS)	Additional information
There is undoubtedly some illegal trade in sawfish rostra and fins. *P. microdon* has been identified in the catch of apprehended IUU fishing vessels and live animals have been released from illegal fishing nets by Australian fisheries inspectors. International trade since 1998 was about 30 to 40 animals in total in Australia with most of these happening before the 2007 listing in CITES Appendix II.	*Australia. However, the IUCN and TRAFFIC (2007) analysis stated that it was perhaps more accurate to suggest that demand for sawfish products was driving retention of sawfish in fisheries that captured them incidentally (Simpfendorfer 2007, as cited in IUCN and TRAFFIC, 2007).* *The few published studies on the international fin trade have focused on shark species and not the high value batoids in the trade, including sawfish (McDavitt, 2007, as cited in IUCN and TRAFFIC, 2007).* *Sawfish rostra are still for sale on eBay clearly indicating that the market for the rostra still exists. As of 26 October 2012, there were 10 sawfish rostra for sale, the majority of which were offered for international shipping (McDavitt* in litt*., 2012).*

Other information

Threats

P. microdon is threatened throughout the Indo-West Pacific mainly by artisanal, commercial and recreational fisheries, but also by large-scale habitat modification, and the destruction of coastal and freshwater habitat. Sawfish were once targeted but they are now mainly taken as incidental catch particularly because of their large toothed rostrum becoming caught in nets. However, directed fisheries still remain in the region to supply public and private aquariums and may be opportunistically targeted for meat and the shark fin trade.	*The requirement for "clean energy" is prompting liquid natural gas exploration, as well as the development of tidal energy, river dams and tidal barrages, which may alter freshwater flows and habitat productivity (Dulvy* in litt*., 2012).* *There is evidence that climate change could have an impact on sawfishes:* Pristis microdon *(and three other sawfish species) were all assessed as having moderate overall vulnerability to climate change, based on calculations of exposure, sensitivity and adaptive capacity (Chin* et al*., 2010).*

Conservation, management and legislation

International trade in *P. microdon* is restricted under CITES Appendix II and is only allowed to appropriate and acceptable aquaria primarily for conservation purposes. In 2011 the Australian CITES Scientific Authority for Marine Species reviewed the 2007 non-detriment finding for the export of *P. microdon* and found that it was not possible to conclude without a reasonable level of certainty that any harvest of *P. microdon* for export purposes would not be detrimental to the survival or recovery of the species. As a result of this finding, the international trade in freshwater sawfish from Australia has now stopped.	
National legislation exists to protect *P. microdon* in Nicaragua (only in Lake Nicaragua), India, Indonesia (only in Lake Sentani), Malaysia, Myanmar, Bangladesh and Australia.	*Also fully protected in South Africa and protection planned for Mozambique (van der Elst* in litt*., 2012).*

Supporting Statement (SS)	Additional information
In addition to the national legislation mentioned above, Australia has a number of management measures in place for *P. microdon*, which differ by state and territory. These include restrictions on fishing, education campaigns and support of further research into their abundance, distribution and movement patterns. It is also an offence, in Australia, to kill, injure, take, trade, keep or move any individual without a permit. *P. microdon* is also considered a matter of national environmental significance (MNES), and any action that may have an impact on a MNES must be referred to the minister responsible for the environment for assessment and approval. In Australia, Marine Reserves and National Parks across northern Australia and on the Queensland east coast offer some protection from commercial and recreational fishing impacts.	
Similar species	
All sawfish species of the family Pristidae – except *P. microdon* – were listed in Appendix I of CITES at the 2007 14th meeting of the CITES Conference of the Parties.	*Sawsharks, Order Pristiophoriformes, are superficially similar but smaller (up to 1.5 m) deepwater to coastal sharks that also have a long, flat, saw-like snout. Sawshark rostra differ from those of Pristidae species in having long, string-like ventral barbels in front of the nostrils, close-set rows of small ventral sawteeth as well as small to large lateral sawteeth (CoP14. Prop. 17). They can also be distinguished by the position of their gills: sawfish gills are on the underside of their body; sawshark gills are on the sides of their head. Sawsharks are not listed in the Appendices.*
Captive breeding/Artificial Propagation	
No known captive breeding programmes exist for *P. microdon* but *P. pectinata* pups were recently born in captivity at the Atlantis Paradise Island in the Bahamas.	
Other comments	
An Appendix I listing will further restrict the trade *of P. microdon* for commercial benefit and potentially reduce the demand for live sawfish or sawfish parts internationally. As noted in the original proposal in 2007, enforcement provisions are more difficult when species are included in different Appendices due to taxonomic uncertainty regarding the number of sawfish species, their similarity to each other, and the difficulty of distinguishing between parts in trade of different [Pristis] species.	

Reviewers: R. van der Elst, D. Morgan, G. Poulakis, G. Sant.

Inclusion of the Genus *Manta* (including *Manta birostris*, *Manta alfredi* and any putative species of *Manta*) in Appendix II

Proponent: Ecuador, Brazil and Columbia

Summary: Manta rays (genus *Manta*) are large elasmobranch fishes circumglobal in range. Until recently, the genus was considered to comprise a single species, but two species are now recognised whose distributions overlap in some locations. *M. birostris* is widely distributed, inhabiting tropical, subtropical and temperate waters, while *M. alfredi* is less widely distributed and is found in tropical and subtropical waters. They occur frequently in inshore waters, being particularly associated with productive areas associated with upwellings.

Relatively little is known about life history parameters of manta rays; they are slow-growing and long-lived (>20 years *M. alfredi*; >31 years *M. birostris*) with low fecundity and reproductive output (one pup every two to five years; possibly 5-15 pups over a lifetime) and long generation times. The median intrinsic rate of population increase appears to be extremely low (0.11 yr^{-1}), and among the lowest for any elasmobranch studied to date. Mantas appear to show high site fidelity, congregating at well-known aggregation sites and following migratory pathways. There are indications that there may be little, if any, interchange between different sub-populations. There are no reliable overall population estimates for either species; estimates have been made for some sub-populations, including those of the Maldives (around 5000) and Mozambique (around 600 in the mid-2000s), although it is unclear how representative these are or how many sub-populations there may be in total.

Mantas are harvested in targeted fisheries and retained as a valuable secondary catch. Directed fisheries occur in China, Ghana, India, Indonesia, Mexico (Pacific and Atlantic), Peru, Philippines, Sri Lanka and Thailand. Their behaviour and very large size allows them to be harvested in such fisheries with relatively high catch per unit effort. The gill plates, which *Manta* spp. use to filter planktonic food from the water, are highly valued in international trade, particularly in Asian markets. A single mature *M. birostris* can yield up to 7 kg of dried gills that retail for up to USD680 per kg in China. Records cannot be quantified fully, due to a lack of species- and product-specific data, but aggregation of data from a number of sources indicates annual manta landings from known fisheries to be around 3000 individuals. Total catch is believed to be somewhat higher, owing to unreported landings in some areas. An analysis of surveys in the major *Manta* spp. gill plate markets has resulted in an estimate of around 21 000 kg of gill plate of *Manta* spp. in trade annually, equivalent to 4500-5000 individuals. Reports from fishermen, traders and retailers indicate that manta gills are becoming harder to source. Cartilage and skins are traded internationally. Artisanal fisheries also target mantas for food and local products. Small numbers of *M. birostris* and *M. alfredi* are also caught and transported to aquaria for use in large display tanks in the USA, Bahamas, Portugal, Japan and South Africa. All use and trade in the products of mantas is derived from wild-caught animals.

FAO catch data do not distinguish between manta and devil ray catch, and are apparently incomplete. Reported catches for the two groups combined increased from 342 t in 1998 to 931 t in 2000, decreasing to around 100 t per year between 2001 and 2003, increasing to over 4000 t in 2008 and decreasing subsequently.

Reported population declines for both *M. birostris* and *M. alfredi* appear high in several locations with reported local declines as high as 50-86% over one generation or less in areas with targeted fisheries. In contrast, some sub-populations that are not fished or are within protected areas in Hawaii (USA), Maldives, Palau and Yap (Federated States of Micronesia) appear stable. Both *M. birostris* and *M. alfredi* are listed globally as Vulnerable on the *IUCN Red List.*

A number of range States have legislation that prohibits the catch of or trade in *Manta* spp. However, the effectiveness of these measures varies and the three countries that have reported highest landings in recent years are not known to have any landing restrictions or population monitoring programmes. *M. birostris* is listed in both Appendix I and II of the Convention on the Conservation of Migratory Species of Wild Animals (CMS), but *M. alfredi* is not. No Regional Fisheries Management Organisations (RFMO) have adopted binding measures specifically to protect or regulate landings of *Manta* spp.

All *Manta* spp. are proposed for inclusion in Appendix II under *Resolution Conf. 9.24 (Rev. CoP15)* Annex 2 aA because of their low productivity and increasing international trade in manta gill plates, and to a lesser degree skins and cartilage.

Analysis: Manta rays are very large, slow-growing fishes with extremely low productivity. Their behaviour makes them highly susceptible to over-exploitation. Mantas are exploited for their gill plates, which enter international trade. Available information indicates that trade in the gill plates has increased considerably in recent years. There are also indications of recent declines in some exploited sub-populations that appear to be consistent with the indicative guidelines for commercially exploited aquatic species with low productivity suggested in the footnote to Annex 5 of *Resolution 9.24 (Rev. CoP15).* There are indications that interchange between sub-populations is low, so that serial depletion of exploited sub-populations may be expected. Other sub-populations that are not currently subject to fishing pressure appear to be stable; however, it is not known what proportion of the total population these represent. Most of the populations known to be heavily exploited are not currently covered by any landing restrictions and no RFMOs have binding regulations covering mantas. Overall, it appears that *Manta* spp. may meet the criteria for inclusion in Appendix II under *Resolution Conf. (Rev. CoP15)* Annex 2 aB, in that regulation of trade may be required to ensure that harvest from the wild is not reducing the population to a level at which is survival might be threatened by harvesting or other influences.

Manta spp. are often confused with the devil rays (*Mobula* spp.) also in family Mobulidae. Fisheries for *Mobula* spp. generally occur in the same locations as fisheries for *Manta* spp. Mobula rays are also targeted for international trade in their gill plates. The same term is commonly used in international trade to describe gill plates from both genera so that differentiating the two may pose problems in enforcement. A manual has been prepared to assist in gill plate identification for these groups.

Supporting Statement (SS)	Additional information
Taxonomy	
The Manta genus was split into two species in 2009 - *Manta birostris* and *Manta alfredi* - (prior to this, the genus consisted only of *M. birostris*), and a third species may soon be declared (*Manta cf. birostris*).	
Range	
Manta spp. are circumglobal in range, with the two described species overlapping in some locations and not in others. *M. birostris* is more widely distributed, inhabiting tropical, subtropical and temperate waters, while *M. alfredi* is found in tropical and subtropical waters. *M. cf birostris* appears to be a regional endemic throughout the Gulf of Mexico, the Caribbean and along the eastern coast of the US.	

Supporting Statement (SS)	Additional information
Range states ***Manta birostris***: Azores and Madeira Islands, Canary Islands, Cape Verde Islands, Senegal, Nigeria, Angola, Ascension Island, South Africa, Mozambique, Madagascar, United Republic of Tanzania, Kenya, Israel, Egypt, Saudi Arabia, Sudan, Djibouti, Seychelles, Maldives, India, Sri Lanka, Myanmar, Thailand, Malaysia, Indonesia, Cocos Islands, Christmas Island, Australia, Philippines, Ryukyu and Nampo-shoto Archipelagos, Taiwan POC, Northern Mariana Islands and Guam, New Zealand, Hawaiian Islands, Mexico, Clipperton Island, Guatemala, Belize, El Salvador, Honduras, Nicaragua, Costa Rica, Panama, Colombia, Ecuador, Peru, United States Continent, Bermuda, The Bahamas, Cuba, Cayman Islands, Jamaica, Dominican Republic, Grenada, Netherlands Antilles, ABC Islands (Bonaire), Trinidad and Tobago, Venezuela, Guyana, French Guiana, Brazil, Uruguay. ***Manta alfredi*:** Canary Islands, South Africa, Mozambique, Madagascar, Comoros - Mayotte, Egypt, Saudi Arabia, Sudan, Djibouti, Yemen, Oman, Seychelles, Chagos Archipelago, Maldives, India, Thailand, Malaysia, Indonesia, Cocos Islands, Australia, Philippines, Ryukyu and Nampo-shoto Archipelagos, Northern Mariana Islands and Guam, Federated States of Micronesia, Palau, Papua New Guinea, Solomon Islands, New Caledonia, Vanuatu, Marshall Islands, Fiji, Tuvalu, Tonga, Cook Islands, Kiribati, Line Islands, Hawaiian Islands, French Polynesia. ***Manta cf. birostris:*** Appears to be a regional endemic with a reported distribution throughout the Gulf of Mexico, the Caribbean and along the eastern coast of the US. FAO Fisheries Areas *Manta birostris*: 31, 34, 41, 47, 51, 57, 71, 77, 81, 87. *Manta alfredi*: 51, 57, 71, 77, 81.	**Manta birostris** *French Polynesia (Marquesas Islands) (Mourier, 2012).*
IUCN Global Category	
Manta birostris: Globally VU.	*Globally: VU A2abd+3bd+4abd (Assessed 2011).*
Manta alfredi: Globally VU.	*Globally: VU A2abd+3bd+4abd (Assessed 2011).* Manta *c.f.* birostris: *Not currently listed.*

Supporting Statement (SS)	Additional information

Biological and trade criteria for inclusion in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)

A) Trade regulation needed to prevent future inclusion in Appendix I

Little is known about life history parameters but it is likely that Mantas are low productivity species. They are thought to be slow-growing and long-lived with low fecundity and reproductive output and long generation times (estimated at 25 years). Longevity is estimated to be at least 40 years and natural mortality is estimated to be low. Mantas are among the least fecund of all elasmobranchs, bearing only one pup on average every two to five years. With such conservative life history characteristics, a female manta ray can produce no more than 5-15 pups over her lifetime. Sub-populations are therefore exceptionally vulnerable to extirpation, slow to recover once depleted and the possibility of successful recolonisation is low. While these sub-populations have not been verified through genetic analysis to meet the criteria for CITES's definition of sub-population, the distance between aggregation sites combined with satellite tagging data and active efforts to identify interchange among groups through photo identification databases, strongly suggest that all studied populations meet the definition of "geographically or otherwise distinct groups in the population between which there is limited genetic exchange".

Manta birostris are thought to be seasonal visitors along productive coastlines with regular upwelling, in oceanic island groups, and near offshore pinnacles and seamounts. They visit cleaning stations on shallow reefs, are sighted feeding at the surface inshore and offshore. *M. alfredi* are commonly sighted inshore, but are also

Although the supporting statement suggests that they are highly migratory, active research into the degree of interchange of individual manta rays between sub-populations has uncovered no genetic or photographic evidence of exchange, but it is assumed to be low (Marshall et al., *unpubl. data 2011).*

As yet, there have been no published studies on the age and growth of Manta *spp. (Couturier* et al., *2012).*

Evidence of wild longevity is based on long-term photographic re-sightings and therefore likely to be conservative (Pierce in litt., *2012.).*

Longevity is >20 years in M. birostris *(Couturier* et al., *2012) and >31 years in* M.alfredi *(Clark 2010, as cited in Couturier* et al., *2012).*

Four captive-breeding events and births in consecutive years (2007–2010) have been reported from a pair of Reef Manta Rays in Churaumi Aquarium, Japan; gestation was 367-374 days (Anon 2007; Matsumoto et al., *2008).*

Lifetime reproductive output does not consider juvenile mortality, so it is likely to be very near replacement rate (Pierce in litt., *2012.).*

*The information presented in the SS is based on a handful of studies (*M. alfredi = *14;* M. birostris = *9;* M. *c.f.* birostris = *1). It is unclear how these sub-population sizes would translate in estimations of the total population size of each species. No population size estimates are available for each species.*

*Dulvy, Pardo and Simpfendorfer (*in litt*., 2012) calculated a median maximum intrinsic rate of population increase for manta rays of 0.11 (95% confidence interval = 0.089–0.137). They also found that manta rays had one of the lowest rates; only six species out of 106 had lower values and these were nearly all deepwater squaloid sharks, along with the Basking Shark* Cetorhinus maximus*.*

Supporting Statement (SS)	Additional information
observed around offshore coral reefs, rocky reefs and seamounts. This species is often resident in or along productive near-shore environments, such as island groups, atolls, or continental coastlines, and may also be associated with areas or events of high primary productivity (e.g., upwelling), *Manta cf birostris* exhibits similar habitat preferences to *M. alfredi.* Their highly migratory behaviour combined with predictable aggregations in easily accessible coastal areas, makes them vulnerable to fisheries in coastal areas and the high seas. A) Small wild populations There are no calculations of total population size for either species. ***Manta birostris*** *M. birostris* is sparsely distributed with small sub-populations (one subpopulation estimate of 600 individuals). ***Manta alfredi*** *M. alfredi* sub-populations appear to be small with the number of identified individuals recorded at most monitored aggregation sites ranging between 100 and 5000. ***Manta c.f. birostris*** 70 recorded individuals at Flower Garden Banks. B) Restricted area of distribution *Manta* spp. are circumglobal in range, with the two described species overlapping in some locations and not in others. *M. birostris* is more widely distributed, inhabiting tropical, subtropical and temperate waters, while *M. alfredi* is found in tropical and subtropical waters. *M. cf birostris* appears to be a regional endemic throughout the Gulf of Mexico, the Caribbean and along the eastern coast of the US. Within this range *Manta* spp. are sparsely distributed and highly fragmented	

Supporting Statement (SS)	Additional information
Manta birostris n/a *Manta alfredi* n/a C) Decline in number of wild individuals Summary: The extent of population reduction for both *M. birostris* and *M. alfredi* appears high in several regions to less than 15% of baseline, with local declines as high as 50-86% over one generation or less in areas with targeted fisheries. Reports from fishermen, traders and retailers indicate that Manta gills are becoming harder to source. In contrast, some sub-populations that are not fished or are within protected areas in the Maldives, Yap, Palau and Hawaii appear stable. ***Manta alfredi*** Mozambique: 86% decline in scuba diver sightings over 8 years (2003-2011) *Manta* spp. Indonesia: 56% decline in landings over 9 years (2001-2010) Indonesia: 57% decline in landings over 6-7 years (2007-2012) Phillippines: 50-67% decline in scuba diver sightings over 7 years (late 1980s – 1996) Thailand: 76% decline in scuba diver sightings (2006-2012) Madagascar: large decline in scuba diver and fishermen sightings over ~10 years India: 'possible commercial extinction' over ~10 years Japan: 71% decline in scuba diver sightings over 17 years (1980-1997) NOTE: The majority of trade data are not distinguished by species; however, all species are targeted for their very similar gill plates, and all (sub) populations are suffering similar declines driven by international trade.	*C) Decline in number of wild individuals* *Decline information is presented from landings, market surveys and manta researcher and scuba diver sightings over various time periods. The reported declines do not appear to have been adjusted for effort and six of the 14 reported declines are qualitative rather than quantitative. Declines presented are mainly for* Manta *spp. and there is no indication how this relates to each species. However, this is difficult given that reports are often mixed as the splitting of the genus occurred very recently. Historical reports can often be confusing as well, without adequate descriptions or photographs. Care should be taken when using reports or accounts of* M. birostris *that they are not referring to* M. alfredi *(or vice versa)" (Marshall* et al., *2011a, b) although the fact that they are rarely sympatric makes it reasonably easy to establish which was the primary target species (Pierce* in litt., *2012).* *Decline rates in Mozambique also factored in potential environmental drivers (Pierce* in litt*., 2012).* *The proposal states that population reduction for both species "appears to be high in several regions to less than 15% of baseline" and is attributed to the Red List Assessment for* M. alfredi *and* M. birostris *(Marshall* et al., *2011a, b), possibly on the basis that this states that some sub-populations have been subject to the 50-86% declines. There is also no indication of the likely proportion of the total populations of each species to which these declines apply, especially given that some sub-populations are not fished or are within protected areas appear stable (various pers. comms, Marshall* et al., *2011a).* *It is unclear where this information has come from, considering the fact that the IUCN Red List Assessment states "the rate of population reduction appears to be high in several regions, up to as much as 80% over the last three generations (approximately 75 years), and globally a decline of 30% is strongly suspected." yet gives no indication of how a baseline was calculated and what it actually is in numbers.*

Supporting Statement (SS)	Additional information
B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences	
Manta birostris	
Sri Lanka: unspecified decline from fishermen interviews over 5-10 years (2000-2011)	
Western Australia: large decline in sightings from large seasonal groups to rare over ~10 years (2001-2011).	*Populations on the east coast of Australia are in the Great Barrier Reef marine park and are unlikely to have suffered declines (Heupel* in litt*., 2012.).*
***Manta* spp.**	
Phillipines: 50% decline in catch over 30 years (1960s – 1997). Mexico: 'population collapse' over ~10 years (1980s – 1990s). Mexico: decline from 3-4 per dive to 0 in 2 years in diver sightings (1981 – 1991). Mexico: 'on every major reef' to rarely seen by scuba diving and recreational fishing operation over 10 years (1980 – 1990).	
Trade	*Trade*
The gill plates which *Manta* spp*.* use to filter planktonic food from the water, are highly valued in international trade. Cartilage and skins are also traded internationally. A single mature *M. birostris* can yield up to 7 kg of dried gills that retail for up to USD680 per kg in China.	*Trade of Mantas may go back to the early 1980s (Zhongguo yao yong dong wu zhi xie zuo zu bian zhu, Ed. 1983: as cited in Couturier* et al., *2012).* *2300 kg of various dried marine products (including manta and sting rays) worth PHP10 million (~USD245 000) were found on a boat in Manila in violation of Philippine Fisheries laws (August 2012).*
All utilisation and trade in the products of *Manta* spp. are derived from wild-caught animals. Records cannot be quantified fully, due to a lack of species and product-specific codes, catch, landings or trade data. Instead, an estimate of the total volume of the gill plate trade has been produced from an analysis of market surveys in the major *Manta* spp*.* gill plate markets. These surveys estimated the annual volume of the gill plate trade as ~21000 kg of dried *Manta* spp*.* gill plates, worth USD5 million and representing an estimated 4652 manta rays.	*FAO FishStat catch reports (manta and devil ray catch—reported catches not distinguishing between the two taxonomic groups) were shown to increase from 342 t in 1998 to 931 t in 2000, drop down to ~100 t per year between 2001 and 2003, then increase to 4309 t in 2008. Catches reported have decreased since 2008—2414 and 2447 t in 2009 and 2010, respectively. Furthermore, the catch reporting is only from Liberia (1998–2006), Indonesia: Indian Ocean, Eastern (2007–2010) and Indonesia: Pacific, Western Central (2005–2010) (FAO, 2009).*
Annual Manta ray landings, (catch data from a number of published and unpublished sources) from known fisheries are estimated at 3100 individuals, but are expected to be somewhat higher due to unreported landings in some areas.	

Supporting Statement (SS)	Additional information
The extent of illegal trade is not known because no mechanisms have been implemented to monitor and regulate trade. A few range States have protected these species or have banned the possession or export of any ray products, and illegal landings and trade of *Manta* spp. in these range States have been reported (e.g. Philippines). There is no documented domestic use of *Manta* spp. Gill plates in the three largest *Manta* spp. fishing range states (Indonesia, Sri Lanka and India). The meat of *Manta* spp. taken in these and other domestic fisheries is used locally for shark bait, animal feed and human consumption or discarded, while high value products are exported for processing elsewhere. Landings in China, reportedly from the South China Sea and international waters, are not exported for processing. The gill plates are sold directly to buyers. An Appendix II listing of *Manta* spp. would not necessarily affect the national use of these species and their products. The greatest threat *to Manta* spp. is excessive targeted and incidental take in fisheries increasingly driven by international trade in gill plates for use in Asian markets. Artisanal fisheries also target *Manta* spp. for food and local products. They are captured by harpooning, netting and trawling. Directed fisheries occur in Peru, China, Mexico (Pacific and Atlantic), Indonesia, Sri Lanka, India, Thailand, Philippines and Ghana. The behaviour of *Manta* spp. allow for it to be targeted at well-known aggregation sites and migratory pathways where numerous individuals can be targeted with relatively high catch-per-unit-effort. Small numbers of *M. birostris* and *M. alfredi* are also caught and transported to aquaria for use in large display tanks in the US, Bahamas, Portugal, Japan and South Africa.	

Supporting Statement (SS)	Additional information
Inclusion in Appendix II to improve control of other listed species	
A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I	
Manta spp. are often confused with rays of the genus *Mobula*, also in family Mobulidae. Fisheries for *Mobula* spp. generally occur in the same locations as fisheries for Manta spp. - in most cases larger numbers of *Mobula* spp. are landed. Mobula rays are also targeted for international trade in their gill plates. Fish gills or 'peng yu sai' are commonly used to describe gill plates from both genera.	*A Manta gill plate identification guide has been created that suggests that it is relatively simple to determine the difference between manta and mobulid gill plates (Stevens, 2012).* *No species in the genus* Mobula *is listed in the CITES Appendices.*
B) Compelling other reasons to ensure that effective control of trade in currently listed species is achieved	
Mobulid rays (Genus *Manta*; Genus *Mobula*) are the pelagic species most vulnerable to climate change, since plankton, a primary food source, may be adversely affected by the disruption of ecological processes brought about by changing sea temperatures.	*The assertion that climate change will affect general plankton resources in such a way that it will negatively impact* Manta *spp. populations is not sufficiently well substantiated. More evidence will be needed to support this pathway of change conclusively (McCauley* in litt*., 2012).* *The statement technically is accurate; this group is the most vulnerable of the pelagic group, which is ranked as low risk as a group. However, Chin and Kyne (2007) state the following: "species in this group had low exposure to climate change drivers except for ocean circulation (high) and the direct effects of temperature change (moderate)" and "the devil rays (*Manta birostris, Mobula thurstoni *and* M eregoodootenkee*) and Whale Shark Rhincodon typus are the most vulnerable species in this group as they are plankton feeding specialists, and the Whale Shark and Bentfin Devil Ray* Mobula thurstoni *are relatively rare. However, these species have low exposure to most climate change drivers so are ranked as having low risk overall."*
Other information	
Threats	
In addition to the directed fisheries described above, incidental bycatch of *Manta* spp., which is retained as a secondary but valuable catch, occurs throughout the Atlantic, Pacific and Indian Oceans. They are most frequently caught in purse seines, gillnet and longlines, as well as in shark control bather protection nets. Other threats that may affect *Manta* spp. populations include the loss of some coral reef habitats, alterations to terrestrial ecosystems (replacement of native trees with human propagated palms on Palmyra Atoll), climate change, boat strikes and various types of marine debris including ghost nets, plastics and pollution from	

Supporting Statement (SS)	Additional information
vessels.	
Conservation, management and legislation	
National The following range States have legislation that prohibits the catch and/or trade of *Manta* spp.: Ecuador, Maldives, Mexico, New Zealand, Philippines, Yap (FSM), and some US States/Territories. However, the effectiveness of these measures varies. Some manta ray legislation defines "manta ray" as "*Manta birostris*". The recently described *M. alfredi* and *M. c.f. birostris*, should it be determined a distinct species, are therefore potentially vulnerable even where "manta ray" protection is in place. There are no landing restrictions or population monitoring programs for *Manta* spp. in the top three *Manta* spp. fishing nations (Indonesia, Sri Lanka and India). There are no national government fishery or population monitoring programmes for *Manta* spp. Monitoring does occur by a number of privately funded projects throughout the world. International *M. birostris* is listed in both Appendix I and II of the Convention on the Conservation of Migratory Species of Wild Animals (CMS), but *M. alfredi* is not. Furthermore, before they will be specifically considered under the MoU Conservation Action Plan, both *Manta* spp. also need to be listed in the Annex to the CMS Memorandum of Understanding on Migratory sharks. However, many *Manta* spp. fishing States have not yet signed the CMS Shark MoU. No RFMOs have adopted binding measures specifically to protect or regulate landings of *Manta* spp. There are no controls, monitoring systems or marking systems in place to regulate, track or assess international trade in *Manta* spp.	*In September 2012, Australia added* Manta birostris *to their list of Migratory Species governed by the Environment Protection and Biodiversity Conservation Act 1999. Under the protections, the Giant Manta Ray will be listed as a migratory species, making it an offence to take, trade, keep, or move the species from Commonwealth waters. Fishers will now also have to report any interactions with a Giant Manta Ray.*
Captive breeding/Artificial propagation	
Four captive breeding events have been reported all coming from a pair of *M. alfredi* in Churaumi Aquarium, Japan. The potential for captive breeding is extremely limited and only likely to provide a small number of animals for display.	

Supporting Statement (SS)	Additional information
Other comments	
The majority of trade data are not distinguished by species; however, all species are targeted for their very similar gill plates, and all (sub) populations are suffering similar declines driven by international trade.	*A trained observer would be likely to be able to identify* M. birostris*,* M. alfredi *visually and possibly the third putative species when alive or landed whole, and a manta gill plate identification guide has been created which suggests that it is relatively simple to determine the difference between manta and mobulid gill plates (Stevens, 2012).*
Additional trade impacts include the significant economic consequences for existing (and potential) high value, non-consumptive sustainable ecotourism operations, which have the potential to yield much larger and longer term benefits to range States than short-term unsustainable fisheries.	*However, tourism-related industries can also negatively impact individual behaviour, entire populations and critical habitat for this species, thus the responsible development of these industries is recommended (Marshall* et al., *2011a, b).*

Reviewers: D. McCauley, M. Heupel, G. Notarbartolo di Sciara, S. Pierce, G. Sant.

Inclusion of *Paratrygon aiereba* in Appendix II

Proponent: Colombia

Summary: *Paratrygon aiereba* is a widespread freshwater stingray that occurs in the main channels of some large South American rivers in the Plurinational State of Bolivia (Bolivia), Brazil, Colombia, Ecuador, Peru and Bolivarian Republic of Venezuela (Venezuela). Little is known about the biology of this species. It is a large ray reaching up to 130 cm disc width and has low fecundity, producing two offspring every second year. It is one of 25 or so members of the family Potamotrygonidae, a family of freshwater elasmobranch fishes confined to South America.
Population numbers are unknown although the species has been reported as occurring in high densities in some areas. It is harvested (particularly juveniles) in commercial and artisanal fisheries for the international ornamental fish trade, for domestic human consumption and for export as a food item. It is also believed to be affected by habitat destruction and there is some indication that it is persecuted because of the risk it poses to tourists (it has a very painful sting). Recently, it has not been observed in some areas in Venezuela and Colombia where it was previously considered abundant. Information on the magnitude of declines, however, is not available. It was assessed by IUCN in 2009 as Data Deficient.

International demand for the species, both for live specimens and meat, may be increasing, in particular in Asia. It is not easily found for sale on the Internet, although specimens are advertised on aquarium sites and in specialist fora. The only species-specific trade data available for *Paratrygon aiereba* are for the reported export of 216 individuals between 2007 and 2011 from Colombia, mainly to Thailand, Hong Kong and Russia. There are many trade names used for *P. aiereba*, however, so trade in this species may well to be under-estimated. The main consumers of freshwater stingray meat are said to be Japan, the Republic of Korea and large cities in south and east Brazil.

Data are available on trade in the family Potamotrygonidae in general. It is not known how much of the recorded trade can be attributed to this species, nor how complete this information is. Brazil recorded the export of 36 000 specimens of Potamotrygonidae between 2003 and 2005. Colombian exports averaged about 25 000 specimens per year between 1995 and 2006 (ranging between 15 000 and 30 000), after which there was a large increase to a peak of over 60 000 individuals exported in 2008. Exports in the period 2009–2012 declined again to approximately 25 000 specimens per year.

Since 1990, export of some species of Potamotrygonidae, including *P. aiereba*, as live specimens has been prohibited by Brazil, although export of meat is still permitted. In Colombia, commercial fishing for *P. aiereba* for ornamental purposes can only be carried out with authorization and permits from the National Fisheries Authority, which also determines open and closed seasons for the fishery. Ecuador has a specific regulation on the collection of ornamental fish not listed in the CITES Appendices. There is some indication of illegal cross-border trade, with fishes imported from Brazil and Ecuador into Colombia or Peru for re-export.

The proposal is to list *Paratrygon aiereba* in Appendix II, with an 18-month delay prior to the listing coming into force, in order to help Parties prepare and develop appropriate technical and management measures required for such a listing.

Analysis: *Paratrygon aiereba* is a widespread species in large rivers in South America targeted in fisheries; both meat and live fishes enter international trade. It is believed sensitive to the impacts of fishing because of its low productivity. Although there are concerns that numbers are declining owing to over-exploitation, details of the magnitude of any declines in exploited populations are not available, nor is it clear what proportion of the population is

subject to harvest, nor what proportion of the harvest enters international trade. Therefore, there is insufficient information to determine whether the species meets the criteria for inclusion in Appendix II.

Supporting Statement (SS)	Additional information
Taxonomy	
	The species is sometimes described using a different spelling: Paratrygon ajereba *(Walbaum, 1792). The IUCN Red List assessment for this species uses this alternative. White (pers. comm., 2012) notes that this issue is not fully resolved, however recommends following the spelling and authority:* Paratrygon aiereba *Mueller & Henle 1841.*
Range	
Plurinational State of Bolivia (hereafter Boliva), Brazil, Colombia, Ecuador, Peru and Bolivarian Republic of Venezuela (hereafter Venezuela).	
IUCN Global Category	
Data Deficient (ver. 3.1 Assessed 2009).	*Listed in the IUCN Red List as* Paratrygon ajereba.

Biological and trade criteria for inclusion in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)

B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences

Biology	*Biology*
P. aiereba is a freshwater stingray that is restricted to the main channels of some large South American rivers. It is found in Bolivia, Brazil, Colombia, Ecuador, Peru and Venezuela.	*It is also noted that the ray is of a large size and has low fecundity (two offspring every second year) (Araújo and Rincón, 2009).*
P. aiereba has low fecundity, long gestation periods, and slow growth. Studies suggest that there are three genetically distinct subpopulations of *P. aiereba* found in the Amazon. Maximum disc widths of 80-100 cm have been recorded. In the Orinoco basin, the species reproduces throughout the year and they can have 1 to 8	*According to Araújo and Rincón (2009), size at birth is 16 cm DW; size at maturity 60 cm DW (males) and 72 cm DW (females); and maximum size is 130 cm DW. These are larger sizes than those quoted in the proposal.*

Supporting Statement (SS)	Additional information
intrauterine embryos (normally 1 to 2). Females reach sexual maturity at DW 37 cm and males at DW 45 cm.	
Population and decline information	*Population and decline information*
There is little overall population information. A study in the "Estrella Fluvial de Inírida" in Venezuela and Colombia did not find any specimens of *P. aiereba* during 60 hours of sampling (fishing) over approximately 253 000 hectares between February and May 2011. Specimens were however observed during night-time visual surveys in the dry season (November 2010 to March 2011). This is of particular concern due to the fact that this was an area where the species was previously very abundant.	*It has also been categorized as "Vulnerable" on the Colombian national Red List (criteria A2ad), owing to declines in catches observed over the last 10 years (Lasso and Sanchez-Duarte, 2012). It has only recently been found in the Colombian Amazon (Lasso and Sanchez-Duarte, 2012).*
In Ecuador, a total of 52 individuals were collected during two surveys in 1994 and 2010, and the majority of specimens with disc widths between 25 and 55cm. In the Orinoco River, females reach maturity at 37cm disc width (DW), and males at 45cm.	*According to Araújo and Rincón (2009), this species is widespread around the Amazonas-Solimões River and tributaries, and around the Rio Negro in Brazil this species occurs in at least 42 tributaries and is known to occur in high densities.* *According to Araújo and Rincón (2009)'s estimates of size at maturity (size at maturity 60 cm DW (males) and 72 cm DW (females)), all individuals that were collected in Ecuador during the two surveys described in the SS were juveniles.*
Trade	*Trade*
P. aierba is marketed for its meat in Venezuela, Colombia, Peru and Brazil. The main importers of freshwater stingray meat are Japan and Republic of Korea. Details on the international markets specifically for P. aiereba for this species are not provided in the SS. Venezuela has a commercial fishery of *P. aiereba* in the Apure River during high waters (June to August) when other commercially viable fish species are not available. Live specimens are targeted in Colombia, Peru and Venezuela, specifically for the ornamental fish trade. There is some indication that illegal trafficking is occurring of freshwater stingrays from Brazil and Ecuador, which are then exported from Peru or Colombia. The principal purchasers of the meat of freshwater rays are reported to be cities in the south and east of Brazil, Japan and the Republic of Korea. Colombia exported 216 individuals between 2007 and 2011 for the ornamental trade, with 146 specimens exported in 2009 alone. These were destined for Thailand (120),	*FAO has not been provided with any species-specific catch or trade data for this species (CITES, 2009). Detail provided on illegal trade in this proposal specifically mentions* Potamotrygon motoro *and* P. schroederi *(CoP16 Prop. 48), although it appears that it is considered that illegal trade in this species also occurs. Lasso and Sanchez-Duarte (2012) note that there is illegal trade between Venezuela and Colombia in this species. At the South American Freshwater Stingray Workshop held in Geneva in April 2009 (AC Doc 14.2), participants concluded that uncontrolled cross-border trade was widespread within the region and this was a serious issue in some areas and for some species of freshwater stingrays.* *All reported catches in the Rio Apure fishery in Venezuela were of specimens over the minimum size of maturity (Barbarino and Lasso, 2009).* *Barbarino and Lasso (2009) note that at present harvesting levels are low and not threatening the species, but that there is potential for supplying Asian markets and that with improved fishing techniques, captures could increase by at least 70%.*

Supporting Statement (SS)	Additional information
Hong Kong (37), Japan (32), Russia (15), China (6) and Mexico (6). There are many trade names used for *P. aiereba*, however, so trade in this species is likely to be underestimated. The supporting statement also provides approximate figures for export of all Potamotrygonidae stingrays – Brazil exported 36 000 specimens between 2003 and 2005, and Colombia more than 500 000 specimens between 1995 and 2012. It is important to note that since 1990 Brazil does not permit the export of live specimens, and only meat. Colombian exports averaged about 25 000 specimens per year between 1995 and 2006 (ranging between 15 000 and 30 000), after which there was a dramatic increase to a peak of over 60 000 individuals exported in 2008. Exports in 2009-2012 declined again to approximately 25 000 specimens per year. However, it is unclear how many of these specimens can be attributed to *P. aiereba*, with this family being composed of ~25 species. *P. aiereba* is not easily found for sale on the internet; however, there are some specimens for sale on aquarium sites and forums (USD200 per specimen, e.g. http://www.aquascapeonline.com/products/cega-stingray-10in-paratrygon-aiereba.html). Whether these come from legal sources is unclear. The liver and its oil have traditional medicinal uses in Colombia and the spines from Potamotrygonidae are used to make ornaments, small arrows and spears in Brazil and Ecuador.	

Inclusion in Appendix II to improve control of other listed species

A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I

The proposal notes that this species belongs to a monotypic genus and that it can be differentiated from *Potamotrygon* by various features. Brazil is planning to develop identification manuals for fish species to support enforcement efforts.	*Frederico* et al. *(2012) found evidence that there was "more than one species within what currently is considered* P. aiereba*".*

Supporting Statement (SS)	Additional information
Other information	
Threats	
The main threats to *Paratryon aiereba* are commercial and artisanal fisheries for the ornamental fish trade, particularly juveniles, and human consumption. However, habitat destruction is also a threat to the species, in particular that resulting from the building of hydropower plants and ports and agricultural and mining activities. In Ecuador, principle river systems such as the Napo, which are known habitats for *P. aiereba*, are now degraded and fragmented. Though the effects of disturbance from ecotourism have been noted at least in two species of Potamotrygonidae (Potamotrygon orbignyi and P. aiereba) in the Rio Negro Basin, the data are uncertain.	*Araújo (2001; as cited in Araújo* et al., *2004) has estimated 21 000 individuals have been removed from the population (during an undefined time period) by ecotourism companies in Brazil, to avoid accidents with freshwater stingrays. This activity is unregulated because it is not considered a "fishery" by the Brazilian Environmental Agency (IBAMA).*
Conservation, management and legislation	
Brazil has regulated the capture and exports of Potamotrygonidae species since 1990. Initially exports of freshwater stingrays for ornamental purposes were completely prohibited, but taking into consideration the negative effect this was having on local communities, quotas were agreed for certain species. Exports of *P. aiereba* for this purpose, however, are still prohibited. In Colombia, commercial fishing for *P. aiereba* for ornamental purposes can only be carried out with authorisation and permits from the National Fisheries Authority (Resolution 3532, 2007). This authority also determines closed seasons, when capture, transport, storage and marketing are prohibited. The Ministry of Agriculture and Rural Development sets annual fishing and export quotas for certain species used for ornamental purposes (Resolution 0301, 2011). The National Action Plan for the Conservation of Sharks, Rays and Chimaeras of Colombia lists *P. aiereba* as a species of high priority for action. Minimum sizes for capture have been proposed by experts.	*When Brazil halted stingray exports for two years, Brazilian exporters were no longer able to provide the variety that the market demanded and exports of other species also declined. There was also an increased export of wild-caught ornamental fishes (of all species) from other exporting countries in South America. When stingray trade from Brazil reopened, the value and volume of all ornamental fish exports rose steeply. This demonstrates the importance of co-ordinating exploitation and trade management measures across all countries of origin in the region (CITES, 2009).*
Ecuador has a specific regulation on the collection of ornamental fish not listed in CITES Appendices. There are several national parks/reserves in the Amazon and Orinoco River Basin, which contain *P. aiereba* subpopulations.	*In 2009, only three companies in Ecuador had permits for extracting ornamental fish (CITES, 2009).*

Supporting Statement (SS)	Additional information
	Captive breeding/Artificial propagation
.	*There is a small, but reportedly growing market for adult Potamotrygonidae stingrays to supply captive-breeding programmes in Asia (CITES, 2009).* *The report of the South American Freshwater Stingray Workshop (Geneva, 15–17 April, 2009) (see AC24 Doc. 14.2) notes that "any popular ornamental species can now be captive-bred. This is undertaken on a large scale in Asian countries, both for domestic markets and for export to other parts of the world. International transport costs are lower from major Asian centres than from remote areas of South America, and captive-breeding is now providing a wider range of colour patterns from hybrids. Freshwater stingray breeding operations were under way in Asia before the adoption of a moratorium on export of stingrays from Brazil, and have continued to expand significantly".* *Wingerter (2012) also notes that "commercial river stingray breeding facilities are currently operating in the United States, Germany and Southeast Asia. Fortunately, the use of PIT tagging in the trade is slowly regaining the confidence of consumers who are again relying on breeders, rather than collectors, to supply "pure stock." In fact, as breeders continue to increase production, they could potentially flood the market with captive-bred product and all but neutralize the export of river stingrays from their native lands altogether. At the very least, relieving pressure on wild populations in this way could help to ensure that the existing legal harvest quotas will not be reduced, thereby keeping supply lines for wild genetics open".*
	Other comments
Two Decisions regarding South American Freshwater Stingrays were adopted at CITES CoP14: 14.109 (that a regional workshop be held) and 14.110 (that the CITES Animals Committee consider the workshop outputs and make recommendations to the range States and CoP15 on improving the conservation status and regulation of international trade in these taxa). Decision 15.85 was consequently adopted at CoP15, in which Range States of species in the family Potamotrygonidae are encouraged to: a) note the findings and conclusions of the freshwater stingrays workshop (document AC24 Doc. 14.2), and increase their efforts to improve data collection on the scale and impact of the threats facing stingray species and populations from collection for ornamental trade, commercial fisheries for food and habitat damage;	

Supporting Statement (SS)	Additional information
b) consider implementing or reinforcing national regulations regarding the management and reporting of capture and international trade of freshwater stingrays for all purposes, including commercial fisheries for food and ornamental trade, and standardizing these measures across the region, for example through existing South American intergovernmental bodies; and c) consider the listing of endemic and threatened species of freshwater stingrays (Potamotrygonidae) in CITES Appendix III as needing the cooperation of other Parties in the control of trade.	

Reviewers: G. Sant.

Inclusion of Ocellate River Stingray *Potamotrygon motoro* and Rosette River Stingray *Potamotrygon schroederi* in Appendix II

Proponent: Colombia and Ecuador

Summary: The Ocellate River Stingray *Potamotrygon motoro* and Rosette River Stingray *P. schroederi* are freshwater stingrays from South America in the family Potamotrygonidae, a family of around 25 species of freshwater elasmobranch fishes confined to South America. *P. motoro* has a wide distribution in Argentina, the Plurinational State of Bolivia (hereafter Bolivia), Brazil, Colombia, Ecuador, French Guiana, Guyana, Paraguay, Peru, Suriname and Bolivarian Republic of Venezuela (hereafter Venezuela); *P. schroederi* has a more restricted distribution and is found in Brazil, Colombia and Venezuela. Little information is available on the biology and fecundity of these species. *P. motoro* can reach a maximum reported weight of 10 kg with a wing diameter of around 50 cm. *P. schroederi* is similar in size or somewhat larger (wing diameter around 60 cm). Gestation periods are thought to be long and growth slow. *P. motoro* reaches sexual maturity during its third year; the litter size is always an odd number, varying from three to 21. *P. schroederi* has an average uterine fecundity of two embryos. Information on the population sizes of these species is also sparse, although both were apparently historically abundant in the main harvest area of Estrella Fluvial de Inírida in Venezuela and Colombia. There are consequently few data to evaluate the impact of harvest and trade. Both species have been assessed as Data Deficient by IUCN, *P. motoro* in 2005, *P. schroederi* in 2009. Both species were classified as vulnerable in the Colombian National Red List Assessment in 2012.

The species are harvested in commercial and artisanal fisheries for the ornamental fish trade, particularly targeting juveniles; they are reportedly also harvested for food, both for local consumption and export, although the extent of such harvest is unclear. They may also be affected by habitat modification. Some recent surveys targeting these species have obtained low catches or failed to find them in areas where they were previously known to occur.

Potamotrygon motoro and *P. schroederi* are traded internationally as ornamental fish. Based on export records, which are not entirely consistent, it seems that an average of around 8000 specimens a year of *P. motoro* were exported from Colombia in the period 1999–2009, with an additional several thousand specimens a year exported from Brazil up to 2008, when domestic regulations on the fishery were introduced. Peak export year for Colombia was 2009, when over 12 000 specimens were reported as exported. Since 2007, recorded annual export of *P. schroederi* from Colombia has been at around half the level of that of *P. motoro,* amounting to several thousand specimens a year. There is little information on export of this species from Colombia before 2007, although it is not clear whether this is because little export was taking place, or data are lacking. A large proportion of reported *P. schroederi* landings in the Inírida region of Colombia (the apparent source of many of the specimens in trade) are believed to have been in fact landed in Venezuela.

Brazil is the only range State for either of these species known to have specific regulations in place to control exports of aquatic species for ornamental purposes (quotas agreed). Harvesting in Colombia can only be carried out during specified seasons and with the necessary permits and authorisations. In Argentina (a range State for *P. motoro*), there has reportedly been little export of any live freshwater stingrays since 2000.

The proposed listing would include an annotation to delay entry into effect of the inclusion by 18 months, to enable Parties to resolve technical and administrative issues.

Analysis: *Potamotrygon motoro* and *P. schroederi* occur in fresh waters in South America. Both are targeted in fisheries for the international ornamental fish trade.

Potamotrygon motoro has a very wide distribution. The main harvesting areas appear to be the Estrella Fluvial de Inírida region in Venezuela and Colombia and the Rio Negro tributary of the Orinoco in Colombia. It is not clear whether harvest for export occurs in any significant numbers in any other parts of its extensive range, although this seems unlikely. In the past, some collection for export appears to have taken place in Argentina, the far south of the species' range, but this has apparently now ceased. Export levels are unknown, although may number in the region of 10 000 per year, predominantly from Colombia. Some studies have shown *P. motoro* at low densities in harvested areas. However, there is little quantitative information regarding the magnitude of any declines.

Potamotrygon schroederi is a more restricted species, although it still has an extensive range. There are some indications of local declines, ascribed to over-exploitation, and the species is considered rare in parts of its range; reported export is almost entirely from Colombia, although it is thought that a significant proportion of reported landings in that country in fact originate in Venezuela, suggestive of depletion within harvesting areas in Colombia. However, it is not known how extensive harvest for export is within the overall range of the species, nor what impact such harvest has on the population of the species as a whole.

Overall, there is currently insufficient information to determine if either species meets the criteria for inclusion in Appendix II.

Supporting Statement (SS)	Additional information
Range	
P. motoro is found in Colombia, Venezuela, Guyana, Suriname, Brazil, French Guiana, Ecuador, Bolivia, Peru, Paraguay, Uruguay and Argentina. *P. schroederi* is found in Colombia, Brazil and Venezuela.	
IUCN Global Category	
P. motoro: Data Deficient Globally. Vulnerable in Colombian Red List Assessment (2012).	*Assessed 2005 (ver. 3.1).*
P. schroederi: Data Deficient Globally. Vulnerable in Colombian Red List Assessment (2012).	*Assessed 2009(ver. 3.1).*

Supporting Statement (SS)	Additional information

Biological and trade criteria for inclusion in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)

B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences

Biology

P. motoro and *P. schroederi* have low fertility, long gestation periods and slow growth.

P. motoro: Males reach sexual maturity at 31 cm DW (disc width) and females at 35 cm DW and only the left ovary is normally present and functional in females. In the basin of the Orinoco breeding occurs throughout the year and size at maturity is 31.8 cm DW in males and greater than 38 cm DW in females. It can reach a maximum size of 43.7 cm DW in males and 43.4 cm DW in females, weighing 3.1 and 3.4 kg, respectively. For the Paraná Basin (Argentina), fertility varies between 4 and 11 embryos (average 7). For Brazil, fertility is between 9 and 15 embryos though in captivity they have been shown to have between 6 and 7 embryos. The length of gestation has been approximated as six months and age at maturity of 3.5 years in Brazilian Amazon. It can reach 50 cm and larger animals can weigh 10 kg. The known record maximum is 100 cm long and 15 kg.

P. schroederi: Specimens reach a maximum size of 54 cm DW, the left ovary is atrophied and the right is functional. It has been suggested that the gestation period is six months and young are born in the rainy season over a period of four months. Females have ovarian fecundity of 3-7 eggs and embryo fertility between 1 and 3 (although the sample size was low). Males mature at 42 cm DW and females at 44 cm DW. In the Venezuelan Orinoco males seem to mature at larger sizes to 39.5 cm DW. Maximum size in males is 52.4 cm DW and 61.2 cm DW in females.

Population and decline information

P. motoro and *P. schroederi* were reportedly historically abundant in the Estrella Fluvial de Inírida region in Venezuela and Colombia, due to the confluence of many rivers. No specimens of *P. schroederi* and only 79 specimens of *P. motoro* (52 males and 27 females) were found during night-time visual surveys in the dry season in 2010-2011 (November to March). An average of 0.75 *P. motoro* were captured per hour, which is equivalent to there being 0.5 individuals per kilometre in the region (2530 km^2). Two males were captured for every female, and immature rays (less than 25cm disc width, DW) represented 60% of all males collected and 81% of all

Biology

A study of P. motoro *has indicated that it is one of the most fecund stingrays (Araújo* et al., *2004a). This study also found no evidence of reduction in the abundance of this species.*

Population and decline information

The Estrella Fluvial de Inírida region is the area where most P. motoro *have historically been caught (Lass and Sanchez-Duarte, 2012).*

P. motoro *has been highlighted as the most abundant and widespread endemic ray species of the Parano-plata Basin, it is poorly known and its status is uncertain (Driolo and Chiaramonte, 2005).* P. schroederi, *although reasonably widespread within its known range, it is not a common species (Araújo, 2009).*

Supporting Statement (SS)	Additional information
females. *P. motoro* was found only in low densities in fisheries captures specifically looking for this species in the Rio Negro of the Colombian Orinoco, which is renowned for its importance for harvesting ornamental fish. In Ecuador, a total of 64 individuals of *P. motoro* were collected during two surveys in 1994 and 2010. 31 of these were immature rays with DW less than 25 cm.	*In Brazil,* P. schroederi *is a rare stingray with few export records (Araújo* et al., *2004a).* *It must be noted that detection rates of these rays depend on a number of factors.* P. motoro *rays are most commonly caught when water levels are low and they can observed partly buried during the warmest period of the day.* P. motoro *catches have historically coincided with a rise in water temperature, with abundance increasing in the Paraná Medio from September to mid-January, stabilizing in early March, declining in April, then disappearing (Martinez Achenbach and Martinez Achenbach 1976). It is possible that they remain permanently in the area, but are concealed on the bottom at other times (Driolo and Chiaramonte, 2005).*
Trade Internationally *P. motoro* and *P. schroederi* are traded as an ornamental fish. Export data is available for the Potamotrygonidae family as a whole and also to species level for Colombia and Brazil. More than 500 000 specimens of the family Potamotrygonidae have been recorded as being exported from Colombia during 1995-2012 and more than 36 000 specimens from other countries, such as Brazil between 2003 and 2005. There are data for the period 2003 to 2005 for Brazil, which before the introduction of the domestic regulation (2008), exported 17 840 specimens of *P. motoro* and 1049 specimens of *P. schroederi.* Colombian export data has always been recorded at the family (Potamotrygonidae) level, however, from 2007 onwards attempts have been made to record capture and trade data to the species level, and from 2009, quotas have been set for these commercially important species. Based on reconstructed statistics it is estimated that between 1999 and 2009 (excluding 2003) in Colombia 81 109 specimens of *P. motoro* were exported. According to Colombian fisheries data, 19 459 specimens of *P. motoro* and 7954 specimens of *P. schroederi* were captured between 2007 and 2010. Prices range from EUR130 to EUR210 per specimen of *P. motoro* and from EUR145 to EUR225 for *P. schroederi*. Colombia has records between 2007 and 2011 of 14 081 specimens of *P. schroederi.* Illegal trade in both species in the Estrella Fluvial de Inírida region (between	*Trade* P. motoro *is the second-most harvested and exported freshwater ray in Colombia, and* P. schroederi *the third (and increasing in importance) (Lasso and Sanchez-Duarte, 2012). In 2009, over 12 000 specimens of* P. motoro *and 6349 specimens of* P. schroederi *were reportedly exported from Colombia.* *Interpretation of the trade data presented in the SS is difficult, as figures are provided for different or unspecified time periods. The number of Potamotrygonidae specimens recorded in the table in Annex 3 (years unspecified) as exported from Brazil totals 2645. According to the text of the proposal, a total of 81 109 specimens of* P. motoro *were exported from Colombia; exports reported in Annex 3 from Colombia total* 59 985 P. motoro *and 14 081* P. schroederi. *These inconsistencies could reflect variations in the source of the data (dos Reis* in litt., *2012). The title of the figure in Annex 5 states that the data for Colombia are for 1999–2009, excluding 2003, 2007 and 2008, however, this figure then shows values for 2007 and 2008. According to the figure in Annex 5, Brazilian exports (of* P. motoro *only, according to the title of the figure) in 2003, 2004 and 2005 were approximately 7500, 7500 and 3000, respectively, totalling 18 000 specimens.* *The Estrella Fluvial de Inírida region in the Orinoco is the most important region for*

Supporting Statement (SS)	Additional information
Venezuela and Colombia) is known to have occurred for at least the last five years. Specimens are also thought to be illegally traded from Brazil to Peru or Colombia and then exported from there. There have also been cases of illegal trade from Peru to Ecuador. Adults for use in captive-breeding operations are apparently for sale on the Asian black market. The principal importing countries (in order) are Germany, USA, Japan, Taiwan POC, Singapore and Hong Kong. The main destinations for *P. motoro* and *P. schroederi* exported from Colombia (in order of importance) are Hong Kong, Japan, USA, Taiwan POC, China, Thailand, Malaysia and Germany. The USA reported importing 1261 *P. motoro* and 139 *P. schroederi* from Colombia in 2010. No US imports of South American freshwater stingrays were reported from Venezuela or Ecuador (only Colombia, Brazil and Peru). *P. motoro* (USD79 – USD325) and *P. schroederi* (USD125 - USD780) are offered for sale on various websites and forums. The country of origin of the specimens is not indicated in the majority of these adverts and whether the specimens come from legal sources is unclear.	*catching* P. motoro*. In 2009, 2793 specimens of* P. motoro *were reportedly harvested from there. Landings of* P. schroederi *in the Orinoco between 2007 and 2010 were 3113 (2007), 288 (2008), 1886 (2009) and 940 (2010). A large proportion of the reported* P. schroederi *landings in the Inírida region are believed to have come across the border illegally from Venezuela (Lasso and Sanchez-Duarte, 2012).* P. motoro *products were imported in to the USA between 2000 and 2012 (LEMIS Database, 2012). Live specimens dominated the trade data: 1175 were imported, reportedly for purposes as follows—1142 (commercial), 25 (zoos) and eight (personal). No imports have been recorded by the USA for* P. schroederi. *In Argentina, the international trade of freshwater stingrays for aquaria, targeting mainly* P. brachyura *and* P. falkneri, *has been unregulated and unreported, but little has occurred since the late 2000s (dos Reis* in litt., *2012).* *Furthermore, one exporter indicated that he had stopped exporting freshwater stingrays because of the logistical issues and cost of transporting them internationally.* *At the South American Freshwater Stingray Workshop held in Geneva in April 2009 (AC24 Doc 14.2), participants concluded that uncontrolled cross-border trade was widespread within the South American region and that this was a serious issue in some areas and for some species of freshwater stingray.*
Inclusion in Appendix II to improve control of other listed species **B) Compelling other reasons to ensure that effective control of trade in currently listed species is achieved**	P. brachyura *and* P. falkneri *were involved in trade several years ago (dos Reis* in litt., *2012). It has been suggested that a strict export control of* P. motoro *must exist to avoid mis-identification of this species with the endemic* P. leopoldi *and* P. henlei *(Araújo* et al., *2004a). None of these species are listed in the CITES Appendices (CITES, 2009).*
Other information **Threats** The main threats to *P. motoro* and *P. schroederi* are commercial and artisanal fisheries for the ornamental fish trade, particularly juveniles. However, habitat	

Supporting Statement (SS)	Additional information
destruction is also a threat to the species, in particular that resulting from the building of hydropower plants and ports and agricultural and mining activities. In Ecuador, principle river systems such as the Napo, which are known habitats for these species are now degraded and fragmented. *P. motoro* is caught for human consumption in Brazil and the liver and its oil has traditional medicinal uses in Colombia. The spines of Potamotrygonidae species are used to make ornaments, small arrows and spears in Brazil and Ecuador.	*All species of river stingray in the Parano-plata Basin have delicious meat and are harpooned by fishermen when seen in shallow water (Driolo and Chiaramonte, 2005). However, it is not a common activity (do Reis* in litt., *2012).* *In Argentina, collection for domestic consumption has never been very important, and only some fishermen eat these fishes (dos Reis* in litt., *2012). Furthermore, the live trade has been the only trade of stingrays in the country, and export for meat has not been detected.*
Conservation, management and legislation	
Of the range countries for these species, only Brazil has specific regulation in place to control exports of aquatic species for ornamental purposes. Brazil has regulated the capture and exports of Potamotrygonidae species since 1990. Initially exports of freshwater stingrays for ornamental purposes were completely prohibited, but taking into consideration the negative effect this was having on local communities, quotas were agreed for certain species, including *P. motoro* and *P. schroederi*. Companies caught exporting larger specimens than permitted or specimens of prohibited species are penalised by having their quota cancelled. Airport controls are strict and all boxes of ornamental fish must include a specific marker for identification. In Colombia, harvesting of both *P. motoro* and *P. schroederi* can only be carried out with the necessary permits and authorisation from the National Fisheries Authority. This authority also determines closed seasons, when capture, transport, storage and marketing are prohibited. The Ministry of Agriculture and Rural Development sets annual fishing and export quotas for certain species used for ornamental purposes (Resolution 0301, 2011). A proposal to enforce minimum sizes for capture is currently under review.	*Details of current Brazilian export quotas were not provided in the proposal. In 2004, these were set at 5000 and 1500 units per year for* P. motoro *and* P. schroederi, *respectively (*Araújo et al., *2004b).* *Since 2010, the National Environment Secretariat in Argentina has implemented Resolution 226/2010 (Access Regime to genetic resources) and is working in conjunction with Customs to monitor the output of non-declared organisms (dos Reis* in litt., *2012).*

Supporting Statement (SS)	Additional information
Captive breeding/Artificial propagation	
Captive-breeding of these species is reportedly in an experimental phase in Colombia and Peru, and both species are being bred in captivity in Southeast Asia and naturalised populations have been reported in Singapore.	*The report of the South American Freshwater Stingray Workshop (2009) (see AC24 Doc. 14.2) notes that "any popular ornamental species can now be captive-bred. This is undertaken on a large scale in Asian countries, both for domestic markets and for export to other parts of the world. International transport costs are lower from major Asian centres than from remote areas of South America, and captive breeding is now providing a wider range of colour patterns from hybrids. Freshwater stingray breeding operations were underway in Asia before the adoption of a moratorium on export of stingrays from Brazil, and have continued to expand significantly".* *Wingerter (2012) also notes that "commercial river stingray breeding facilities are currently operating in the United States, Germany and Southeast Asia. Fortunately, the use of PIT tagging in the trade is slowly regaining the confidence of consumers who are again relying on breeders, rather than collectors, to supply "pure stock." In fact, as breeders continue to increase production, they could potentially flood the market with captive-bred product and all but neutralize the export of river stingrays from their native lands altogether. At the very least, relieving pressure on wild populations in this way could help to ensure that the existing legal harvest quotas will not be reduced, thereby keeping supply lines for wild genetics open".*

Reviewers: G.E. Chiaramonte, R.E. dos Reis, G. Sant.

Transfer of the Corsican Swallowtail *Papilio hospiton* from Appendix I to Appendix II

Proponent: Denmark (on behalf of the European Union Member States acting in the interest of the European Union)

Summary: The Corsican Swallowtail *Papilio hospiton* is a butterfly endemic to the European islands of Corsica (France) and Sardinia (Italy). It is widespread and locally abundant on both Corsica and Sardinia. Population numbers were estimated at greater than 10 000 adults in 2010 and are considered stable or to be increasing. Movement between sub-populations and suitable habitat is known to occur.

It was first listed as Endangered on the IUCN Red List in 1986 and at that time was considered one of the rarest of European butterflies, being threatened by habitat destruction and collecting. The species has been protected in France since 1979 and in Italy since 1981 and was included in CITES Appendix I in 1987 and is also protected through the EU Habitats Directive and Bern Convention. It appears that the elusive nature and scattered occurrence of adults, in addition to fluctuations between years, led to the species being assumed to be rare in the past and it is now considered to be more common than previously thought and even abundant locally. No major threats are known now and in 2010 the species was re-assessed by IUCN as Least Concern, with an increasing population trend.

According to CITES trade data, legal international trade from 1987 to 2010 totalled a maximum of seven bodies. There is minimal evidence of illegal trade or offers for sale over the internet and the effects of commercial collection on the population are considered negligible, as any small areas sampled by collectors are regularly re-populated from surrounding areas. Wild collection is prohibited in France and strictly controlled in Italy. The only other possible threat to the species is due to habitat modification occurring on both islands and specifically the removal of food/host plants such as *Ferula communis.* However, *Papilio hospiton* is found in a number of protected areas (in which it is considered common or abundant) and provided that traditional land use (grazing and controlled burning) is continued outside these protected areas, habitat modification is not likely to be a serious threat to the species.

In 2011, at its 25th meeting, the CITES Animals Committee selected the species for review under the Periodic Review of the Appendices taking place between CoP15 and CoP17. The two range States for *P. hospiton* conducted the review on behalf of the EU. The proponent seeks to transfer *P. hospiton* from Appendix I to Appendix II in accordance with precautionary measures A1 and A2 a/b of Annex 4 of *Resolution Conf. 9.24 (Rev. CoP15)*, with the view that the species no longer meets the biological criteria for inclusion in Appendix I, nor is it in demand in international trade. The proponent states that it does not consider down-listing necessarily a first step to deletion of the species from the Appendices. If the species is transferred to Appendix II, the proponent notes that consequences of this action will be carefully monitored to evaluate further actions.

Analysis: Available evidence suggests that *Papilio hospiton* no longer meets the biological criteria for inclusion in Appendix I, as the population cannot be considered small (estimated at over 10 000 adults) nor can its area of distribution (over 20 000 km^2) be considered small. The population is thought to be stable or increasing and faces no major threats. The species does not appear to be in demand for international trade, nor is its transfer to Appendix II likely to stimulate trade in, or cause enforcement problems for, any other species included in Appendix I. There may be some demand for the species from collectors, however, it is legally protected under the EU Habitats Directive, protected nationally in both its range States and a considerable proportion of its range lies within protected areas. Even if transfer to Appendix II were to stimulate demand for the species, the population is believed to be able to withstand a certain level of collection pressure and the range States appear to have the necessary management and enforcement capacity and controls in place.

Supporting Statement (SS)	Additional information
Taxonomy	
	The original author for the species is Gené, not Guenée, another entomologist active at the time (Zilli in litt., *2012).*
Range	
Corsica (France) and Sardinia (Italy).	
IUCN Global Category	
Least Concern (2010).	*Ver. 3.1.*

Biological criteria for inclusion in Appendix I

A) Small wild population
(i) Population or habitat decline; (ii) small sub-populations; (iii) concentrated geographically during one or more life-history phases; (iv) large population fluctuations; (v) high vulnerability

In 2010, the population size of *P. hospiton* was estimated to be probably >10 000 adults. Previous estimates (from 1996) ranged between 10 000 and 100 000 individuals, and these were considered "rather conservative".

The species is widespread and whilst found at low densities overall, high local densities have been observed. In Sardinia, the species is considered relatively common and was found to be abundant in the Montimannu area. It is considered common to abundant in Corsica Regional Nature Park. The elusive nature and scattered occurrence of adults may have led to the species being assumed to be rare in the past. Furthermore, populations of *P. hospiton* fluctuate across years, making it difficult to assess the species's status.

Papilio hospiton's reproductive cycle is closely related to specific food plants such as *Ferula communis*. In Sardinia *F. communis* populations are reportedly shrinking due to agricultural and other human activities, however, the plant spreads quickly and is able to re-colonise areas well.

Males are territorial, but not restricted to a definite area. They gather on hilltops or other structures to wait for the arrival of females.

Supporting Statement (SS)	Additional information

B) Restricted area of distribution

(i) Fragmented or localised population; (ii) large fluctuations in distribution or sub-populations; (iii) high vulnerability; (iv) decrease in distribution, population, area or quality of habitat, or recruitment

Its range is determined by the distribution of its food plants, but in 2010 was estimated at over 20 000 km^2. In Corsica (8722 km^2), the size of the most suitable habitat was estimated at 150 km^2, with an additional area of 1500 km^2 able to support lower population densities.

In Corsica, the species is found across the island, except the eastern littoral plain and lower basins of coastal rivers, although the distribution is not homogenous. Populations are concentrated in the mountainous interior. In Sardinia, the species ranges from the coast, including some of the islands, up to high altitudes, although it is possibly absent from some areas of the north-west. Development along the coast in the 1980s may have led to a shift of the species's distribution locally.

The species has an "open population structure", with "intense exchange" of specimens between localities. The species can cover substantial distances, so individuals may possibly move between habitats of different vegetation.

Range described in the proposal is the "extent of occurrence" estimated for the Red List assessment (see van Swaay et al.*, 2010). This is not area of occupancy and may include some areas/ specific habitat types where the species does not occur.*

At the time of the 1987 listing proposal, populations were believed to be extremely localised (CITES, 1987).

C) Decline in number of wild individuals

(i) Ongoing or historic decline; (ii) inferred or projected decline due to decreasing area or quality of habitat, levels of exploitation, high vulnerability, or decreasing recruitment.

In the early 2000s, the population was reported to be stable both in Italy and France, and in 2010 it was reportedly increasing. In 2012, it was listed as least concern on the French National Red List.

According to the Habitat Directive's species conservation status assessments for the period 2001-2006, the overall status of *P. hospiton* was reported by France as "favourable" and by Italy as "unfavourable – inadequate". For the latter the category "unfavourable – inadequate" refers to the lack of recent specific surveys on the species and not to its unfavourable status.

Populations are considered stable in Sardinia, both in number and distribution. The population at Montimannu is stable and no declines had been observed over the last

At the time of the1987 listing proposal, numbers were believed to have declined dramatically and the species was listed as Endangered in the IUCN Red Data Book on Threatened Swallowtail Butterflies of the World. The species continued to be assessed as Endangered in 1988, 1990, 1994 and1996, and then when re-assessed in 2010 it was listed as Least Concern (van Swaay et al.*, 2010).*

Supporting Statement (SS)	Additional information
40 years.	
Trade criteria for inclusion in Appendix I **The species is or may be affected by trade**	
There has been virtually no global trade in *P. hospiton* reported over the period 1987-2010: seven bodies according to importers or five bodies according to exporters, mostly Pre-Convention specimens traded for personal or scientific purposes, with three wild specimens traded for "circuses and travelling exhibitions". The species is thought to still be of interest to collectors, and it is reportedly traded illegally. However, there is minimal evidence of this (see threats).	*The 1987 proposal noted that "although little is known about the extent of the Corsican Swallowtail in trade it is widely believed that this rare species is collected to excess for private and commercial purposes and that this is causing severe declines in butterfly numbers" and "although there is little advertised trade commercial collecting parties are known to occur, at least on Sardinia".* *There are no records of illegal trade or seizures of this species by EU CITES enforcement authorities since 1987. TRAFFIC and WWF have monitored the most important Italian insect fairs in recent years and only very rarely heard of people enquiring about this species for their private collections (Rocco* in litt., *2012).*
Precautionary Measures **Species not in demand for trade; transfer to Appendix II unlikely to stimulate trade in, or cause enforcement problems for, any other species included in Appendix I**	
There is virtually no legal trade in the species and there is little evidence that illegal trade is occurring. The species therefore does not appear to be in demand for international trade. Down-listing is not likely to stimulate trade in, or cause enforcement problems for, any other species included in Appendix I - the only similar species to *Papilio hospiton* is *Papilio machaon*, which is not listed in CITES. The species is of interest to collectors despite its protected status and is reportedly available in illegal trade. There is however minimal evidence of trade or offers for sale over the internet and the effects of commercial collection on the population are considered negligible, as the small areas sampled by collectors are regularly repopulated from surrounding areas.	*A web search and specific searches on French, Italian, Spanish and UK eBay in October 2012 came up with zero results for specimens of this species (also when searched using various common names). Enthusiasts discuss the species and the fact that its collection is not permitted on various forums (e.g. http://www.insectnet.com/cgi/dcforum/dcboard.cgi?az=read_count&om=336&forum=DCForumID26), however there still appear to be some that collect/are looking for specimens: http://www.entomologiitaliani.net/public/forum/phpBB3/viewtopic.php?t=7969* *At the time of writing the 1987 proposal, both adult and immature stages were reportedly taken by local and foreign collectors who were aware of the rarity of the species. It was believed this continued on Corsica, where collecting is prohibited, as well as on Sardinia. In some areas of Sardinia* Papilio hospiton *larvae were collected in large numbers every spring, when commercial collectors were seen as welcome tourists at a time when hotels were mostly empty.*

Supporting Statement (SS)	Additional information
Species likely to be in demand for trade, but its management is such that the CoP will be satisfied with: i) implementation by the range States of the requirements of the Convention, in particular Article IV; and ii) appropriate enforcement controls and compliance with the requirements of the Convention	
The proponents note that even if down-listing to Appendix II were to stimulate demand for the species, its protection and management in both range States (collection being prohibited) is such that the Conference of the Parties would be satisfied with: i) implementation by the range States of the requirements of the Convention, in particular Article IV; and ii) appropriate enforcement controls and compliance with the requirements of the Convention (criterion A 2b).	
Other information	
Threats	
According to the 2010 Red List Assessment the species is not believed to face any major threats. A reduction in food plant availability could potentially impact the species, but this is not expected provided that traditional land use (grazing and controlled burning) is continued. Other potential threats include agricultural intensification, afforestation and collection of specimens. In Corsica, the habitat of the species is threatened locally, but in Sardinia potential threats to *P. hospiton* are low, with the species being in "reasonable ecological balance with human activities". However, the mowing of roadsides destroys large quantities of suitable host plants at the time of reproduction and the species is thought potentially to be affected by measures to eliminate the moth *Lymantria dispar* from Sardinian oak forests with *Bacillus thuringiensis* treatment. The species's reproduction is closely linked to its larval food plants. *Papilio hospiton* larvae feed predominantly on *Ferula communis, Ruta corsica* and *Peucedanum paniculatum*. In Corsica these plants are abundant, but *P. paniculatum* is considered a weed and to lower the quality of pasture land and *R. corsica* is toxic. Farmers therefore try to destroy these plants through burning; however, all three species are adapted to survive periodic burning. In Sardinia *F. communis* populations are reportedly shrinking due to agricultural and other human activities, however, the plant spreads quickly and is able to re-colonise areas well – therefore only targeted action would be able to eliminate it from extensive areas.	*Habitat was lost to developments such as ski resorts (CITES, 1987).*
Conservation, management and legislation	
Papilio hospiton is protected nationally and internationally.	*The Corsican population was originally protected under a French decree published on*

Supporting Statement (SS)	Additional information
It has been protected in France since 1979 and is listed as a protected species in Order no. DEVN0752762A of 2007. Under this legislation, destruction, collection and sale of the species, and destruction or degradation of its habitat, is prohibited, with exemptions only permitted for research, education and re-introduction purposes outlined in the "*Code de l'environnement*" and for specimens collected prior to 1993 in France and prior to 1992 for the rest of the EU. In Italy, it is listed as a strictly protected species in Annex II of Law number 503 of 1981, implementing the Bern Convention in Italy and also in Annex B and D of the D.P.R Directive 357/97, implementing the EU Habitats Directive in Italy. *Papilio hospiton* has been listed in CITES Appendix I since 22/10/1987 and in Annex A of *Council Regulation (EC) No 338/97* (as amended) since 1997. It is included in Annex II (species of EU interest requiring the designation of special areas of conservation) and Annex IV (species of EU interest requiring strict protection) of the Habitats Directive (92/43/EEC), and as strictly protected species in Annex II of the Bern Convention. The species occurs in a number of protected areas. It occurs in three Prime Butterfly Areas - the Corsica Regional Nature Park, which includes a large proportion of the species's range; and Capo Caccia and the Gennargentu Massif in Sardinia. It is also found in the Scandola Nature Reserve on Corsica and in Sardinia is reported to occur in the Specially Protected Areas of Piana di Semestene and Piana di Ozieri, Mores, Ardara, Tula and Oschiri and the Campo di Ozieri (a Special Area of Conservation). Active management of nature reserves to prevent habitat succession into forests and traditional land management in agricultural areas are both important for maintaining favourable habitat conditions for this species. The Environment Office of Corsica (OEC) established a monitoring station for the conservation of insects (OCIC) on the island of Corsica in 2000, which aims to carry out periodic monitoring of the population and collate all information in a centralised database. The development, testing and application of a monitoring protocol of the conservation status of all habitats and species of community interest by 2012 is one of the objectives of the Italian national strategy for biodiversity.	*22 August 1979 that prohibited collecting, but did not protect the species habitat or food plants.* *When the species was initially proposed for listing, it was not believed to be protected under Italian law, and there were no nature reserves designated for its protection, or protecting its habitat.* *The recently enacted Decree no. 121 of 07 July 2011 (the Italian penal code) provides stronger penalties for infringements of environmental laws. Article 727 outlines penalties (imprisonment for one to six months or a fine of up to EUR4000) for any unlawful "killing, destruction, catching, taking or possession of wild specimens of protected wild fauna and flora". This would apply to any species protected under the Habitats Directive.*
Similar species *Papilio machaon*, which is not listed by CITES, occurs across much of Eurasia and parts of North America. Although similar, *Papilio hospiton* is reportedly easily distinguished from *Papilio machaon* by collectors. One to five per cent of the *Papilio* populations in Corsica and Sardinia are thought to	

Supporting Statement (SS)	Additional information
be made up of hybrids between *P. hospiton* and the sympatric *P. machaon*. While the hybrids are not sterile, the viability of subsequent hybrid progenies is impaired and the gene pools of the two species remain distinct.	
Artificial Propagation/Captive breeding	
Captive breeding is possible and the species is being bred at the University of Cagliari, Sardinia, for research purposes.	

Reviewers: K. Kecse-nagy, M. Rocco, A. Zilli.

Inclusion of *Yucca queretaroensis* in Appendix II

Proponent: Mexico

Summary: *Yucca queretaroensis* is a cold-hardy succulent plant endemic to Mexico where it occurs in the Sierra Madre Oriental in the states of Guanajuato, Querétaro and Hidalgo, specifically in the region known as the "Queretano-Hidalguense Semi-desert", occupying an estimated area of 600 km^2. It has a fragmented distribution, with subpopulations consisting of up to 20 individuals, separated by natural geological barriers such as canyons and steep hillsides. Some populations are relatively inaccessible and part of the habitat of the species is included in protected areas although it is not clear how effective protection is. Other populations are relatively accessible. The overall population is estimated at around 60 000 individuals and regeneration is reportedly limited, being mostly through offsets. Seed is apparently not set every year. The species has not been assessed against the Global IUCN Red List categories and criteria. A recent assessment in Mexico suggests that it could be classified as "at risk of extinction".

Yucca queretaroensis is considered a particularly attractive species of *Yucca* and is harvested principally as an ornamental plant for both local and international markets. Its relative cold-hardiness is likely to make it of particular interest to collectors in Europe and parts of North America. It is traded mainly as a living plant although trade in seeds also occurs. Locally, its flowers are also used in traditional festivals and the species was historically used in roof-making. *Y. queretaroensis* is in international trade, both as large, wild-collected plants and as artificially propagated specimens. Currently at least 300-500 wild-collected plants are believed to be imported into Europe each year, with larger numbers imported in the past. Artificially propagated plants have recently become available in Europe in some quantity. Mature plants command relatively high prices. The species resembles other *Yucca* species in trade, including *Yucca rostrata* and *Y. linearifolia*, neither of which is included in the Appendices, nor proposed for inclusion.

The species is listed under the category "subject to special protection" on the Mexican national red list (Sujeta a protección especial, Pr, Norma Oficial Mexicana NOM-059-SEMARNAT-2010). A more recent assessment suggests the species could be classified in the higher category of "at risk of extinction".

Analysis: *Yucca queretaroensis* has a relatively restricted distribution in Mexico. Its wild population is thought to number in the tens of thousands, although it apparently shows limited regeneration in the wild. It is sought-after as a horticultural plant and mature, wild-collected specimens enter international trade in some number, with at least 300-500 reported to be imported annually into Europe. If the estimate of the wild population is reliable and given its relatively limited regeneration capacity, the species may meet the criteria for inclusion in Appendix II in that regulation of trade may be required to ensure that the harvest of specimens from the wild is not reducing the wild population to a level at which its survival might be threatened by continued harvesting or other influences (Paragraph B of Annex 2 a to *Resolution Conf. 9.25 (Rev. CoP15)*). The species resembles other *Yucca* species in trade so that identification of specimens in trade might be problematic.

Supporting Statement (SS)	Additional information
Range	
Mexico	
IUCN Global Category	
	Not currently listed

Biological and trade criteria for inclusion in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)

A) Trade regulation needed to prevent future inclusion in Appendix I

The Norma Oficial Mexicana NOM-059-SEMARNAT-2010 (the Mexican National Red List) classifies the species as being “Subject to special protection” (Pr), but the most recent evaluation of its conservation status indicates it could be classified in a higher category of ‘at risk of extinction’

Garcia-Mendoza (2003) reports fragmentation and destruction of the habitat of Y. queretaroensis*.*

The wild population of *Yucca queretaroensis* is small (approximately 60 300 individuals in total) and populations are fragmented. It has high habitat specificity and is considered to be biologically rare.

Piña (1990) notes that the tropical deciduous forest between las Adjuntas and las Moras in the municipality of Zimapan, Hidalgo, where the species grows, is very degraded.

The species is endemic to central Mexico, distributed in the Sierra Madre Oriental in the states of Guanajuato, Querétaro and Hidalgo, specifically in the region known as the ‘Queretano-hidalguense Semi-desert’, occupying an estimated area of 607.64 km^2. *Y. queretaroensis* has a fragmented distribution, with subpopulations consisting of up to 20 individuals, separated by natural geological barriers such as canyons and steep hillsides.

Magallán-Hernández et al. *(2011) document in detail the localities of* Y. queretaroensis *subpopulations. Although many subpopulations are found on steep slopes, other subpopulations are noted to be situated in areas of moderate gradients, near to roads or inhabited areas, in areas reported as collection sites for medicinal plants and/or easily accessible areas.*

There are two principal areas, one in the municipality of Xichú (in Guanajuato) and the other, where the largest number of subpopulations occurs, in the municipalities of Pinal de amoles, San Joaquin and Cadereyta de Montes (in Querétaro) and Pecula and Zimapàn (in Hidalgo).

Population analyses using two parameters, plant height and number of leaves per rosette, were conducted of two populations, in Xichu, Guanajuato and Rancho Quemado, Queretaro. Low numbers of tall plants were found at Rancho Quemado, with no individuals recorded over 270 cm. The tallest individuals with most leaves were found at Xichu.

Wild populations of *Y. queretaroensis* present high vulnerability to extrinsic and intrinsic factors. Extrinsic factors relate predominantly to the extraction of mature individuals for international trade, reducing sexual recruitment of wild populations. In

Supporting Statement (SS)	Additional information
terms of intrinsic factors, the species has low sexual reproductive success rate, a low regeneration rate, long generation length, specialised habitat and specialised pollination. Reproduction is principally asexual, through the production of ramets at the base of the parent plant. It also reproduces sexually, but unlike other species of the genus *Yucca*, this does not occur annually. Few observations of fruiting plants have been made in the wild. Its fertility rate is less than 10% of its reproductive capacity potential per individual. The habitat of *Y. queretaroensis* is in a good conservation condition as human population densities are low, and there is no tendency towards urbanisation or drastic transformation of the landscape in the region. However, steep gradients limit the formation of deep soils and potential erosion levels range from high (50 to 200 tonnes/ha/yr) to severe (200 to 500 tonnes/ha/yr).	

B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences

Y. queretaroensis is harvested principally as an ornamental plant and is available in both local and international markets. It is traded mainly as a living plant, but trade of seeds also occurs. Locally, its flowers are also used in traditional festivals and it was historically used in roof-making.	
Use and export are regulated by the Environment and Natural Resources Secretary (SEMARNAT), but there are records of exports permitted by the Secretary of Agriculture, Farming, Rural Development, Fishing and Food (SAGARPA).	*The proposal states that there are records of exports permitted by SAGARPA. It has since been verified that phytosanitary certificates were issued by SAGARPA for* Y. queretaroensis *but these do not validate export (CONABIO* in litt., *2012).*
At the 18th meeting of the Plants Committee in 2009, a presentation on "Trade in Agavaceae" was given documenting the growing interest in the cultivation of these species internationally (principally in Europe) and the possible unsustainable trade in species as a result, with large wild specimens of *Y. queretaroensis*, available in international markets since 2006.	*The demand in Europe for* Y. queretaroensis *has risen rapidly in recent years and continues to rise. This is due to the ornamental value of the plant, its rarity and low horticultural requirements.* Y. queretaroensis *is also cold tolerant and has high humidity tolerance, making it suitable for European climates, although in colder areas of central Europe (such as Austria, the Netherlands and Germany) a winter shelter is necessary (Weissbeck* in litt., *2012). Boeuf (2007) noted that, even though the species can tolerate cold and ice, it is better to maintain it in an artificial climate.*
In response to the "Trade in Agavaceae" study, the Scientific Authority of Mexico (CONABIO) undertook official consultation in August 2012 (OF. DEAI-239/2012) with CITES Authorities in North America and Europe, requesting information on the trade of *Y. queretaroensis* in their countries. 47 countries in Europe were contacted, as	*In accordance with the demand of the market, more wild collected plants from Mexico are being imported. Plants are imported bare-rooted in sea containers. They have high regeneration abilities and losses are rare. It is estimated that around 300-500 plants per year are imported into Europe by the main importer, although larger*

Supporting Statement (SS)	Additional information
well as Canada and the United States. 12 countries in Europe replied - eight reported no known trade, and four recorded trade in *Y. queretaroensis* (Germany, Italy, the Netherlands and the UK). Canada reported no known trade and the United States recorded the presence of trade. From this information it was concluded that the principal specimens in trade are seeds, medium-sized plants (approximately 70 cm tall, with stem) and large plants (greater than 70 cm tall, with stem), and the majority of these were of wild and unknown origin. The level of international trade could not be clearly quantified.	*numbers have apparently been imported in the past (Weissbeck* in litt., *2012)*
By means of online surveys and consultations, 19 companies trading internationally in *Yucca queretaroensis* were identified. These companies appear to be involved in two different types of international trade of this species, namely 1) seeds and small seedlings (rosettes of few leaves) without stems that seem to be germinated from seeds (13 companies based in Germany, US, Japan, Netherlands and the UK) and 2) large-size adult plants (80-160 cm in height) with developed stems (6 companies in Germany, France, Belgium, the Netherlands and Portugal). The latter range in price from USD500 to over USD2000 per plant. In many cases the origin of the seeds/plants is unknown, in other cases it is specified that they were artificially propagated.	*Seeds of* Y. queretaroensis *were first offered following a collection in 2009 from a small group of plants located at the gorges near Zimapan, Hidalgo. The majority of seedlings and small plants (with rosettes of a few leaves) offered in Europe are from that collection. (A few years before, seeds were also available in Europe, but it was later revealed that these were seeds of* Y. filifera*). The appearance of seeds on the market is observed to have only slightly weakened the demand for wild collected plants (Weissbeck* in litt., *2012).* *Magallán-Hernández* et al. *(2011) note that trade in the species appears to be unsupervised and the effects of harvest are not documented. They note that the species is available for sale as seed and living plant in Europe, although it is not easily found, and large plants are sold for very high prices in comparison with other Yucca species.* *A further web search confirmed the availability of* Y. queretaroensis *from online stores in Europe – with advert descriptions highlighting the extreme rarity of the species and the fact that it has only been available in Europe since 2006. Sales of seeds, small plants and large plants were observed.* *The main European consumer markets for* Y. queretaroensis *are the Netherlands, Germany, Spain, Portugal, Italy and the UK. It is thought that only the high unit price (per cm) limits an even higher volume of imports to Europe. However, each private collection usually has only one to two, or occasionally three to five plants (Weissbeck* in litt., *2012).* *Magallan-Hernandez* et al. *(2012a) report consultation with the US Fish and Wildlife Service who note that few established nurseries in the US advertise sale of* Y. queretaroensis *on the internet and trade is limited to small private collectors and enthusiasts.* *Magallan-Hernandez* et al. *(2012a) document attempts to contact sellers of* Y. queretaroensis*. A response was not received from companies based in Europe that were identified as selling large specimens of* Y. queretaroensis *online. Magallan-Hernandez* et al. *(2012a) note that the large-size of the plants offered by these nurseries does not align well with the slow growth rate of the species and highlighted the need for further investigation to determine the origin of these specimens. They also highlight the need to quantify the volume of trade through regulation of international trade.*

Supporting Statement (SS)	Additional information
	Magallan-Hernandez et al. *(2012a) undertook surveys with people from Rancho Quemado and Xichu, two locations where* Y. queretaroensis *grows locally. 38% of the survey participants in Rancho Quemado and 51% in Xichu reported knowing a use(s) of* Y. queretaroensis*. 7% of the participants in Rancho Quemado reported experience of commercialisation of the plant, through the sale of leaves (for themselves or their parents) and the extraction of fibres from the stem. All indicated this was over 20 years ago. No survey participants in Xichu reported experience of commercialisation of the plant.* *The same survey participants were asked if they have knowledge of* Y. queretaroensis *being extracted from the wild recently. Three survey participants out of a total of 104 said yes they had heard of extraction taking place, one of which reported the collector was from Pheonix, Arizona (Magallan-Hernandez* et al., *2012a and summarised in Magallan-Hernandez* et al., *2012b). These findings do not align with the observed presence of suspected wild collected individuals on the market. However, this could be linked to a decline in the local cultural importance of* Yucca queretaroensis*, previously used as roofing material, due to the availability of new building materials, as reported by Magallan-Hernandez* et al. *(2012a).*

Inclusion in Appendix II to improve control of other listed species

A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I

Y. queretaroensis can be confused with other species of the same genus and other morphologically similar species of different genera, such as *Yucca linearifolia, Y. rostrata, Y. thompsoniana, Dasylirion quadrangulatum, Agave striata* and *Agave aff. striata.* These species can, however, be differentiated from *Y. queretaroensis* with training and the proposal includes an identification guide to facilitate enforcement if/when the species is listed in Appendix II.	*There are currently three species of Agavaceae listed in the CITES Appendices:* Agave parviflora *(Appendix I),* Agave victoriae-reginae *and* Nolina interrata *(Appendix II)*. Y. queretaroensis *can also be confused with* Dasylirion longissimum var. treleasei, *and* Yucca linearifolia *(Weissbeck* in litt.*, 2012).*

Supporting Statement (SS)	Additional information
Other information	
	Threats
Steep gradients limit the formation of deep soils and potential erosion levels range from high (50 to 200 tonnes/ha/yr) to severe (200 to 500 tonnes/ha/yr). Habitat loss also occurs from grazing. There is no monitoring programme in place to monitor the wild populations of *Y. queretaroensis* or the viability or consequences of wild extraction.	*Garcia-Mendoza (2003) reports fragmentation and destruction of the habitat of* Y. queretaroensis *and Piña (1990) notes that the tropical deciduous forest between las Adjuntas and las Moras in the municipality of Zimapan, Hidalgo, where the species grows, is very degraded.* *Magallan-Hernandez* et al. *(2011) note that the potential construction of mines could negatively impact the population found at Camino Azogues-San Francisco Gatos.* *Magallan-Hernandez* et al. *(2012a) report evidence of human disturbance, collection of parts of the plants, animal trampling and forest fires affecting some populations of* Y. queretaroensis*, along with soil erosion.*
	Conservation, management and legislation
Y. queretaroensis is listed under NOM-059-SEMARNAT-2010 as Subject to special protection (Pr). Its use is therefore controlled under the General Wildlife Law (Ley General de Vida Silvestre) (LGVS, 2000, Art. 1). Part of the habitat of *Y. queretaroensis* is found within two protected areas, delineated by the National Commission of Protected Natural Areas (CONANP); the Biosphere Reserve of la Sierra Gorda de Guanajuato (covering a total of ~2369 km^2) and the Biosphere Reserve of la Sierra Gorda de Querétaro (~3836 km^2). *Y. queretaroensis* is included in the management plan of the Regional Botanic Garden of Cadereyta (Querétaro) and this garden holds nine mature individuals within its collection. It is also represented in the living collections of “El Charco del Ingenio” Botanic Garden (San Miguel de Allende, Guanajuato) and the Botanic Garden of the National Autonomous University of Mexico (UNAM, Mexico City), each with three mature individuals. There are some nurseries in the United States and the Netherlands which have begun reproducing the species from seed and by micropropagation in recent years.	*BGCI’s online database of ex situ plant collections records two additional gardens as holding* Y. queretaroensis *in their collection (PlantSearch, 2012). Both are in Europe and are likely for display purposes only and their value for conservation, for example through involvement in reintroduction programmes, would likely be limited due to their distance from the natural habitat of the species.* *Magallan-Hernandez* et al*. (2012a) note that local governance of the species would be beneficial to its conservation, but that the decline in the local cultural importance of* Y. queretaroensis*, means that education about the ecosystem importance of* Y. queretaroensis *and the risks facing the species, such as low growth rate, low reproduction rate from seed and its national and international ornamental value, are needed for local governance to be successful.* *Magallan-Hernandez* et al. *(2012a) note that monitoring to avoid the extraction of seeds is also necessary as well as extraction of whole plants, due to the low reproductive rate from seed noted for this species in the wild.*

Supporting Statement (SS)	Additional information

Captive Breeding/Artificial Propagation

There are no controlled artificial propagation programmes for this species, but it is held in the collections of three botanic gardens affiliated with the Mexican Association of Botanic Gardens (AMJB).

Magallan-Hernandez et al. *(2011) note that there is not much information available about the propagation of* Y. queretaroensis*, but it is known that in Europe it is commonly sought after as an ornamental plant and efforts to propagate the species have been made in recent years.*

Weissbeck (2008) provides documentation of propagation trials of Y. queretaroensis *undertaken in Europe. He noted that* Y. queretaroensis *acclimatised well to the humidity and frosts of central Europe, as was the case for* Y. linearifolia*, which had previously been imported to Europe and has many similarities with* Y. queretaroensis*. Weissbeck documents the first propagation attempts made in Holland in 2006 with promising results and the first individuals planted survived 3 years without damage from humid winters and temperatures below zero. Weissbeck (2008) also documented fast growth of roots, reproduction of new individuals from broken roots and the ability for regeneration following the loss of the full head of leaves.*

Propagation of Y. queretaroensis *using in-vitro methods is theoretically possible, however, to date no in-vitro plants have been offered on the European market so it is assumed that in-vitro propagation is occurring (Weissbeck* in litt., *2012).*

Propagation through rhizome division is possible and has delivered good results in experiments, but this type of propagation is not profitable for trade because it yields too few plants at a high cost and there are high loss rates (Weissbeck in litt., *2012).*

Since 2009/2010 seeds of Y. queretaroensis *have been available in some southern European countries. This kind of propagation is currently the most cost-effective and profitable and is therefore the most common. As seeds have only been available in Europe since 2009, it is not possible to provide detailed information on growth rates from seed, but initial results indicate that two to three year old plants reach a height of 15-25 cm in height with 20-50 leaves and will not yet have a developed stem. Imported plants on the market with a minimum stem height of approximately 40-60 cm show a growth rate of approximately 1-3 cm per year when in good horticultural conditions. Between 1000 and 2500 plants are reported to have been raised for sale on the European market to date (Weissbeck* in litt., *2012). This indicates that the demand for larger specimens cannot yet be satisfied from artificially propagated individuals as propagation has only commenced recently.*

Magallan-Hernandez et al. *(2012a) recommended that nurseries need to be set up in Mexico to propagate the species as a control measure.*

Supporting Statement (SS)	Additional information
Other comments	
In 2011, the Scientific Authority of Mexico (CONABIO), in collaboration with the Regional Botanic Garden of Cadereyta, undertook the project 'Evaluation of the state of conservation, use of and threats to *Yucca queretaroensis* Piña (Agavaceae) and its inclusion in the Appendices of CITES', which concluded that it was necessary to include the species in Appendix II. *Y. queretaroensis* plays an important ecological function, contributing to the formation and retention of soil thanks to a system of deep fibrous roots. It is a host species and provides habitat for birds and insects at different life cycle stages.	Y. queretaroensis *is not the only species of the Yucca extracted from its habitat for use as an ornamental plant,* Y. thompsoniana *and* Y. elata *are also subject to this (Garcia-Mendoza* in litt., *2012). The species resembles* Yucca linearifolia, *which is sometimes apparently supplied instead. The two can apparently be distinguished by the cross-section of the leaf: in* Y. queretaroensis *this is square, in* Y. linearifolia *it is flat, so that the latter can be bent without forming cracks, unlike the former (www.tropicalcentre.com). It also resembles* Y. rostrata (*www.yuccado.com).*

Reviewers: A. Garcia-Mendoza, W. Hodgson, A. Reuter, S. Weissbeck.

Inclusion of *Operculicarya decaryi* in Appendix II

Proponent: Madagascar

Summary: *Operculicarya decaryi* sometimes known as jabihy is a deciduous thick-stemmed (pachycaul) tree endemic to Madagascar which can grow up to nine metres tall. It is one of eight species in the genus *Operculicarya*, seven of which are endemic to Madagascar, with the eighth (*O. gummifera*) occurring in Madagascar and the Comoros. It is widespread in thorny scrub and degraded semi-deciduous forest at low altitude in southern Madagascar, within an overall area of some 90 000 km^2 and an area of occupancy of at least 3000 km^2, with at least 30 subpopulations within this area. The species can be locally abundant, with an estimate of over 30 000 individuals within one sub-population. The species is present in at least three protected areas (Cap Sainte Marie Special Reserve and Andohahela and Tsimananpetsotsa National Parks).*O. decaryi* is cultivated as an ornamental plant due to its bonsai form, particularly in China. Wild collection has reportedly taken place. Exports from Madagascar, apparently mostly of small plants is recorded as having taken place. Some 3400 plants were recorded by the CITES Management Authority of Madagascar as exported in the period 2003-2006, most (around 2700) in 2006. Exports have not been reported since then. The species is reported to be straightforward to propagate. In China recent trade is said to be largely or entirely in cultivated plants. The species has reportedly been in cultivation in China for some time, so that large, mature plants may be available from artificially propagated material. Current legal controls in Madagascar on collection and export are unclear.

O. decaryi was proposed for inclusion in Appendix II at CoP15 in 2010, but the proposal was withdrawn at the CoP. Two species of *Operculicarya* also endemic to Madagascar (*O. hyphaenoides* and *O. pachypus*) were included in Appendix II at CoP15. Since then importers have reported a small amount of trade in *O pachypus* (50 wild specimens in 2010 and 50 in 2011) but none in *O. hyphaenoides*. Madagascar has reported export of 350 *O. pachypus* and 275 *O. hyphaenoides*, but these are likely to have been on the basis of permits issued rather than actual exported recorded.

Analysis: *Operculicarya decaryi* is a widespread and evidently at least locally abundant tree in southern Madagascar. It has been exported in some number for the horticultural plant trade in the relatively recent past. No exports have been reported since 2006. The species is widely available as an artificially propagated plant. It is extremely unlikely that regulation of trade is necessary to prevent the species becoming eligible for inclusion in Appendix I in the near future, or that harvest for trade is reducing the population to a level at which its survival might be threatened by other influences. The species would therefore not appear to meet the criteria for inclusion in Appendix II.

Supporting Statement (SS)	Additional information
	Range
Madagascar.	
	IUCN Global Category
	Not currently listed.

Supporting Statement (SS)	Additional information

Biological and trade criteria for inclusion in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)

A) Trade regulation needed to prevent future inclusion in Appendix I

The species has low growth rates and a regeneration rate of 24%.	
Around 150 individuals were recorded in the North of Toliara (Andoharano Forest) in 2005. 440 individuals were recorded in Tongobory in 2006. At the start of January 2012, 79 individuals were recounted at Andatabo Toliara, an area of known wild collection. In this area, *O. decaryi* is becoming increasingly rare.	*Rakouth* et al. *(2006) reported densities of 220-400 per ha at study sites with one sub-population calculated to comprise over 30 000 individuals.*
The status according to IUCN criteria is reported to have changed from vulnerable to endangered. This means a reduction of ≥ 50% in 10 years of Area of Occupancy, Extent of Occurrence and habitat quality.	*The conservation status is not published on the IUCN Red List. The Endangered assessment in the proposal was assigned using GIS data, which were used to calculate Area of Occupancy and Extent of Occurrence and to predict future decline (PC20 Inf. 4, 2012). No date is provided for the first of these assessments.*
Collection for export and destruction of habitat leads to a gradual decline in the population, which is predicted in the future to decline by 77%. Collectors are forced to go further because the old collection areas near cities no longer have individuals present.	*The future decline predicted in the proposal is over an unspecified time period. The evidence upon which the decline is predicted is not detailed in the proposal.*
Operculicarya decaryi is the most widespread species of the five species in the *Operculicarya* genus.	*Randrianasolo and Lowry (2006) report that* O. decaryi *is more widespread than other members of the genus, except* O. gummifera*. It is reported to extend throughout much of southern Madagascar, from Toliara east to Ambovombe.* *Hearn* in litt. *(2012) considers the range of* O. decaryi *to be restricted. He notes the desirability of field-collected specimens and reports that collection is widespread*
O. decaryi has a large geographic distribution in the dry thorny thicket of South Western and Southern Madagascar. The Area of Occupancy is 423 km^2 and the Extent of Occurrence is 86 994.7 km^2.	*Randrianasolo and Lowry (2006) assign* O. decaryi *a preliminary status of Least Concern (LC) and report that* O. decaryi *has an Extent of Occurrence slightly lower than provided in the proposal (c. 71 600 km^2) but an Area of Occupancy much larger than that reported in the proposal (3000 km^2). Around 30 subpopulations are reported.*
The species continues to decline due to various threats and pressures. The dry thorny thicket of the South West occupies an area of 18 355 km^2 (of which 5% is found within protected areas). This type of land cover has reduced by 30% since the 1970s. These areas are fragile and easily fragmented and degradation has resulted in open degraded areas.	

Supporting Statement (SS)	Additional information
B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences	
O. decaryi is very sought after as an ornamental plant for its bonsai form. The species is often collected in the wild and an absence of individuals of a juvenile or adult state, of commercially exploitable size, can be observed at collection areas.	O. decaryi *is a natural bonsai and grows a thick fat stem quickly. The knobbly trunk is sought after by collectors. The roots swell to form unique contorted and twisted designs and the leaves are also very small, ideal for the bonsai form (Anon, B).*
	Yuan in litt. *(2012) reports that* O. decaryi *is very commonly traded in China. Trade is primarily of mature plants and sometimes seedlings. The species has been traded in China for a long time, early trade was likely from wild plants and more recent trade is of cultivated material. Wang and Chen* in litt. *(2012) also report the presence of* O. decaryi *in trade in China.*
It is exported as a living plant. Reported exports of living plants are as follows: 2003 (56), 2004 (200), 2005 (495) and 2006 (2647).	*Exports are in the form of small plants (supporting statement of proposal CoP15 Prop. 22).*
Collectors tend to take many plants. Exportation could lead to the absence of natural regeneration and the decline or even disappearance of populations in areas of collection which in the long term would constitute a serious threat to the species.	*No trade was reported subsequent to 2006.*
No illegal trade in the species has been recorded to date. The species is rarely sold in national markets.	*Two species of* Operculicarya *also endemic to Madagascar (*O. hyphaenoides *and* O. pachypus*) were included in Appendix II at CoP15. Since then importers have reported a small amount of trade in* O pachypus *(50 wild specimens in 2010 and 50 in 2011) but none in* O. hyphaenoides*. Madagascar has reported export of 350* O. pachypus *and 275* O. hyphaenoides, *but this is likely to have been on the basis of permits issued rather than actual export recorded.*
The proposal reports 18 web sources of *O. decaryi*, selling mature plants, seedlings or seeds, mainly of unknown origin (one source sold propagated material). Price per plant ranged from USD14.95 – 400.00 and per seed USD0.39 – 0.86.	*A nine-day web survey to investigate web trade for* O. decaryi *was conducted in 2011 (Augugliaro* in litt., *2012). Thirty-eight plants and twenty-seven packages of seeds of* O. decaryi *were found sold from the UK, USA, Germany, and Hungary. For nineteen sources it was possible to track both seller and buyer countries. Between the sales 84% were realized inside in the seller's country and 16% were realized in a foreign country. Furthermore, another forty-one plants and twenty-four packages of seeds were offered from Asia, the EU, and USA. Data from the web survey showed that some specimens of* O. decaryi *offered on the web are probably of wild origin (Augugliaro* in litt., *2012). The price of one specimen was USD1200 (Augugliaro* in litt., *2012).*
	Plants of O. decaryi *are currently offered for sale on various websites in the UK, USA and China. Although large specimens are sold for high prices there is also trade in seedlings for lower prices. Six websites were identified selling small plants for less*

Supporting Statement (SS)	Additional information
	than USD25.00, with the lowest price per individual at USD7.00. A web seller based in China was identified to have sold 21 mature plants for USD100.00 since November 2011. *A two day review of web sellers based in Japan selling* O. decaryi *was conducted (04-05 December 2012). Two websites selling* O. decaryi *plants were identified (although these directed to the same source) and one website selling seeds was identified (TRAFFIC Japan, 2012).*
Inclusion in Appendix II to improve control of other listed species **A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I**	
O. decaryi slightly resembles *O. pachypus.* This second species has a limited distribution around Toliara and is found on limestone. The branches of the two species are zigzag, but those of *O. pachypus* have tips in the form of sharp spines.	O. decaryi *is often confused with* O. pahypus*, but "in addition to its distinctive habit, several additional features separate* O. decaryi *from other members of the genus whose leaves have a winged rachis, including leaflets that are totally glabrous below, and branches that are straight (rather than zig-zag in orientation, as in* O. pachypus*)" (Randrianasolo and Lowry, 2006).* O. hyphaenoides *and* O. pachypus *were included in Appendix II in 2010. Since then importers have reported a small amount of trade in* O. pachypus *(50 wild specimens in 2010 and 50 in 2011) but none in* O. hyphaenoides*. Madagascar has reported export of 350* O. pachypus *and 275* O. hyphaenoides*, but these are likely to have been on the basis of permits issued rather than actual export recorded. The other five species of* Operculicarya *(four endemic to Madagascar, one also on the Comoros) are not included in the Appendices.*

Supporting Statement (SS)	Additional information
Other information	
Threats	
Habitat destruction: small but widespread operations for the production of fuel wood and charcoal are the biggest threats to the habitat. Selective logging for timber is also a significant threat, especially because the dry thorny thicket has a low growth and regeneration rate. The extension of land for maize cultivation and fires linked to grazing animals also constitute serious threats in the region. In Andatabo the species grows on calcareous soils that are currently used for making bricks.	
Conservation, management and legislation	
Collection and export are only regulated at a national level. Para 7.1 of the SS states: collection and export [of this species] are not subject to any controls. Para 8.1 of the SS states: National management measures are detailed in the proposal: The number of specimens authorised for export is based on the supply of the species in horticultural centres. A single harvest authorization per species per operator is provided, to serve as parental stock. Operators should undertake ex situ reproduction. Permits and exportation authorizations are supplied only for individuals reproduced artificially.	*The level of national legislation afforded to this species is unclear as the proposal notes that harvest and export are not subject to regulation and later that they are subject to national authorization procedures. Information as to whether national management measures have been enforced or how successfully is not provided. Expert reviewers were asked to provide additional information about national legislation and its effectiveness but none of the comments received clarified this.*
Certain populations of *O. decaryi* are found within protected areas; Andohahela National Park, Tsimanapetsotsa National Park and la Réserve Spéciale de Cap Sainte Marie. The State policy to increase the coverage of protected areas and delineate new areas such as Amoron'i Mania, Ekodida, could contribute to the conservation of this species and its habitat.	*Randrianasolo and Lowry (2006) report presence of the plant in Andohahela, but also in Beza Mahafaly protected areas.* *According to PlantSearch, an online database of botanic garden collections maintained by Botanic Gardens Conservation International (BGCI), 36 gardens record holding* O.decaryi *in their collection. The majority of these gardens are within Europe and the USA.* *In addition,* O. decaryi *is also held in the collection of Phyto-logic Paradise Gardens in Madagascar. The original specimen has been in the garden for more than 10 years. The garden are attempting multiplication through cuttings without success yet but attempts only commenced a couple of months prior to this consultation (undertaken in November 2012) (Cooke* in litt., *2012). Parc Botanique et Zoologique de Tsimbazaza in Madagascar holds one individual of* O. decaryi *in their collection. The plant was*

Supporting Statement (SS)	Additional information
	collected as a wild seedling and the species is not involved in a propagation programme.
Captive Breeding/Artificial Propagation	
	Bihrmann in litt. *(2012) reports that* O. decaryi *is a rather slow growing species. Small seedlings do form the caudex, although it is rather slim.* Operculicarya *species have been praised by growers, collectors and exhibitors for decades and are highly desirable because of their ease in cultivation. Eslamieh and Stead (2010) experimented with various crosses with other* Operculicarya *species* *Reproduction is possible from seed and cuttings. It can be propagated using pieces of the tuberous roots (Anon A, undated.) Seed grown plants produce better looking roots, growing from seed offers the possibility of selective breeding and can produce certain desired characteristics (Anon, B). Hearn* in litt. *(2012) reports that in his experience the rooted cuttings and other forms of vegetative propagation are less desirable than seedlings or field collected plants as the formation of the caudex is hampered under vegetative propagation.* *The species is dioecious (as all other of the genus) so at least two plants (male and female) are necessary to obtain seeds in cultivation. Propagation from cuttings is fairly straightforward (Eggli* in litt., *2012).*
Other comments	
This species was already the subject of a trade study with the aim of its inclusion in Appendix II at CoP15. Biological and ecological data obtained were updated and supplemented for the preparation of this new proposal. Under an agreement between the CITES Secretariat and the European Union, *O. decaryi* will continue to be the object of research for the year 2012 to supplement existing data. This species has an important role in the daily life of the local population as it is used in traditional medicine. The leaves have medicinal value and are used to help the recovery of women after giving birth.	*Chemicals within the plant are toxic (Colombo* et al., *2009).* O. decaryi *is fed on by* Lemur catta *(Jolly* et al., *2006).*

Reviewers: C. Augugliaro, A. Cattabriga, U. Eggli, D. Hearn, D. Newton.

Amend annotation #9 related to *Hoodia* spp. to read as follows, for the purpose of clarification:

All parts and derivatives except those bearing a label: Produced from *Hoodia* spp material obtained through controlled harvesting and production in terms of an agreement with the relevant CITES Management Authority of [Botswana under agreement no. BW/xxxxxx] [Namibia under agreement no. NA/xxxxxx] [South Africa under agreement no. ZA/xxxxxx].

Proponents: Botswana, Namibia, South Africa

Summary: *Hoodia* is a genus of succulent plants in the family Apocynaceae found in Angola, Botswana, Namibia and South Africa. Fourteen species are currently recognised in the CITES species database. Extracts from *Hoodia* species are used locally for medicinal purposes and have been identified as having commercial potential as appetite suppressants. The genus was included in Appendix II at CoP13 (2004) with the following annotation:

> All parts and derivatives except those bearing a label "Produced from *Hoodia* spp. material obtained through controlled harvesting and production in collaboration with the CITES Management Authorities of Botswana/Namibia/South Africa under agreement no. BW/NA/ZA xxxxxx".

This annotation could be interpreted as meaning that to qualify for exemption, any product must bear a label in exactly the form specified, that is containing the designations "Botswana/Namibia/South Africa" and "BW/NA/ZA". This would imply the existence of joint agreements in each of which all three CITES Management Authorities participated.

The intention of the listing was that the CITES Management Authority of each of the three countries would enter into its own separate agreements with producers in that country and issue its own labels. The current proposal clarifies this.

Analysis: This proposal clarifies an existing annotation and should bring implementation of the Convention into line with the original intention of the listing. It should have no other effects.

Amend the annotation to the listings of *Panax ginseng* and *Panax quinquefolius* included in Appendix II

Amend Annotation #3 with the underlined text:

"Designates whole and sliced roots and parts of roots, <u>excluding manufactured parts or derivatives such as powders, pills, extracts, tonics, teas and confectionery.</u>"

Proponent: United States of America

Summary: *Panax ginseng* and *Panax quinquefolius* are herbaceous plants whose roots yield ginseng, a very widely used herbal medicine or tonic. *P. quinquefolius* is native to Canada and United States of America; *P. ginseng* is native to China, Democratic People's Republic of Korea, Republic of Korea, and Russian Federation.

P. quinquefolius was included in Appendix II when the Convention came into effect in 1975 with an annotation indicating the listing was for roots only. Various modifications to this annotation were made at subsequent CoPs. In 2000 the Russian Federation population of *Panax ginseng* was included in Appendix II with an annotation indicating "whole and sliced roots and parts of roots, excluding manufactured parts or derivatives such as powders, pills, extracts, tonics, teas and confectionery." At the same CoP this annotation was also applied to *P. quinquefolius.*

At CoP14, at the request of the Plants Committee, Switzerland as the Depositary Government submitted a proposal to amend the annotations for Appendix-II listed medicinal plant species including *Panax ginseng* and *Panax quinquefolius* (CoP14 Prop. 27). The amendment to annotation #3 as adopted removed the exclusionary language "excluding manufactured parts or derivatives such as powders, pills, extracts, tonics, teas and confectionery" and now reads merely "whole and sliced roots and parts of roots." Current annotation #3 only applies to these two species.

Since this amendment, there has reportedly been confusion regarding whether manufactured products are subject to the provisions of the Convention. It is considered that much of this confusion is a result of the removal of the exclusionary language from the annotation adopted at CoP14.

The proponents propose reinstating the exclusionary language deleted at CoP14 in order to clarify what specimens of *Panax ginseng* and *Panax quinquefolius* are regulated under CITES, and to avoid potential seizures of shipments of parts and derivatives not intended to be covered by the annotation.

Analyses: Adoption of this proposal to reinstate the wording "excluding manufactured parts or derivatives such as powders, pills, extracts, tonics, teas and confectionery" to the annotation for *Panax ginseng* and *Panax quinquefolius* should simplify the implementation of the Convention by clarifying what is and what is not included under the listings of these species, ensuring that the former is in line with the original intent of the listings. It should have no other effect.

Deletion of *Tillandsia kautskyi* from Appendix II

Proponent: Brazil

Summary: *Tillandsia kautskyi* is a epiphytic bromeliad plant known from only a few specimens collected in the State of Espíritu Santo in Brazil. It is found singly or in small clumps on the mountainous slopes of the Atlantic Forest. Very little is known about the species, its population size, structure or trends. The habitat of the species has been severely affected by logging and habitat conversion for agriculture and livestock-raising. Only 10% of the State's original Atlantic Forest currently remains, and the forest around Domingo Martins where the species was first located was logged for timber in the 1990s. It is listed as endangered in the List of Threatened Species of the State of Espíritu Santo. It was also listed as Endangered in the 1997 IUCN Red List of Threatened Plants; this designation is noted as in need of updating. Remaining populations are reported to be relatively secure, being found in protected areas or in inaccessible rocky outcrops, although potential risks remain, such as bushfires caused by crashing hot air balloons released in village festivals.

Tillandsias in general feature in the horticultural plant trade. Some forms are artificially propagated in very large numbers and widely sold as ornamental plants. Others are grown largely by enthusiasts. *Tillandsia kautskyi* was included in Appendix II in 1992 owing to concerns regarding the possible impact on it of wild-collection for international trade. The original listing proposal at CoP8 covered all *Tillandsia* spp. At the CoP it was agreed to include only seven species, including three endemic to Brazil: *T. kautskyi*, *T. sprengeliana* and *T. sucrei.* All three species are the subject of proposals for deletion from the Appendices (see CoP16 Prop. 55 and Prop. 56).

Tillandsia kautskyi is in international trade. However all trade reported in the CITES trade database has been reported to be in artificially propagated specimens. Exporters reported trade in nearly 600 artificially propagated live plants between 1992 and 2010, the majority of which were exported directly from Brazil to the US, Hong Kong and Germany before 1997. Exports from non-range States have also been reported, the majority of these (115) specimens originated in Hungary between 2005 and 2010. Artificial propagation of this species from seed is known to occur in Germany and Hungary; artificially propagated plants are offered for sale on the internet. Demand for this species by enthusiasts continues, however it appears that this demand is fully supplied by artificially propagated specimens. No exports of wild specimens have been reported since the species was listed and there is no evidence of ongoing wild collection or illegal trade. The remaining sub-populations are considered safe from harvesting.

Tillandsia kautskyi is said to be similar in appearance to *T. brachyphylla*, which is not listed in the Appendices. It is similar in appearance to *T. sprengeliana*, which is also proposed for removal from the Appendices (CoP 16 Prop. 55), both being miniature plants. It can be easily distinguished from all the Central American species of *Tillandsia* listed in the Appendices.

This proposal has resulted from the Plants Committee's Periodic Review process.

Analysis: This species has a restricted range and is unlikely to be able to withstand large scale harvest for export. The remaining sub-populations are considered safe from harvesting as most plants are found in two protected areas and/or on inaccessible rocky outcrops. All reported international trade in this species since listing in Appendix II has been in artificially propagated specimens, with the majority (several hundred specimens) having been exported directly from Brazil before 1997. Demand for this species by enthusiasts continues, and artificial propagation is reportedly the only source of specimens now in trade. There is no evidence of ongoing wild collection or illegal trade.

It would appear that *T. kautskyi* no longer fulfils the criteria for inclusion in Appendix II as regulation of trade is not required to ensure harvesting of specimens from the wild does not threaten the survival of the species. No exports of wild harvested plants has taken place in the 20 years since the species was listed in Appendix II and it seems unlikely that its removal from the Appendices would stimulate trade in wild specimens such that it would meet the criteria for listing in Appendix II in the near future, as outlined in the precautionary measures, Annex 4 A4 of *Resolution Conf. 9.24 (Rev. CoP15)*.

The three *Tillandsia* species being proposed for removal from the Appendices are among dozens that are in trade, the vast majority of which are not included in the Appendices. They appear to be easily distinguished from the species that would remain in the Appendices, all of which occur in Central America.

Supporting Statement (SS)	Additional information
Range	
Brazil.	
IUCN Global Category	
Not evaluated.	*Listed as Endangered in the IUCN Red List of Threatened Plants in 1997 (Walter and Gillett, 1998); this category is in need of updating.*
Biological and trade criteria for retention in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)	
A) Trade regulation needed to prevent future inclusion in Appendix I	
Biological criteria *Tillandsia kautskyi* is a rare species which is only found in the sierra of the State of Espíritu Santo on mountainous slopes of the Atlantic Forest and the dense montane rainforest, at altitudes between 700 and 1200 m above sea. To date only a few specimens have been found in the wild. It lives in isolation or in small clumps.	Tillandsia kautskyi *It was originally found in the vicinity of Domingo Martins and also in the State Rio de Janeiro, near the border the Espiritu Santo (Ehlers, 1996). However, Ehlers noted that the forest around Domingo Martins where this species was growing was cut down for timber.*
No specific information on population size, structure or trends is provided in the proposal. The species is listed “endangered” in the List of Threatened Species of the State of Espíritu Santo, owing to the degradation of its habitat. It has been assessed as Data Deficient in Brazil’s National List of Threatened Species of Flora.	*It was rated as vulnerable on the Brazilian National List in 2005 (Martinelli* et al., *2008).*
Trade criteria Proponents note there has only been one shipment of 55 artificially propagated specimens since listing the species in Appendix II in 1992 and that international trade does not appear to be affecting the species. According to the Periodic Review there is also no evidence of illegal trade.	*According to the CITES Trade Database (download 13 November 2012) there are 19 importer and 33 exporter records of live plants of* Tillandsia kautskyi *between1990 and 2010 (although the species was only listed in 1992), and one reported import of seeds. According to importers/exporters, 479/690 artificially propagated live plants were traded for commercial purposes during this period. Another 17 plants were traded for personal, artificial propagation or unknown purposes.*

Supporting Statement (SS)	Additional information
	354/549 live plants were imported/exported directly from Brazil. The majority of this trade occurred between 1990 and 1997, after which there was a gap in reported trade until 2004. During this period the principal destinations were the United States (204/210 plants), Hong Kong (107), Germany (40/50), Spain (40) and Australia (27). Only 56/58 live plants were reportedly imported/exported from Brazil between 2004 and 2006, these were destined for the Czech Republic, Switzerland, Netherlands and the Russian Federation. *142/165 live plants were imported/exported from other non-range States - Brazil was not declared the country of origin in any of these cases. Between 1994 and 1999 the United States (US) and Germany exported 48 live plants. In 2002, Japan exported two plants to the US and from 2005 to 2010 Hungary was the sole exporter/ source (in some cases re-exported from Switzerland) of all specimens in trade – 140/115 reportedly imported/exported.* *The CITES Trade Database also includes five records of* Tillandsia *spp. exported from Brazil in 1990 – 275 specimens of unknown source and 20 artificially propagated specimens. There are also two reported exports from Brazil of non-Brazilian* Tillandsia *species: in 1994, 30 live* T. kammii *were exported to the UK and in 2007, 100 live* T. harrisii *were exported to the US (see look-alike issues below).* *The CoP8 proposal stated that in Brazil* T. kautskyi *was under severe collecting pressure. It was offered for sale by specialist dealers for prices up to USD 20 each and by a Brazilian nursery for USD0.80 per plant.* T. kautskyi *is still in demand by enthusiasts (Gouda* in litt., *2012). It is known to be propagated from seed and by division (of shoots) in a number of European nurseries, including ones in Hungary and Germany (Schmitz-Kretschmer* in litt., *2012; Czirák* in litt., *2012). Examples of offers for sale on the internet include http://www.orchideen-holm.de/563.0.html?&no_cache=1&L=5&categorie=10&product=772 (Germany) and http://marczikakertblog.blogspot.hu/2010/12/most-viragzik-novenyhazban-tillandsia.html (Hungary, blog showing plant in flower in 2010).* *Orchideen Holm in Germany produces about 500* T. kautskyi *per year, with most being sold to enthusiasts in the Czech Republic, Poland and Russia (however, there are no records of this trade in the CITES trade database), as the market in Germany for high price* Tillandsias *is very low. Production figures are constant as there is a stable wholesale market for high quality specimens, which can only produced by artificial propagation.* T. kautskyi *take five years to flower and propagated plants are sold as young plants (3 years, EUR 3 each) and adult plants (5 years, EUR 6). Retail prices for this species are under EUR 20 (Schmitz-Kretschmer* in litt., *2012).*

Supporting Statement (SS)	Additional information

Retention in Appendix II to improve control of other listed species

A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I

Tillandsia kautskyi is closely related to *T. brachyphylla* and *T. sprengeliana.* It can be differentiated from *Tillandsia brachyphylla* because of the concrescence of the sepals and from *Tillandsia sprengeliana* because of its compound inflorescence and glabrous scales.

Seven species of Tillandsia *are currently listed in CITES Appendix II. Apart from the three species endemic to Brazil that are being proposed (this proposal, CoP16 Props 55 and 56) for removal from the Appendices the remaining species are:* T. harrisii *endemic to Guatemala;* T. kammii *endemic to Honduras;* T. mauryana *endemic to Mexico; and* T. xerographica *which occurs in El Salvador, Guatemala and Mexico. The three Brazilian Tillandsias are small;* T. kautskyi *and* T. sprengliana *are both fairly compact, with* T. sucrei *slightly less so. These Tillandsia species are among dozens that are in trade, the vast majority of which are not included in the appendices. They appear to be easily distinguished from the species that would remain in the appendices which occur in Central America.*

Tillandsia harrisii *endemic to Guatemala is also listed in Appendix II. One online* Tillandsia *seller notes that as* T. harrisii *is similar in appearance to a number of other species it is therefore widely traded without the proper documentation. This may also be an issue for* T. kautskyi *that is similar in appearance to* T. brachyphylla*, a non-CITES listed species. http://www.rainforestflora.com/tillandsia/species/harrisii/*

B) Compelling other reasons to ensure that effective control of trade in currently listed species is achieved

Difficulties in distinguishing wild-taken from artificially propagated specimens in trade were raised as a concern in the original CoP8 proposal. A number of characteristics of wild-taken plants were listed, in order to help identification of such plants, however it was also noted that if prior to export the plants are cleaned intensively (removing roots and old leaves) and grown under nursery conditions for some months, it is very difficult to distinguish them from artificially propagated material. At the time mother plants were commonly collected from the wild and cultivated for a few months to produce one generation of offsets. In these cases the offsets cannot be distinguished from offsets of artificially propagated plants. Problems with differentiating wild-taken and artificially propagated specimens of Tillandsia xerographica *resulted in the EU introducing a stricter measure in 2010, only permitting imports of artificially propagated specimens with cataphylls.*

Since 1992, all international trade in T. kautskyi *has reportedly being composed of artificially propagated specimens. The Hungarian Management Authority regularly carries out inspections of a nursery producing* T. kautkyi *for export and they are satisfied that the plants for sale are artificially propagated (Czirák* in litt., *2012). Plants*

Supporting Statement (SS)	Additional information
	being grown by Orchideen Holm in Germany are derived from mother-plants obtained from the Hamburg Botanical Garden and other collectors over 40 years ago. However, as Tillandsias must be cross-pollinated, occasionally new mother plants must be purchased to ensure genetic variation is maintained (Schmitz-Kretschmer in litt., *2012). It is not necessary for mother plants to be wild collected (Jenkins* in litt., *2012).*

Other information

Threats

The Atlantic Forest of the State of Espíritu Santo has become degraded as a result of agriculture and livestock-raising. At the present time the State retains only about 10% of the original forest. Many of the remaining well-preserved plants are located within protected areas or on rocky outcrops, which prevents their use and gathering by humans.	*According to the CoP8 proposal, such inaccessibility did not prevent harvesting: "The Serra de Orgaos, for example, near to Rio de Janeiro is known for its* Tillandsia *endemics growing 'inaccessibly" on steep rocks. Recently also these localities were stripped with the help of alpinists and helicopters".* *The forest where* T. kautskyi *was growing in Domingos Martins in Espirito Santo was cut down for timber (Ehlers, 1996).* *Ehlers (1996) noted that the lithophatic* Tillandsia *species grow on near perpendicular rocks, and although almost inaccessible and therefore well protected from collection, these populations can be damaged or destroyed by fires getting out of control in grass- and bushlands or caused by crashing of hot air balloons, which are flown in village competitions.*

Conservation, management and legislation

The species is found in the Environmental Protection Area of the Pico Goiapaba-Açu and the Augusto Ruschi Biological Reserve and plants around the Ecological Station of Santa Lucía are being studied.	*According to Plant Search, specimens are held in seven Botanical Gardens across the globe, including the bromeliad collection of São Paulo State University in Brazil. No seeds are stored in the Millennium Seed Bank.* *In the 1990s, Mr. Kautsky transferred many* Tillandsia *specimens, including specimens of* T. kautski, *from timer trees to his private land in Brazil (Ehlers, 1996).*

Captive Breeding/Artificial Propagation

	See information under trade criteria and difficulties in distinguishing wild-taken from artificially propagated specimens.

Reviewers: V. Crook.

Deletion of *Tillandsia sprengeliana* from Appendix II

Proponent: Brazil

Summary: *Tillandsia sprengeliana* is an epiphytic bromeliad plant known from four states in Brazil - Rio de Janeiro, Espíritu Santo, Minas Gerais and Bahia. It is found in a variety of habitats, ranging from coastal vegetation and forest to the cerrado and montane subtropical savannah. It has been described as being common and/or abundant on the island of Cabo Frio in Rio de Janeiro and in the Abaira region of Bahia, however very little else is known about the species, its population size, structure or trends. A number of sub-populations are known to occur in protected areas. Is listed as endangered in the List of Threatened Species of the State of Espíritu Santo, owing to the degradation of its habitat, in particular due to the large amount of settlement in the coastal regions of this state. It was also listed as Endangered in the 1997 IUCN Red List of Threatened Plants; this designation is noted as in need of updating.

Tillandsias in general feature in the horticultural plant trade. Some forms are artificially propagated in very large numbers and widely sold as ornamental plants. Others are grown largely by enthusiasts. *Tillandsia sprengleriana* was included in Appendix II in 1992 owing to concerns regarding the possible impact on it of wild-collection for international trade. The original listing proposal at CoP8 covered all *Tillandsia* spp. At the CoP it was agreed to include only seven species, including three endemic to Brazil: *T. sprengeliana, T. kautskyi* and *T. sucrei.* All three species are the subject of proposals for deletion from the appendices (see CoP16 Prop. 54 and Prop. 56).

Since the species was listed fewer than 140 specimens have been recorded in trade under CITES, all reported as artificially propagated specimens originating in non-range States, mainly Hungary. No trade from Brazil has been reported. Artificial propagation of this species from seed is known to occur in Germany and Hungary, and artificially propagated plants are offered for sale on the internet in a number of other countries, including the Czech Republic, United States and the Russian Federation. Demand for this species by enthusiasts continues, however it appears that this demand is fully supplied by artificially propagated specimens. No exports of wild specimens have been reported since the species was listed and there is no evidence of ongoing wild collection or illegal trade.

Tillandsia sprengeliana is said to be similar in appearance to *T. brachyphylla*, which is not listed in the Appendices. It appears to be similar in appearance to *T. kautskyi*, which is also proposed for removal from the Appendices (CoP16 Prop 54), both being miniature plants. It can be easily distinguished from all the Central American species of *Tillandsia* listed in the Appendices.

This proposal has resulted from the Plants Committee's Periodic Review process.

Analysis: *T. sprengeliana* has been recorded in four Brazilian states, is found in a variety of habitats, ranging from coastal vegetation and forest to the cerrado and montane subtropical savannah and has been described as common or abundant in some locations. Since the species was listed in Appendix II in 1992 limited trade has been reported in artificially propagated specimens (fewer than 140) and there has been no reported export of the species from Brazil. It would appear that *T. sprengeliana* no longer fulfils the criteria for inclusion in Appendix II as regulation of trade is not required to ensure harvesting of specimens from the wild does not threaten the survival of the species. No exports of wild harvested plants has taken place in the 20 years since the species was listed in Appendix II and it seems unlikely that its removal from the Appendices would stimulate trade in wild specimens such that it would meet the criteria for listing in Appendix II in the near future, as outlined in the precautionary measures, Annex 4 A4 of *Resolution 9.24 (Rev. CoP15)*.

The three *Tillandsia* species being proposed for removal from the Appendices are among dozens that are in trade, the vast majority of which are not included in the Appendices. They appear to be easily distinguished from the species that would remain in the Appendices, all of which occur in Central America. It is unlikely that their removal from the Appendices would cause any enforcement issues.

Supporting Statement (SS)	Additional information
Range	
Brazil.	
IUCN Global Category	
Not evaluated.	*Listed as Endangered in the IUCN Red List of Threatened Plants in 1997 (*Walter *and Gillett (1998); this category is in need of updating.*
Biological and trade criteria for retention in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)	
A) Trade regulation needed to prevent future inclusion in Appendix I	
Biological criteria *Tillandsia sprengeliana* is found in the States of Rio de Janeiro and Bahia. In the State of Rio de Janeiro, it occurs from the region of Macaé to Punta Negra, being most abundant on the island of Cabo Frio, where various specimens have been collected. It is also found in areas of the Atlantic Forest and the Cerrado. Historical records indicate that the species was primarily present in the coastal vegetation of the State of Rio de Janeiro. However, the recent discovery of the species in the montane subtropical savannah regions of Bahia, demonstrates a high plasticity in relation to its habitat.	*The distribution map presented with the proposal includes records of the species in Minas Gerais and Espiritu Santo. Renate Ehlers was unable to find this plant on trips in 1981 and 1986 to Rio Jucu, Vitoria, a location in Espiritu Santo cited by L.B. Smith. Brazilian Tillandsia enthusiasts also reported failing to find the species here despite many efforts (Ehlers, 1996).*
Tillandsia sprengeliana has an absolute frequency of 10.26 and an absolute density of 0.81 in the Morro do Pai Inácio, in the State of Bahia. In the coastal region of the State of Rio de Janeiro, the species demonstrated intermediate constancy, making it characteristic of the region.	*These figures are percentages and were derived from a study carried out within the Environmental Protection Area Marimbus-Iraquara, adjacent to the Chapada Diamantina National Park in 1997. Plants were counted in 78 patches ("soil islands") on two plateaus (39 patches on each) and* T. sprengeliana *was found in 10.26% of the patches, i.e. eight, on Plateau Cruz only.* Tillandsia sprengeliana *made up 0.81% of these patches (average percentage cover)* (*Conceição* et. al., *2007).* *Labels accompanying herbarium specimens collected in the Abaira region of Bahia in 1992 and 1994 note that "it was very abundant in the local area" and "common" (Source: Herbarium specimens, Kew).*
The species is listed "endangered" in the List of Threatened Species of the State of	

Espíritu Santo, owing to the degradation of its habitat. It has been assessed as Data Deficient in Brazil's National List of Threatened Species of Flora.

Trade criteria
Proponents note there is no commercial international trade in this species.

According to the CITES Trade Database (download 13 November 2012) there are seven importer and eight exporter records of live plants of Tillandsia sprengeliana *between 1994 and 2010. According to importers/exporters, 140/129 artificially propagated live plants were traded for commercial purposes during this period.*

No plants were imported/exported directly from Brazil. In 1994, the United States exported two plants to Singapore and in 1999 and 2004 Germany exported two plants to Japan and Australia, respectively. From 2005, Hungary was the sole exporter/ source of all specimens in trade – 140/85 live plants were reportedly imported/(re-)exported to/from Hungary and Switzerland between 2005 and 2010.

The CITES Trade Database also includes five records of Tillandsia *spp. exported from Brazil in 1990 – 275 specimens of unknown source and 20 artificially propagated specimens. There are also two reported exports from Brazil of non-Brazilian* Tillandsia *species: in 1994, 30 live* T. kammii *were exported to the UK and in 2007, 100 live* T. harrisii *were exported to the US (see look-alike issues below).*

The CoP8 proposal stated that T. sprengeliana *fetched prices up to USD 21 per plant in specialist markets.* Tillandsia sprengeliana *is still in demand by enthusiasts (Gouda* in litt., *2012). It is known to be propagated from seed and by division (of shoots) in a number of European nurseries, including ones in Hungary and Germany (Schmitz-Kretschmer* in litt., *2012; Czirák* in litt., *2012).*

Examples of offers for sale include:
Hungary:
http://www.fehernyirfa.hu/index.php?option=com_ponygallery&func=viewcategory&catid=14&startpage=6&Itemid=39
Czech Republic: *http://www.tillandsia ph.cz/index.php?nid=10892&lid=EN&oid=2593527&tabpage=30&taboffset=90&ts=-2&epc=KAKT-001479en*
Germany and Russia: http://www.orchideen-holm.de/563.0.html?&no_cache=1&L=5&categorie=10&product=859
US: http://plantoddities.com/cgi-bin/p/awtp-product.cgi?d=plant-oddities&item=2366
http://www.birdrocktropicals.com/detail.asp?product_ID=T205

Orchideen Holm in Germany produces about 500 T. sprengeliana *per year, with most being sold to enthusiasts in the Czech Republic, Poland and the Russian Federation (however, there are no records of this trade in the CITES trade database), as the market in Germany for high price* Tillandsias *is very low. Production figures are*

constant as there is a stable wholesale market for high quality specimens, which can only produced by artificial propagation. T. sprengeliana *take five years to flower and propagated plants are sold as young plants (3 years, EUR 8 each) and adult plants (5 years, EUR 12). Retail prices for adult plants of this species are around EUR 20 (Schmitz-Kretschmer* in litt., *2012).*

Retention in Appendix II to improve control of other listed species

A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I

Tillandsia sprengeliana is closely related to *T. brachyphylla* and *T. kautskyi.* However, it is characterized by its oval floral bracts which are cuspidate, carinate and glabrous, and by its posterior sepals which are slightly concrescient and glabrous.

Seven species of Tillandsia *are currently listed in CITES Appendix II. Apart from the three species endemic to Brazil that are being proposed (this proposal, CoP16 Props 54 and 56) for removal from the Appendices the remaining species are:* T. harrisii *endemic to Guatemala;* T. kammii *endemic to Honduras;* T. mauryana *endemic to Mexico; and* T. xerographica *which occurs in El Salvador, Guatemala and Mexico. The three Brazilian Tillandsias are small;* T. kautskyi *and* T. sprengliana *are both fairly compact, with* T. sucrei *slightly less so. These Tillandsia species are among dozens that are in trade, the vast majority of which are not included in the appendices. They appear to be easily distinguished from the species that would remain in the appendices which occur in Central America.*

Tillandsia harrisii *endemic to Guatemala is also listed in Appendix II. One online* Tillandsia *seller notes that as* T. harrisii *is similar in appearance to a number of other species it is therefore widely traded without the proper documentation. This may also be an issue for* T. sprengeliana *that is similar in appearance to* T. brachyphylla*, a non-CITES listed species. http://www.rainforestflora.com/tillandsia/species/harrisii/*
T. sprengeliana *is described by one on-line retailer as "An incredible miniature species that is seldom offered. Looks rather like a little miniature artichoke that produces an amazing red inflorescence that is almost as big as the entire plant." http://plantoddities.com/cgi-bin/p/awtp-product.cgi?d=plant-oddities&item=2366*

B) Compelling other reasons to ensure that effective control of trade in currently listed species is achieved

Difficulties in distinguishing wild-taken from artificially propagated specimens in trade were raised as a concern in the original CoP8 proposal. A number of characteristics of wild-taken plants were listed, in order to help identification of such plants, however it was also noted that if prior to export the plants are cleaned intensively (removing roots and old leaves) and grown under nursery conditions for some months, it is very difficult to distinguish them from artificially propagated material. At the time mother plants were commonly collected from the wild and cultivated for a few months to produce one generation of offsets. In these cases the offsets cannot be distinguished from offsets of

artificially propagated plants. Problems with differentiating wild-taken and artificially propagated specimens of Tillandsia xerographica *resulted in the EU introducing a stricter measure in 2010, only permitting imports of artificially propagated specimens with cataphylls.*

Since 1992, all international trade in T. sprengeliana *has reportedly being composed of artificially propagated specimens. The Hungarian Management Authority regularly carries out inspections of a nursery producing* T. sprengeliana *for export and they are satisfied that the plants for sale are artificially propagated (Czirák* in litt., *2012). Plants being grown by Orchideen Holm in Germany are derived from mother-plants obtained from the Hamburg Botanical Garden and other collectors over 40 years ago. However, as Tillandsias must be cross-pollinated, occasionally new mother plants must be purchased to ensure genetic variation is maintained (Schmitz-Kretschmer* in litt., *2012). It is not necessary for mother plants to be wild collected (Jenkins* in litt., *2012).*

Other information

Threats

The principal threats to this species relate to the loss and degradation of its habitat. The coastal region of the State of Rio de Janeiro has a high degree of property speculation and illegal occupation of the land, which have a direct impact on the vegetation growing in these locations.

One sub-population of T. sprengeliana *was destroyed when holiday homes were built in Arraial do Cabo (Ehlers, 1996).*

Conservation, management and legislation

The species is found in six protected areas: the Chapada Diamantina National Park, the Environmental Protection Area of the Sierra del Barbados, the area of ecological significance for the Rio de Cuentas river, the Wildlife Refuge of the National Forest of Muriquis, the Fuente Grande State Park and the Marine Harvest Reserve of Arraial do Cabo.

According to Plant Search, specimens are held in five Botanical Gardens across the globe. No seeds are stored in the Millennium Seed Bank.

Captive Breeding/Artificial Propagation

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See information under trade criteria and difficulties in distinguishing wild-taken from artificially propagated specimens.

Reviewers: V. Crook.

Deletion of *Tillandsia sucrei* from Appendix II

Proponent: Brazil

Summary: *Tillandsia sucrei* is a rare epiphytic bromeliad plant with a very restricted range. It is known from only a small patch of Atlantic Forest of the State of Rio de Janeiro in Brazil where grows individually or in small clumps on sheer rock walls. Very little is known about the species, its population size, structure or trends. It was listed as critically endangered on the Brazilian national Red List in 2005. It was also listed as Endangered in the 1997 IUCN Red List of Threatened Plants; this designation is noted as in need of updating. The species occurs in Tijuca National Park within the urban district of Rio de Janeiro.

Tillandsias in general feature in the horticultural plant trade. Some forms are artificially propagated in very large numbers and widely sold as ornamental plants. Others are grown largely by enthusiasts. *Tillandsia kautskyi* was included in Appendix II in 1992 owing to concerns regarding the possible impact on it of wild-collection for international trade. The original listing proposal at CoP8 covered all *Tillandsia* spp. At the CoP it was agreed to include only seven species, including three endemic to Brazil: *T. sucrei, T. kautskyi*, and *T. sprengeliana.* All three species are the subject of proposals for deletion from the appendices (see CoP16 Prop. 54 and Prop. 55).

Since listing in Appendix II reported trade in the species has only been in artificially propagated specimens. Brazil has reported the export of nearly 200 live plants but none since 1994. The remainder of trade involved non-range States and reported imports were mainly composed of two large imports into Hong Kong from the Netherlands (1620 and 1500 plants) in 2000 and 2001; these were not reported by the Netherlands and may have been misreported. From 2005, Hungary has been the sole exporter/ source of all specimens reported in international trade. Artificial propagation of this species is known to occur in Germany, Hungary and the US. Demand for this species by enthusiasts continues and artificially propagated plants are offered for sale on the internet. No exports of wild specimens have been reported since the species was listed and and there is no evidence of ongoing wild collection or illegal trade. The remaining sub-populations are considered safe from harvesting as most plants are found in two protected areas and/or on inaccessible rocky outcrops.

Tillandsia sucrei is said to be similar in appearance to *T. brachyphylla*, which is not listed in the Appendices. It can be distinguished relatively easily from all the Central American species of *Tillandsia* listed in the Appendices.

This proposal has resulted from the Plants Committee's Periodic Review process.

Analysis: This species has a restricted range, known from only a small patch of Atlantic Forest of the State of Rio de Janeiro in Brazil, and is unlikely to be able to withstand large scale harvest for export. However, all known specimens are considered safe from harvesting due to being found in a protected area and on inaccessible rocky outcrops. All reported international trade in this species since listing in Appendix II has been in artificially propagated specimens, with a maximum of 200 specimens having been exported directly from Brazil; the remainder of trade involves non-range States. Demand for this species by enthusiasts continues, and artificial propagation is reportedly the only source of specimens now in trade. There is no evidence of ongoing wild collection or illegal trade.

It would appear that *T. sucrei* no longer fulfils the criteria for inclusion in Appendix II as regulation of trade is not required to ensure harvesting of specimens from the wild does not threaten the survival of the species. No exports of wild harvested plants has taken place in the 20 years since the species was listed in Appendix II and it seems unlikely that its removal from the Appendices would stimulate trade in wild specimens such that it would meet the criteria for listing in

Appendix II in the near future, as outlined in the precautionary measures, Annex 4 A4 of *Resolution 9.24 (Rev. CoP15).*

The three *Tillandsia* species being proposed for removal from the Appendices are among dozens that are in trade, the vast majority of which are not included in the Appendices. They appear to be relatively easily distinguished from the species that would remain in the Appendices, all of which occur in Central America.

Supporting Statement (SS)	Additional information
Range	
Brazil.	
IUCN Global Category	
Not evaluated.	*Listed as Endangered in the IUCN Red List of Threatened Plants in 1997 (Walter, and Gillett, 1998); this category is in need of updating.*
Biological and trade criteria for retention in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)	
A) Trade regulation needed to prevent future inclusion in Appendix I	
Biological criteria *Tillandsia sucrei* has a very restricted range, being endemic to the Atlantic Forest of the State of Rio de Janeiro. It lives in isolation or in small clumps on sheer rock walls which are difficult to reach.	*Listed as critically endangered on the Brazilian national Red List in 2005 (Martinelli* et. al., *2008).* *According to the CoP8 proposal to list all* Tillandsia *species submitted by Germany in 1992, this species is limited to the urban district of Rio de Janeiro.*
No specific information on population size, structure or trends is provided in the proposal. The species is listed as endangered in the List of Threatened Species of the State of Espíritu Santo, owing to the degradation of its habitat. It has been assessed as Data Deficient in Brazil's National List of Threatened Species of Flora.	
Trade criteria Proponents note there is no commercial international trade in this species.	*According to the CITES Trade Database (download 13 November 2012) there are 17 importer and 23 exporter records of live plants of* Tillandsia sucrei *between1991and 2010 (although the species was only listed in 1992). According to importers/exporters, 3396/321 artificially propagated live plants were traded for commercial purposes during this period. Three were traded for personal purposes.* *86/221 live plants were imported/exported directly from Brazil. All of this trade occurred*

Supporting Statement (SS)	Additional information
	between 1991 and 1994. The principal destinations were Germany (40/52) Spain (40) and the UK (30). *3213/113 live plants were imported/exported from other non-range States - Brazil was not declared the country of origin in any of these cases. Reported imports were mainly composed of two large imports into Hong Kong from the Netherlands of 1620 and 1500 plants in 2000 and 2001. From 2005, Hungary was the sole exporter/ source of all specimens in trade – 90/75 live plants were reportedly imported/(re-)exported to/from Hungary and Switzerland between 2005 and 2010.* *The CITES Trade Database also includes five records of* Tillandsia *spp. exported from Brazil in 1990 – 275 specimens of unknown source and 20 artificially propagated specimens. There are also two reported exports from Brazil of non-Brazilian* Tillandsia *species: in 1994, 30 live* T. kammii *were exported to the UK and in 2007, 100 live* T. harrisii *were exported to the US (see look-alike issues below).* *The CoP8 proposal stated that* T. sucrei *populations were extremely threatened because specialist growers are very keen on this attractive species, paying up to USD 15 for each specimen and a Brazilian orchid nursery was offering plants for sale at USD 1 each.* Tillandsia sucrei *is still in demand by enthusiasts (Gouda* in litt., *2012). It is known to be propagated from seed and by division (of shoots) in a number of European nurseries, including ones in Hungary and Germany (Schmitz-Kretschmer* in litt.*, 2012; Czirák* in litt., *2012).* *Orchideen Holm in Germany produces only about 200* T. sucrei *per year, with this species being difficult to propagate from seed (not producing much seed). 40 mother-plants are required to produce 200 offspring, which is reportedly is not enough to satisfy potential demand of 300 plants per year. Most are sold to enthusiasts in the Czech Republic, Poland and the Russian Federation (however, there are no records of this trade in the CITES trade database), as the market in Germany for high price* Tillandsias *is very low. There is a stable wholesale market for high quality specimens, which can only be produced by artificial propagation.* T. sucrei *takes seven years to flower and propagated plants are sold as young plants (four years, EUR 8 each) and adult plants (seven years, EUR 12). Retail prices for adult plants of this species are around EUR 20, and there is a reported case when a single* T. sucrei *mother plant for breeding cost EUR 40 (Schmitz-Kretschmer* in litt., *2012).* *According to Ehlers (1996) this species can be cultivated relatively easily, if temperatures are kept above 15 degrees. This species is known to be grown from seed in the US (Gouda* in litt., *2012).*

Supporting Statement (SS)	Additional information
	Examples of offers for sale include: *Czech Republic: http://www.kakteen.cz/index.php?klic=kid1177en-tillandsia-sucrei* *US: http://plantoddities.com/cgi-bin/p/awtp-product.cgi?d=plant-oddities&item=2399* *http://www.ebay.com/itm/Tillandsia-Sucrei-Air-Plants-/180993273611?_trksid=p2992.m2068&_trkparms=aid%3D444000%26algo%3DSOI.CURRENT%26ao%3D1%26asc%3D24%26meid%3D331046088213067178 7%26pid%3D100029%26prg%3D1009%26rk%3D8%26sd%3D170920037686%26* *http://www.ctsairplants.com/Tillandsia_Sucrei_p/sucrei.htm*

Retention in Appendix II to improve control of other listed species

A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I

Tillandsia sucrei resembles *T. brachyphylla* because of its caniculate leaves and pinkish corolla, with sinuous ribbing. However, it can be differentiated from the latter species by the wide base of the broad rosette, which is not bulbiform, and by the stamens with protruding filaments.

Seven species of Tillandsia *are currently listed in CITES Appendix II. Apart from the three species endemic to Brazil that are being proposed (this proposal, CoP16 Props 54 and 55) for removal from the Appendices the remaining species are:* T. harrisii *endemic to Guatemala;* T. kammii *endemic to Honduras;* T. mauryana *endemic to Mexico; and* T. xerographica *which occurs in El Salvador, Guatemala and Mexico. The three Brazilian Tillandsias are small;* T. kautskyi *and* T. sprengliana *are both fairly compact, with* T. sucrei *slightly less so. These Tillandsia species are among dozens that are in trade, the vast majority of which are not included in the appendices. They appear to be relatively easily distinguished from the species that would remain in the appendices which occur in Central America.*

Tillandsia harrisii *is also listed in Appendix II. One online* Tillandsia *seller notes that as* T. harrisii *is similar in appearance to a number of other species it is therefore widely traded without the proper documentation. This may also be an issue for* T. sucrei *that is similar in appearance to* T. brachyphylla*, a non-CITES listed species.*
http://www.rainforestflora.com/tillandsia/species/harrisii/

B) Compelling other reasons to ensure that effective control of trade in currently listed species is achieved

Difficulties in distinguishing wild-taken from artificially propagated specimens in trade were raised as a concern in the original CoP8 proposal. A number of characteristics of wild-taken plants were listed, in order to help identification of such plants, however it was also noted that if prior to export the plants are cleaned intensively (removing roots and old leaves) and grown under nursery conditions for some months, it is very difficult to distinguish them from artificially propagated material. At the time mother plants were commonly collected from the wild and cultivated for a few months to produce one generation of offsets. In these cases the offsets cannot be distinguished from

Supporting Statement (SS)	Additional information
	offsets of artificially propagated plants. Problems with differentiating wild-taken and artificially propagated specimens of Tillandsia xerographica *resulted in the EU introducing a stricter measure in 2010, only permitting imports of artificially propagated specimens with cataphylls.* *Since 1992, all international trade in* T. sucrei *has reportedly being composed of artificially propagated specimens. The Hungarian Management Authority regularly carries out inspections of a nursery producing* T. sucrei *for export and they are satisfied that the plants for sale are artificially propagated (Czirák,* in litt., *November 2012). Plants being grown by Orchideen Holm in Germany are derived from mother-plants obtained from the Hamburg Botanical Garden and other collectors over 40 years ago. However, as Tillandsias must be cross-pollinated, occasionally new mother plants must be purchased to ensure genetic variation is maintained (Schmitz-Kretschmer* in litt., *2012). It is not necessary for mother plants to be wild collected (Jenkins* in litt., *2012).*

Other information

Threats

According to the proposal, despite the species very restricted range, its occurrence within units of strictly protected areas, and the difficulty of access to the current population, mean that the species does not face any immediate threats.	*According to the CoP16 proposal for* T. sprengeliana*, the coastal region of the State of Rio de Janeiro has a high degree of property speculation and illegal occupation of the land, which have a direct impact on the vegetation growing in these locations.* *Ehlers (1996) noted that the lithophatic species such as* T. sucrei *grow on near perpendicular rocks, and although almost inaccessible and therefore well protected from collection, these populations can be damaged or destroyed by fires getting out of control in grass- and bushlands or caused by crashing of hot air balloons, which are flown in village competitions.*

Conservation, management and legislation

According to the proponent, as the species is found on sheer rock walls which are difficult to reach it is reasonably well protected from efforts to harvest it. It is found in the Tijuca National Park, located in an urban area of the State of Rio de Janeiro.	*According to the CoP8 proposal, such inaccessibility did not prevent harvesting: "The Serra de Orgaos, for example, near to Rio de Janeiro is known for its* Tillandsia *endemics growing 'inaccessibly" on steep rocks. Recently also these localities were stripped with the help of alpinists and helicopters".* *According to Plant Search, specimens are held in nine Botanical Gardens across the globe. No seeds are stored in the Millennium Seed Bank.*

Supporting Statement (SS)	Additional information
Captive Breeding/Artificial Propagation	
.	*See information under trade criteria and difficulties in distinguishing wild-taken from artificially propagated specimens.*

Reviewers: V. Crook.

Deletion of Laguna Beach Live-forever *Dudleya stolonifera* and Santa Barbara Island Live-forever *Dudleya traskiae* from Appendix II

Proponent: United States of America

Summary: Laguna Beach Live-Forever *Dudleya stolonifera* and Santa Barbara Island Live-Forever *Dudleya traskiae* are succulent plants, endemic to the United States of America. Six known populations of *D. stolonifera* exist. Four are on lands managed by city and county governments. The remaining two occurrences are on private lands with no legal protection, but landowners are required to notify the California Department of Fish and Game ten days prior to any disturbance to the land where *D. stolonifera* occurs so that plants can be salvaged. The main potential threats to *D. stolonifera* are urban development and associated edge effects, and encroachment and competition by non-native plants. *D. traskiae* is restricted to Santa Barbara Island, part of the Channel Islands National Park. Under the US Endangered Species Act and agency regulations the National Park Service is required to conserve endangered and threatened species and their habitat and to avoid actions that may jeopardize the listed species' survival. The main potential threats to *D. traskiae* are nesting and roosting of the Californian Brown Pelican *Pelecanus occidentalis*, herbivory from the native Deer Mouse *Peromyscus maniculatus* and owlet moth larvae (family Noctuidae), soil erosion caused by previous disturbances, and stochastic events.

Both species are listed under the U S Endangered Species Act. *D. stolonifera* is listed as threatened and *D. traskiae* as endangered. They are protected by this federal legislation and also by California State law. Wild-collection and possession of specimens from State and Federal lands is prohibited except for certain approved circumstances, such as research. Both species are also protected under the US Lacey Act. The US Fish and Wildlife Service are responsible for the listing status, recovery and law enforcement efforts for the protection of *D. stolonifera* and *D. traskiae* and have published a recovery plan for *D. traskiae*. Relevant State and Federal agencies will continue to monitor populations.

Both species were included in Appendix I of CITES at CoP4 in 1983 when wild-collection and trade were considered to be possible potential threats to the species. Following the Periodic Review of the Appendices process and recommendation from the Plants Committee, *D. stolonifera* and *D. traskiae* were transferred to Appendix II at CoP11 in 2000, and CoP12 in 2002, respectively. There has been no CITES recorded trade and no illegal trade noted in either species since they were transferred to Appendix II.

D. stolonifera is not known to be commercially available, either as wild-collected or artificially propagated specimens. Artificially propagated specimens of *D. traskiae* have been available at retail garden centres associated with botanic gardens and a few local commercial nurseries in California.

Analysis: There has been no recorded export of either *D. stolonifera* or *D. traskiae* since the species were listed in Appendix I in 1983. *D. stolonifera* and *D. traskiae* were moved to Appendix II in 2000 and 2002 respectively, in accordance with the precautionary measures in *Resolution Conf. 9.24 (Rev. CoP15)* that specify that no Appendix-I listed species should be removed from the Appendices unless it has first been transferred to Appendix II with monitoring of any impact of trade for at least two intervals between CoPs. No international trade in wild specimens of either species has been reported since their transfer to Appendix II. Given the National and State laws that protect the species in the United States, the remote, relatively inaccessible site locations of the species and evidently low international demand, wild-collection of specimens for international trade is considered very unlikely. It is unlikely that removal from the CITES Appendices will stimulate trade. Effective domestic protection measures are in place. On the basis of available trade data and information on the status and trends of the wild populations, the species no longer appear to meet the criteria for inclusion in Appendix II.

Supporting Statement (SS)	Additional information
Taxonomy	
Synonyms for *Dudleya traskiae*: *Stylophyllum traskiae*; *Echeveria traskiae.*	
Range	
United States of America.	
IUCN Global Category	
Both species are considered Endangered in the *1997 IUCN Red List of Threatened Plants.*	

Biological and trade criteria for retention in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)

A) Trade regulation needed to prevent future inclusion in Appendix I

Dudleya stolonifera and *D. traskiae* are endemics, with extremely narrow geographical ranges and small population sizes. Suitable habitat is restricted to discontinuous areas within the species' range.	*Not included in the IUCN Red List of threatened species.* *NatureServe G ranks report D. stolonifera and D. traskiae to qualify for category G1(critically imperilled at a global level).*
In 1998, the known population of *D. stolonifera* consisted of six occurrences comprised of approximately 8000 to 10 000 individuals. Since 1998, one population was determined to have 20 000 individuals; increasing the total abundance to 30 000 individuals in an area approximately 10 km^2 in size.	*In 1998, six populations of* D. stolonifera *were noted, all of which are believed to still be extant. Three additional occurrences were reported but were considered 'in question' based on inadequate documentation (USFWS, 2010).*
D. traskiae is endemic to Santa Barbara Island which is 2.6 km^2. In 1975, it was reported that D. traskiae had not been collected since 1968 and that the species was possibly extinct. However, following rediscoveries, the population of *D. traskiae* now consists of eleven colonies of approximately 1000 individuals in total.	
The largest habitat for *D. stolonifera* is considered stable and the largest populations occur on city and government lands that are unlikely to be developed. Prior to 1987, a portion of one population of *D. stolonifera* was reduced in size because the land was commercially developed.	*The largest populations of* D. stolonifera *are located at Mathis Canyon and account for 67% of individual plants (USFWS, 2010).*
Little is known about the reproductive strategies of *D. stolonifera* and *D. traskiae*; though it is suspected they are self-fertilizing as is the case for many *Dudleya* species.	*Outplanting efforts of* D. traskiae *by National Park staff on Santa Barbara Island in 2005 boosted population numbers. The majority were surviving in 2011, but there have been no new outplanting efforts since 2005 (USFWS, 2012).*

Supporting Statement (SS)	Additional information
B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences	
Trade was considered a significant threat to *D. stolonifera* and *D. traskiae* when they were included in Appendix I in 1983. At the time, plants of these species were known to be wild-collected for private collections, and wild-collected specimens were available in local nurseries. However, the easily accessible population of *D. stolonifera*, where collections had once occurred, no longer exists as the land has been commercially developed. The species were transferred to Appendix II, over ten years ago. All trade of *D. stolonifera* and *D. traskiae* has been reported at the genus-level (*Dudleya* spp.). The United States, the only range country for the species, has never reported trade in the species. Since the species were listed there has only been one export recorded, for artificially propagated specimens from France to Switzerland in 1985. In addition, one individual *Dudleya* spp. was exported from Mexico to the United States in 1984. There are two records for seized specimens from Mexico to the United States, which may have been misidentified. The CITES Trade Database reports 104 artificially propagated specimens of *D. traskiae* exported from Belgium to Switzerland in 2010. According to the CITES Scientific Authority of Belgium, the species in trade was not *D. traskiae* as reported but *Dudleya brittonii* (native to Mexico) which is not CITES-listed. There is no evidence of illegal trade from the United States in wild-collected specimens of *D. stolonifera* or *D. traskiae*. The proposal reports that International trade does not appear to be a factor affecting the status of *D. stolonifera* or *D. traskiae*. *D. stolonifera* is not known to be commercially available, either as wild-collected or artificially propagated specimens. Artificially propagated specimens of *D. traskiae* have been known to be available at retail garden centres associated with botanic gardens and a few local commercial nurseries in California.	D. stolonifera *is reported to be unusual in collections (Anon A, undated).* D. traskiae *is available to purchase as a living plant of 4 inches in size for USD8.95 from Annie's Annuals and Perennials, an online store. The website states that 'due to federal regulations we cannot sell this plant outside of California' (Anon B, undated).* *Park staff noted one incident of collection of D. traskiae from a plot being monitored between 1985 and 1987, but no other incidences have been noted since (USFWS, 2012).* *Over-utilisation of D. traskiae does not appear to be a threat (Blazek pers. Obs. 2011, in USFWS, 2012).*

Supporting Statement (SS)	Additional information
Retention in Appendix II to improve control of other listed species	
A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I	
The species are the only *Dudleya* species listed in the CITES Appendices. There are no look-alike concerns with other CITES-listed plant species.	
B) Compelling other reasons to ensure that effective control of trade in currently listed species is achieved	
It is not thought that delisting *D. stolonifera* and *D. traskiae* will cause enforcement problems for other CITES-listed species.	
Other information	
Threats	
A number of factors in the land-use history of Santa Barbara Island may have contributed to the near demise of *D. traskiae*, including farming and the introduction of non-native herbivores, particularly rabbits. The main threats to *D. traskiae* are nesting and roosting of the Californian Brown Pelican (*Pelecanus occidentalis californicus*), herbivory from native Deer Mice (*Peromyscus maniculatus exilis*) and owlet moth larvae (family Noctuidae), soil erosion caused by previous disturbances, and stochastic events. The main threats to *D. stolonifera* are urban development and associated edge effects, and encroachment and competition by non-native plants.	*One of the occurrences of* D. stolonifera *was recently subject to a development plan that was withdrawn and could be resubmitted at a future date (USFWS, 2010).*
Conservation, management and legislation	
Both species are protected under the United States Endangered Species Act and by California State law as listed species. State and National listings prohibit wild-collection and possession of specimens from State and Federal lands, except for certain approved circumstances, such as research. Both species are also protected under the US Lacey Act, which prohibits trafficking in illegal plants and plant products of listed species. The species will continue to be monitored by the responsible State and Federal agencies.	*State protections in California for* D. stolonifera *are; the Native Plant Protection Act (NPPA) and California Endangered Species Act (CESA), the California Environmental Quality Act (CEQA), and the Natural Community Conservation Plants (NCCP) (USFWS, 2010).* D. stolonifera *and* D. traskiae *are currently included in the California Native Plant Society (CNPS) Inventory of Rare, Threatened, and Endangered Plants of California.* Dudleya stolonifera *is currently ranked 1B.1 (rare, threatened, or endangered in California and elsewhere; seriously threatened in California) while* Dudleya traskiae *is afforded similar status as a 1B.2 plant (rare, threatened, or endangered in California*

Supporting Statement (SS)	Additional information
Four occurrences of *D. stolonifera* are on lands managed by city and county governments. The remaining two occurrences are on private lands with no legal protection, but landowners are required to notify the California Department of Fish and Game ten days prior to any disturbance to the land where *D. stolonifera* occurs so that plants can be salvaged. The range of *D. stolonifera* lies entirely within the boundaries of the Central/Coastal subregion of the California Natural Communities Conservation Planning area. *D. traskiae* populations are restricted to the island of Santa Barbara where the population declined due to the introduction of non-native herbivores. The National Park Service eradicated all of the non-native herbivores, and later the non-native Iceplant (*Mesembryanthemum crystallinum*) was removed. The US Fish and Wildlife Service aim to secure *D. traskiae* in a vigorous self-sustaining condition, expand the distribution to include 95 percent of the suitable habitat and eventually delist the species from the US Endangered Species Act. The National Park Service is responsible for the management and protection of *D. traskiae* on Santa Barbara Island. It has implemented numerous management actions to restore the natural biological processes and remove external sources of disturbance on the island, including eradicating non-native species, removal of visitor walking trails near sites of *D. traskiae*, restricting visitors to designated trails, camp areas, and boat landing area on the island and prohibiting off-trail exploration. The National Park Service routinely monitors populations of *D. traskiae* and conducts plant surveys on the island for additional plants.	*and elsewhere; moderately threatened in California).* D. stolonifera *and* D. traskiae *are afforded state protections under the Native Plant Protection Act (NPPA), California Endangered Species Act (CESA) and the California Environmental Quality Act (CEQA) due to their State Listing status as Threatened (for* D. stolonifera*) and Endangered (for* D. traskiae*) under the California Endangered Species Act of the California Department of Fish and Game Code. The species are also afforded the same state protections due to their listing as California Rare Plant Rank 1B plants in the California Native Plant Society (CNPS) Inventory of Rare, Threatened, or Endangered Plants (CNPS Inventory).* *Listing as California Rare Plant Rank 1B plants in the CNPS Inventory also affords them further advocacy and public awareness. Removal of these species from CITES Appendix II would not alter this (Sims, 2012).*
Captive Breeding/Artificial Propagation	
Artificially propagated specimens of *D. traskiae* have been known to be available at retail garden centres associated with botanic gardens in California, including Santa Barbara Botanic Garden and Rancho Santa Ana Botanic Garden, and a few local commercial nurseries. Propagation of *D. traskiae* is recorded within botanic gardens. The extent of artificially propagated plants of *D. stolonifera* and *D. traskiae* is unknown.	*According to BGCI's PlantSearch (2012) database of ex situ plant collections,* D. stolonifera *is held in the collections of four botanic gardens and one associated seed bank. Four out of the five holdings are located in the US.* *PlantSearch (2012) records seven additional institutions holding of* D. traskiae *to those reported in the proposal. Four of these are located in the US.* *No accessions of* D. stolonifera *or* D. traskiae *are reported as held in the USDA National Plant Germplasm System (GRIN, 2012).* *The California Native Plant Link Exchange reports that, in addition to the two botanic gardens noted in the proposal,* D. traskiae *can also be purchased from*

Supporting Statement (SS)	Additional information
	Annie's Annuals. No nurseries or seed sources are listed for D. stolonifera *(CNPLX, undated).* *When* D. stolonifera *was listed under the Endangered Species Act (in 1998), field-collected specimens were also cultivated in area nurseries (USFWS, 2010).* Dudleya stononifera *and* D. traskiae *are both a part of the Centre for Plant Conservation National Collection. Santa Barbara Botanic Garden is the institution responsible for* D. traskiae *and Rancho Santa Ana Botanic Garden the institution responsible for* D. stolonifera. Dudleya *species grow easily from seed (O'Brien, 2012, through cultivation experience at Rancho Santa Ana Botanic Garden).*
Other comments	
It is not thought that removing *D. stolonifera* and *D. traskiae* from the Appendices will stimulate trade, or cause enforcement problems for other CITES-listed species.	

Reviewers: N. Fraga, B. O'Brien**,** A. Sims.

Inclusion of the genus *Diospyros* (populations of Madagascar) in Appendix II, and limited to logs, sawn wood and veneer sheets by an annotation

Proponent: Madagascar

Summary: *Diospyros* is a very large and widespread, chiefly tropical, genus of trees and shrubs in the ebony family or Ebenaceae. Over 500 species have been described in total, although the taxonomy of the genus is in need of revision. Estimates for the number of valid species in Madagascar range from 84 to around 240. Currently 103 species names of Malagasy *Diospyros* are included in CITES Appendix III, based on a list submitted by Madagascar in 2011 (see Notification 2011/039); 84 names are listed in the annex to the proposal. All Malagasy *Diospyros* are believed endemic to the country, with the exception of *D. ferrea*, a very widespread species that also occurs in Africa, Asia, Australia and the Pacific (and which is not included in the current Appendix-III listing). *Diospyros* spp. are distributed throughout Madagascar and are found in a very wide range of habitats, including evergreen wet forests, coastal forests, deciduous dry forests, tapia woods, thickets and savannah scrub.

Some members of the genus yield black, dense, durable wood, known as ebony, used for carpentry and cabinet-making and also in demand for musical instruments. In Madagascar, as elsewhere, timber-bearing ebony trees have been harvested for many years both for domestic use and for export. In recent years levels of harvest and export have evidently increased greatly. Around 40% of the currently named Malagasy species are said to yield wood of commercial value. Some 20 species are reportedly traded in significant quantity, of which the most important are said to be *Diospyros gracilipes, D. perrieri* and *D. platycalyx*. *Diospyros gracilipes* occurs in the humid forests of the east and the Sambirano region of the north and is considered one of the most valuable woods in Madagascar, fetching high prices even when traded in smaller sizes. *D. perrieri* is the main producer of ebony wood in western Madagascar*; D. platycalyx,* also from western Madagascar, is reported to be heavily exploited within its range.

Little is known about population sizes and distributions of most of the Malagasy *Diospyros* species. None is currently included in the IUCN Red List. At CoP15 a decision was adopted directing Madagascar and the Plants Committee to review and gather further information on species (including tree species) that might benefit from inclusion in the Appendices. Information on the taxonomy, distribution and conservation status of *Diospyros* spp. was presented to the nineteenth meeting of the Plants Committee in April 2011; this included preliminary assessments of some species using the IUCN Red List Categories and Criteria. This suggested that *D. gracilipes* was vulnerable and *D. perrieri* endangered. It was reported that almost all large trees of the latter had disappeared from within its range. Various other species were also assessed as threatened owing to logging pressure. No assessment of *Diospyros platycalyx* was made. There is little information available on growth rates or regeneration potential of Malagasy *Diospyros*, but growth of ebony-producing trees is in general believed to be slow, with many years needed to produce the dense, dark wood that is most highly sought-after. Generation times are likely to be measured in decades.

Few data are available on the trade in ebonies from Madagascar. It is believed that large amounts were exported in 2008 and 2009, much of it obtained illegally, either from within protected areas or without appropriate permits. Most information concerning hardwood export from Madagascar relates to rosewood *Dalbergia* spp. (see proposal CoP16 Prop. 63), with indications that rosewood is exported in much larger quantities than ebony.

In addition to selective logging, Malagasy forests are subject to numerous other pressures including clearance for shifting cultivation, uncontrolled burning, urbanisation and mining. In 2000 relatively unaltered forest covered around 10% of Madagascar with deforestation rates estimated at 200-300 000 ha per year. The coastal forests in particular are known to be highly fragmented and are believed to have been reduced in extent by around 25% between the 1970s

and the mid-2000s.

Madagascar introduced a temporary ban on export of precious woods in 2010, envisaged to be for between 2-5 years. As of late 2012 this reportedly remained in place, although logging of ebonies has apparently continued, including within protected areas.

Analysis: Information on populations of any *Diospyros* species in Madagascar is scarce. Some species are known to have restricted distributions and are not known to be present in protected areas. Almost all large trees of one valuable ebony-wood producing species, *Diospyros perrieri,* are said to have disappeared from the western part of Madagascar, to which it is restricted. It is reported that despite introducing legislation to ban the export of precious woods in 2010 logging of ebonies has continued, apparently including within protected areas. There are no data on volumes of ebony in trade, and it is not possible to relate even anecdotal accounts of ebony in trade to particular species. There is thus little evidence to determine whether any of the species meet the criteria in Annex 2a of *Resolution Conf. 9.24 (Rev. CoP15)*. However, given the apparently high rates of exploitation of ebony-producing trees as well as the large scale deforestation occurring in Madagascar and the generally long generation times of ebony-producing trees it is possible that some meet these criteria in that regulation of trade in them is required to ensure that the harvest of specimens from the wild is not reducing their populations to a level at which their survival might be threatened by continued harvesting or other influences.

Experts are currently unable to accurately identify any given log of Malagasy ebony to the species level and thus, if it is considered that one or more species of *Diospyros* meet the criteria in Annex 2 a then other species would meet the criteria in Annex 2 b A of *Resolution Conf. 9.24 (Rev. CoP15*). Given the current taxonomic uncertainty of the genus *Diospyros* listing of all populations of Madagascan species of the genus *Diospyros* would likely facilitate implementation.

Supporting Statement (SS)	Additional information
Taxonomy	
The genus is under taxonomic evaluation and preliminary results indicate a total number of 120 to 240 species in Madagascar. There are 84 accepted species in the genus *Diospyros* as listed in the Annex of the proposal (based on the Catalogue of Vascular Plants of Madagascar).	*Schatz (2001) states there are around 100 endemic species recorded and an additional 25 species yet to be described. Subsequently the Catalogue of Vascular Plants of Madagascar states there are 87 accepted species of* Diospyros *of which 86 are endemic and 1 is indigenous non-endemic and an estimated further 130 undescribed endemic species, a total 217 species (Madagascar Catalogue, 2012).*
Range	
Madagascar (this proposal only covers populations of Madagascar).	
IUCN Global Category	
	No Malagasy species of Diospyros *is currently listed.*

Supporting Statement (SS)	Additional information

Biological and trade criteria for inclusion in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)

B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences

Malagasy Ebony is used for the manufacture of luxury objects, cutlery, brush making, marquetry, canes, lutherie, musical wind instruments and piano keys.

37-40% of described species are large harvestable trees.

The precious wood of these species is used to make inlays, cabinets, parts for musical instruments (fingerboards on violins, piano keys), cutlery and handles. In recent years Madagascar has experienced very high levels of logging of Ebonies following regime change in March 2009, particularly in the north-eastern rainforests (Jenkins et al*., 2012).*

Madagascar ebony has been exploited for centuries, but subject to intense levels of uncontrolled and illegal international trade in recent years (DBEV and WWF, 2010a).

Volumes of timber export have been declining due to the increasing scarcity of these species. In 2009 36 700 tonnes of precious wood was exported, 249 tonnes (0.7%) were ebony and the remainder was rosewood. Logging occurs in various sites including the Marojejy and Masoala National Parks in north-east Madagascar (Randriamalala and Liu, 2010).

Twenty-two species of ebony wood are the most marketed outside Madagascar. More than 90% of exported goods are in the form of logs and sawn wood. The international market for Ebony has promoted the illicit exploitation of this species. There is a high demand for the quality of wood and mature trees are selectively targeted.

The Prota (Plant resources of tropical Africa) database at www.prota.org identifies Diospyros gracilipes, Diospyros perrieri *and* Diospyros platycalyx *as the most important Ebony species. ONE (2005) cited in DBEV and WWF (2010b) also identifies the following species as traded internationally:* Diospyros aculeata, Diospyros ambilensis, Diospyros antsiranensis, Diospyros bernieri, Diospyros bernieriana, Diospyros calophylla, Diospyros haplostylis, Diospyros intricata, Diospyros laevis, Diospyros magnifolia, Diospyros myrtifolia, Diospyros pervilleana, Diospyros pruinosa, Diospyros sakalavarum, Diospyros sclerophylla, Diospyros sphaerosepala, Diospyros tampinensis, Diospyros toxicaria, Diospyros tropophylla.

*One species occurring in Madagascar (*D. ferrea*) is widespread in Africa, Asia, Australia and the Pacific (www.congotreesrbge.org.uk). All others are believed endemic.*

The structure of the population of the species of *Diospyros* presents a disturbance marked by the absence of certain diameter classes both inside and outside protected areas. Individual seed trees with a DBH greater than 20 cm represented by large trees are increasingly rare. It takes at least 80 years for these species to reach the size of exploitability. The natural regeneration rate is generally low (0 to 12%).

Trees are harvested before reaching the age of reproduction (DBEV and WWF, 2010b). Individuals of Diospyros *which have a diameter at breast height (DBH) greater than 50 cm are the main targets of loggers (DBEV and WWF, 2010a).*

At PC19 a document presented the assessments of some species using the

Supporting Statement (SS)

The number of exploitable individuals is reduced and they exist only in protected areas or in areas of production. The gradual decline of populations of Madagascar ebony has been found, for example almost all the large trees of *Diospyros perrieri* disappeared in the western part of Madagascar.

Of the 84 species of *Diospyros* 13 have been assessed as threatened using the IUCN criteria.

However, there are species with a wide geographical distribution as *D. gracilipes, D. haplostylis* and others have a restricted distribution such as *D. perrieri* and *D. tampinensis.*

Diospyros species show a wide variability of density ranging from 10 to 900 individuals per hectare. In addition, the biovolume and basal area are generally low. This indicates that the majority of individuals are not usable (see Table below).

Table: Density of some species of Diospyros in Madagascar

Species	**Density (Individual/ha)**	**Basal area (m^2/ha)**	**Biovolume (m^3/ha)**
D. aculeata	70-280	0.4-7.2	1-93.5
D. bernieri	900	3.1	63.9
D. calophylla	450	1.9	7.7
D. gracilipes	500	3.6	12
D. haplostylis	500	4.9	23.3
D. perrieri	10	0.9	2.9
D. sakalavarum	50	0.6	1.6
D. toxicaria	30	0.1	0.2

Additional information

IUCN categories and criteria (see PC19 Doc 14.3). WWF and the Département de Biologie et Ecologie Végétales (CITES Scientific Authority for Plants) have conducted surveys at two sites in south east Madagascar (Mahabo Mananivo and Manombo), two sites in the north west (Tsaramandroso and Ankarafantsika) and four sites in the west (Kirindy, Beroboka, Andranomena and Ampataka) (DBEV and WWF, 2010a). Ten species of Diospyros were surveyed in the two sites of South East Madagascar, eight species in the Northwest and six species in the west. The survey's findings and preliminary threat categories are presented below for selected species.

Diospyros aculeata subsp. meridionalis- *endangered due to over illegal logging, population decline, uncontrolled fire (PC 19 Doc 14.3).*

Diospyros ambilensis- *At Mahabo Mananivo the density of this species was low at 10 per ha. Diospyros ambilensis has a low basal area (0.05 m^2 per ha) and biovolume (0.13 m^3 per ha) at both sites of Mahabo Mananivo and Manombo. This can be explained by the scarcity/absence of large individuals in the sites due to selective removal logging (DBEV and WWF, 2010a). Surveys found only one individual with a diameter of between 5-10cm and regeneration of the species was absent at the two sites in south east Madagascar (DBEV and WWF, 2010a).*

Diospyros bernieri – *near threatened due to over exploitation (PC 19 Doc 14.3).*

Diospyros calophylla- *vulnerable due to habitat degradation and over exploitation (PC 19 Doc 14.3).*

Diospyros clusiifolia – *vulnerable (PC 19 Doc 14.3).*

Diospyros cupulifera- *Surveys in Tsaramandroso (north west Madagascar) found* Diospyros cupulifera *to be present at one out of three sites surveyed, and to be present at a density of 60 individuals per ha. Basal area was 0.4 per m^2, and biovolume of 0.69 m^3 per ha, and regeneration was fair at the one site where it was present (DBEV and WWF, 2010a). Density in the west was 50-120 individuals per ha, and the species was found at two out of four sites, with a basal area of 0.01-0.86 m^2 per ha and biovolume of 2.18-3.49m^3 per ha. This species has a very low rate of regeneration in both study sites. Individuals with a diameter between 5-10 cm are absent (DBEV and WWF, 2010a).*

Diospyros ferrea- *The species has a good regeneration rate at Mahabo Mananivo in the south east and a density of 250-810 individuals per ha, though had a low basal area (0.03-0.95m^2 per ha) and biovolume (0.1-2.55 m^3 per ha) in Mahabo due to the scarcity or absence of large trees in the sites after selective logging (DBEV and WWF,*

Supporting Statement (SS)	Additional information
	2010a). The density in Tsaramandroso was lower at 10-40 individuals per ha, and the species was found at two out of three sites. The basal area in Tsaramandroso was 0.18-0.49 per m^2, and biovolume of 0.29-1.56m^3 per ha, and at one site there was no regeneration, whilst regeneration was fair at the other (DBEV and WWF, 2010a). **Diospyros fuscovelutina -** *vulnerable due to illegal logging (PC 19 Doc 14.3).* **Diospyros gracilipes**- v*ulnerable due to exploitation and likely decline (PC 19 Doc 14.3).The area of occupancy is estimated to be 513 km^2, and it is thought there are 46 subpopulations; of which 35 are outside of protected areas (DBEV* et al., *2011). From surveys in the south east it was determined the species had a density of 10-140 individuals per ha, and a low basal area (0.05-0.07m^2 per ha) and biovolume (0.11-0.14 m^3 per ha) due to the scarcity or absence of large individuals in the sites. No individuals with a diameter greater than 10 cm were found; individuals of this size are the most sought after by harvesters (DBEV and WWF, 2010a).* Diospyros gracilipes *is one of the most requested species of Diospyros on the Chinese and European markets (DBEV and WWF, 2010b).* **Diospyros greveana**- *This species is found in only one site in the west out of four (where it was found not to regenerate which could be explained by the use of this species as lumber) at a density of 10 individuals per ha, and basal area of 0.05 m^2 per ha and biovolume of 0.11 m^3 per ha. Individuals of certain sizes (0-2.5cm, 2.5-5cm and >10cm) were absent (DBEV and WWF, 2010a). The species was found at one out of three sites in the north west at a density of 30 individuals per ha and with a basal area of 0.18 per m^2, and biovolume of 0.36 m^3 per ha. Regeneration was fair at this one site (DBEV and WWF, 2010a).* **Diospyros haplostylis -** *vulnerable due to exploitation (PC 19 Doc 14.3).* **Diospyros intricata** - *At Mahabo Mananivo (south east) the density of this species was 20 per ha, and the basal area (0.01m^2 per ha) and biovolume (0.03 m^3 per ha) were low. This can be explained by the scarcity or absence of large individuals in the sites after the selective removal and illegal exploitation. The species had no regeneration at these sites and only four individuals were present with a diameter between 2.5-5 cm (DBEV and WWF, 2010a).* **Diospyros laevis** -*The density at Mahabo was 10 per ha, whilst at Manombo it was 20-130 per ha. Diospyros laevis has a low basal area (0.13 m^2 per ha) and biovolume (0.49 m^3 per ha) in Mahabo and Manombo. This can be explained by the scarcity or absence of large individuals in the sites (DBEV and WWF, 2010a). Regeneration was absent in both Mahabo and Manombo.*

Supporting Statement (SS)	Additional information
	Diospyros lanceolata - *endangered due to illegal logging (PC 19 Doc 14.3).* **Diospyros latispathulata-** *Density at sites in the west was 20-50 individuals per ha, and was found at two out of four sites. Basal area was 0.09-0.13 m^2 and biovolume was 0.11-0.14 m^3 per ha). Regeneration was absent or very low at all sites, and no individuals between 0-2.5 cm diameter were found (DBEV and WWF, 2010a).* **Diospyros masoalensis -** *vulnerable due to illegal logging (PC 19 Doc 14.3).* **Diospyros montigena-** *At Manombo the density of this species was 20-30 per ha and had a low basal area (0.03 m^2 per ha) and biovolume (0.12 m^3 per ha). This can be explained by the scarcity or absence of large individuals in the sites. Regeneration ranged from absent to fair (DBEV and WWF, 2010a).* **Diospyros microrhombus** – *Density in Manombo (south east) was 90-100 individuals per ha and the species had a low basal area of 0.04 m^2 per ha and biovolume of 0.09 m^3 per ha. This can be explained by the scarcity or absence of large individuals in the sites. Regeneration ranged from absent to fair, but no individuals with a diameter bigger than 10 cm were found (DBEV and WWF, 2010a).* **Diospyros myriophylla-** Diospyros myriophylla *density at sites in the west of Madagascar was 20-60 individuals per ha, and the species was found at three of the four sites surveyed. The basal area was 0.08-5.18 m^2 and the biovolume of 0.15-6.38 m^3 per ha. Regeneration rates varied from poor to good, at the site with the lowest regeneration rate (Ampataka) it is thought the reason for this is due to its close proximity to the road (DBEV and WWF, 2010a).* **Diospyros nigricans**- *The density of* Diospyros nigricans *in the south east was 80-300 individuals per ha, and the basal area was low at 0.25-0.42 m^2 per ha, and the biovolume at 0.93-1.64 m^3 per ha. This can be explained by the scarcity or absence of large individuals in the sites. Regeneration varied from absent to good (DBEV and WWF, 2010a).* **Diospyros occlusa-** *vulnerable due to illegal* logging *(PC 19 Doc 14.3).* **Diospyros perrieri**- endangered *due to its restricted distribution (PC 19 Doc 14.3). Diospyros perrieri is one of the most requested species of* Diospyros *on the Chinese and European markets (DBEV and WWF, 2010b).* **Diospyros sakalavarum**- Diospyros sakalavarum *density in the west of Madagascar*

Supporting Statement (SS)	Additional information
	was 20-120 individuals per ha, and the species was found to be present at two out of four sites. The basal area of Diospyros sakalavarum *was 0.07-3.81 m^2 per ha and the biovolume 0.09-5.93 m^3 per ha*). *The regeneration rate ranged from poor to fair. This species is widely used by local people for firewood and made into furniture (DBEV and WWF, 2010a). Classed as Least Concern using the IUCN Red List Categories and Criteria though noted fragmented habitat and forest degradation as threats (PC 19 Doc 14.3) (IUCN, 2012).* **Diospyros toxicaria-** *vulnerable due to exploitation and habitat degradation (PC 19 Doc 14.3).* **Diospyros tropophylla**- *At sites in the north west the density ranged from 140-250 individuals per ha, and the species was found at two out of three sites. The basal area at these sites was 3.06-4.78 per m^2 per ha, and the biovolume was 12.27-19.79 m^3 per ha. Regeneration was fair at both sites (DBEV and WWF, 2010a).* Diospyros tropophylla *density in the west of the country ranged from 20-770 individuals per ha, and was found at all four out of four sites. Basal area ranged from 0.04-7.59 m^2 per ha and biovolume from 0.06-9.82 m^3 per ha. Regeneration ranged from absent at two sites to very good at another. There was a lack of individuals greater than 10 cm due to selective logging for furniture (DBEV and WWF, 2010a).* **Diospyros urschii-** Diospyros urschii *has a low basal area (0.02-0.96 m^2 per ha) and biovolume (0.07-2.34 m^3 per ha*) *in the south east. Density was 10-340 individuals per ha and regeneration rates were either absent or fair (DBEV and WWF, 2010a).* *WWF (2012) carried out inventories in Andranopasy (south-west) and Andranomenakely (north-east) and found that* Diospyros.aff pervillei*,* D. cf calophylla, *and* D. perrieri *had no regenerations, whilst* Diospyros haplostylis *has no regeneration in Ampasimenakely, it has a good regeneration in Andranopasy.* *Is has been estimated that in 2008 and 2009 is at least 52 000 tonnes of precious wood (*Dalbergia *and* Diospyros *species) were exported from, Madagascar, estimated as from 100 000 trees of rosewood and ebony (DBEV and WWF, 2010b).* *Volumes of timber export have been declining due to the increasing scarcity of these species. Randriamalala and Liu, (2010) estimated that in 2009 36 700 tonnes of precious wood was exported, 249 tonnes (0.7%) were ebony and the remainder was rosewood. Logging occurs in various sites including the Marojejy and Masoala National Parks in north-east Madagascar.* *Ebony wood is widely available for sale.*

Supporting Statement (SS)	Additional information
Inclusion in Appendix II to improve control of other listed species	
A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I	
	It is currently not possible to identify exactly which species any given log of Malagasy ebony might be. Indeed, there is a very high likelihood that it may be an as yet un-described species, given that there are at least a half dozen new species in the NE around the Bay of Antongil/Masoala to Marojejy that reach exploitable size. (Schatz in litt., *2012).*
Other information	
Threats	
The main pressures are registered clearing, bushfires, the slash and burn shifting cultivation and exploitative abuses especially for local trade and international. Today, the primary vegetation covers only 9.9% of the Malagasy territory. The rate of deforestation is estimated at 200-300 000 hectares per year. Some species grow in the coastal forests that are currently in a state of advanced fragmentation. This type of forest has been reduced by 22.5% since the 1970s.	*The use of fire is common for clearing forests. Logs are often transported by boat in thousands or on rafts using buoyancy trees of other species (e.g.* Dombeya *spp). On average five high buoyancy trees are required to float one log, as well as tens of thousands of vines for binding the rafts (Randriamalala and Liu 2010).*
Illegal logging is taking place in protected areas. The main threats are abusive and illegal logging and exploitation, destruction of habitat for land clearance, extension of urban areas and bush fires.	*The wood from* Diospyros *species is heavily exploited domestically for firewood, fence posts: people also use* Diospyros *medicinally (DBEV and WWF, 2010a).*
Conservation, management and legislation	
104 species were listed in CITES Appendix III in 2011.	
Decree 2010-141, March 24, 2010 prohibits the cutting, exploitation and trade which is enforced at national level.	*Barrett* et al. *(2010) note that the ban was for the subsequent 2 to 5 years. Ramahaleo* in litt*. (2012) confirmed that the ban is still in place at present.*
Legislative regulations fail to stop the illicit exploitation and the situation has worsened in the recent years as hundreds of containers continue to be exported confirming the failure of control. There is a lack of legislation on the species and a lack of integration between social, technical and scientific people, as well as the violation of procedures and misuse of power.	*Despite the ban it is reported that that further shipments of wood have left Madagascar's ports since then, while logging within parks apparently continues. In July, UNESCO put the Rainforests of Atsinanana, the site most affected by the illegal logging, on its World Heritage in Danger List. (Global Witness, EIA 2010).*
There is no ongoing monitoring of the population for species of *Diospyros* in areas where the range is known. Due to overexploitation some species of Diospyros are known in less than 2-5 localities and many are not present in protected areas such as: D*. baroniana, D. filipes, D. implexicalyx, D. nidiformis, D. perglauca,*	*Additional restricted distribution species not known to be present in protected areas include:* D. anosivolensis, D. coursiana, D. dicorypheoides, D. greveana, D. hazomainty, D. ketsensis, D. louvelii, D. mangorensis, D. mcphersonii, D. obducta, D. parifolia, D. subtrinervis*, and* D. tetrapoda *(Schatz* in litt., *2012).*

Supporting Statement (SS)	Additional information
D. subfalciformis, D. tampinensis, D. tetraceros and D*. thouarsii.* 10 – 25% of the total population of all species occur primarily outside protected areas. Currently, the policy of the Government of Madagascar is to increase the surface area of the protected areas which will effectively contribute to the conservation of species of *Diospyros*.	*The US House of Representatives passed Bill H.R. 839 condemning the illegal extraction of Madagascar's national resources and called on importing countries to halt the demand for illegally sourced precious woods from Madagascar and for consumers to check the origin. In 2008 the Lacey Act was enforced on Gibson Guitars for importing illegal Malagasy Ebony via its European Trading Partner Theodor Nagel GmbH & Co KG. Analyses show that previous importers have since halted the importing of timber (Global Witness, EIA 2010). The US Fish & Wildlife Service's investigation into Gibson Guitars has apparently had a positive impact on the demand for precious wood in the USA and Europe.* *In July 2010 the European Parliament passed the Timber Import Regulation prohibiting the import of illegal timber and timber products into the EU market.*
Captive Breeding/Artificial Propagation	
No study of artificial reproduction exists.	
Other comments	
Ministry of Environment and Forests (MOEF) note the importance of the establishment of a traceability system based on a database of the DNA of precious woods. The 36th session of the of the World Heritage Committee which was held in Saint Petersburg from June 24 to July 06, 2012, saw the adoption of recommendations on precious woods (in particular the implementation of the existing legislation on the prohibition of the illegal trade, as stated the Decree 2010-141) and taking action of States Parties to the Convention so that the wood illegally cut in Madagascar is prohibited and cannot enter into their national markets.	*Ebony fruits are an important element in the diets of threatened lemur species (Andrews and Birkinshaw, 1998).*

Reviewers: C. Berkinshaw, C. Hin Keong, J. de Koning, D. Newton, J. Nunez-Mino, S. Oldfield, G. Schatz, L. Wilme.

Amend the Annotation for Brazilian Rosewood *Aniba Rosaeodora* #12 to "*Logs, sawn wood, veneer sheets, plywood and extracts"*

Proponent: Brazil

Summary: *Aniba rosaeodora* is a tree species occurring in Brazil, Colombia, Ecuador, French Guiana, Guyana, Peru, Suriname and Venezuela. It was included in Appendix II in 2010 largely because of concerns regarding harvest for export of the oil and associated products. The listing has annotation #12 "*Logs, sawn wood, veneer sheets, plywood and essential oil (excluding finished products packaged and ready for retail trade)*."

At the Twentieth meeting of the Plants Committee (March 2012), a working group on annotations discussed definitions of terms used in annotations #2, #7, #11 and #12 which cover various parts and derivatives of various plant species included in the Appendices. The term "essential oil" only occurs in annotation #12, which only applies to *Aniba rosaodora.* The working group proposed subsuming the term "essential oil" into a wider definition of "extract. However, as noted in document CoP16 Doc. 75, the definition for "extract" originally put forward by the working group included the caveat: "*Finished products containing such extracts as ingredients are not considered to be included in this definition."* The working group could not reach agreement on whether this should be included in the definition or not, and referred the matter to the Standing Committee. On the basis of Standing Committee deliberations, the definition proposed for adoption at CoP16 does not include this exclusionary language and is as follows:

> Extract: Any substance or product obtained directly from plant material by physical or chemical means regardless of the manufacturing process. An extract may be solid (crystals, resin, fine or coarse particles), semi-solid (gums, waxes), or liquid (solutions, tinctures, oil and essential oils).

This definition is proposed for adoption under Agenda item 75 (Development and application of annotations) as paragraph 10 of document CoP16 Doc. 75.

If this definition and the current proposal were adopted, the listing for *Aniba rosaeodora* would use a defined term ("Extracts") rather than an undefined term ("Essential oils").

As reported in document CoP16 Doc. 75, paragraph 11, the working group understood that Brazil would submit a proposal for consideration at CoP16 to revise the annotation for *Aniba rosaeodora;* they also understood that Brazil intended to include the exclusionary language in the proposal. However, Brazil indicated in an email sent to the Chair of the Plants Committee in May 2012 that they considered finished products containing such extracts as ingredients, and also fragrances, not to be included in the definition of extracts proposed for adoption. They have therefore not included this exclusionary language in the proposed amendment.

Analysis: The proposed amendment would be in line with the adoption of a definition of "Extract" as proposed in paragraph 10 of document CoP16 Doc. 75. The proposed new version of annotation #12 does not include the wording "*(*excluding finished products packaged and ready for retail trade)" currently present in the annotation. The general understanding of the new definition proposed for adoption is that it does include finished products. That is, if the proposed amendment were adopted, finished products would no longer be exempted from the provisions of the Convention. This would not appear to be the intent of the proponents. Retaining this language, so that the amended annotation read: "logs, sawn wood, veneer sheets, plywoods and extracts (excluding finished products packaged and ready for retail trade)" would resolve this.

Inclusion of *Dalbergia cochinchinensis* in Appendix II

Proponent: Thailand and Viet Nam

Summary: *Dalbergia cochinchinensis* is a slow growing species of rosewood found growing sparsely in open semi-deciduous forests in Cambodia, Lao People's Democratic Republic (Lao PDR), Thailand and southern Viet Nam. *Dalbergia cochinchinensis* has become rare and the species is disappearing from most of its natural habitat, the last remaining stronghold of the species is in Thailand in a protected area near the border with Cambodia. The total population size has not been systemically surveyed. In Thailand, *D. cochinchinensis* is found scattered in 30 protected areas (560 km^2) and the number of trees is estimated to have declined from perhaps as much as 70%, from around 300 000 in 2005 to 80 000-100 000 trees in 2011. There has not been a comprehensive survey in Viet Nam, but the population size of rosewood (species not specified) is thought to have declined by half or more during the past 5-10 years. A specific survey of *D. cochinchinensis* in five protected areas in Viet Nam conducted in 2010 showed a low density of 1-10 tree/hectare. No information is available on trends for the species in Cambodia or Lao PDR, but mature individuals are very rarely seen, even within protected areas. *Dalbergia cochinchinensis* is classified globally by IUCN as Vulnerable, although this assessment was published in 1998 and is regarded as in need of updating.

The wood is highly desirable in cabinet-making; the primary parts in the international trade are logs and sawn wood but wooden furniture and handicraft finished products are also found. Much of the trade is thought to be destined for China. Harvesting of this species is either restricted or banned across all of its range. It appears that illegal trade is increasing rapidly. The species is also affected by habitat loss. Trial plantations have been established; however, the slow-growth rate of the species means such plantations have limited commercial appeal.

The proposal is for the inclusion of *D. cochinchinensis* in Appendix II with Annotation #5 (logs, sawn wood and veneer sheets).

Analysis: *Dalbergia cochinchinensis* is a rosewood tree from Southeast Asia that yields a highly sought after timber, demand for which has grown very markedly in recent years, particularly in China. This demand is met entirely by harvest, often illegal, from wild populations. Although inventory data are lacking in most of the range there are indications of declines in range states; at least one (Thailand) decline in the past six years would already appear to meet the criteria for Appendix I. The species would therefore appear likely to meet the criteria for inclusion in Appendix II Annex 2 a, paragraph A of *Resolution Conf. 9.24 (Rev. CoP15)*: it is known, or can be inferred or projected, that the regulation of trade in the species is necessary to avoid it becoming eligible for inclusion in Appendix I in the near future.

Supporting Statement (SS)	Additional information
Taxonomy	
Synonym: *Dalbergia cambodiana*.	Dalbergia cambodiana *is considered to be a separate valid species by IUCN*. D. cambodiana *is a synonym of* D. cochinchinensis *according to the latest revision of the genus in Indo-China (Nyiomdham, 1997), and this has also been confirmed by molecular barcoding analyses (results not published, Hartvig* in litt., *2012).*

Supporting Statement (SS)	Additional information
Range	
Cambodia, Lao PDR, Thailand and Viet Nam.	
IUCN Global Category	
	Vulnerable A1cd (Assessed 1998, Criteria Version 2.3) (needs updating).

Biological and trade criteria for inclusion in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)

A) Trade regulation needed to prevent future inclusion in Appendix I

The population size of *D. cochinchinensis* has never been systemically surveyed. However, the wild population of *D. cochinchinensis* is likely to be severely diminished as a result of heavy illegal logging to meet a recent elevated demand for the wood in Asian markets.

The species has a slow growth rate. Natural regeneration is often poor. The species is pollinated by insects. It is an often self-pollinated crop, resulting in a limited genetic variation observed within each natural population. However, based on DNA analysis, there is a great deal of genetic variation between populations.

The species has been found growing sparsely in open semi-deciduous forests in Cambodia, Lao PDR, Thailand and Southern Viet Nam. Due to its vulnerability to extinction from over-exploitation of the natural population, *D. cochinchinensis* has become rare and the species is disappearing from most of its natural habitat.

It is now restricted to a few localities in the range state, especially in Thailand where its distribution is diminishing. At the moment, the only remaining rich source of the species is in a protected area near the Thai border with Cambodia.

Thailand
In Thailand, it was estimated that the country had 300 000 natural stands in 2005, but greatly reduced to just 80 000- 100 000 trees (approximately 63 500 cubic meters) in 2011.

The habitat area has been continuously reduced due to both deforestation for agriculture and recent illegal logging. Currently, the natural stands of the species are found scattered only in 30 protected areas of 557.76 km^2. The habitat is thus fragmented.

In 2011 the species was considered to meet the IUCN Red List criteria for Critically Endangered (A2+3+4 cd) as illegal cutting and habitat destruction together had led to a population decline of an estimated 80% through the last 150 years (3 generation), and this rate of decline was projected to continue unless radical conservation actions were taken (Hartvig in litt., *2012).*

Although no information is available on population trends in Cambodia, Lao PDR and Viet Nam there are observed declines in all three countries (Hartvig in litt., *2012). Natural populations of* D. cochinchinensis *are disappearing and only limited numbers are found in the remaining forest fragments of Southern Viet Nam (Hien and Phong, 2012).*

Rosewood has been overharvested and is now only found in remote areas and some economic land concessions have been granted close to the remote areas (Cambodia Daily, 2012).

Thailand
The Thai government estimates that only 100 000 trees remain in the wild, scattered along protected areas on the border of Cambodia and Viet Nam (EIA, 2012c).

Supporting Statement (SS)	Additional information
Viet Nam There has been no comprehensive survey of rose wood in Viet Nam. The population size of rosewood in Viet Nam has been declining about 50-60% during the past 5-10 years. Whilst in Viet Nam, a specific survey in five protected areas conducted in 2010 showed a low density of 1-10 tree/hectare. No information is available on trends for the species in Cambodia or Lao PDR.	***Viet Nam*** *The SS does not specify which species of rosewood the 50-60% decline refers to.* ***Cambodia*** *In Cambodia populations can be found in many provinces, but mature individuals are very rare outside strictly protected areas. Due to conversion of forest land, logging and illegal log-poaching, Cambodian populations face severe depletion (Hartvig* in litt., *2012).* ***Lao PDR*** *In Lao PDR, the species is becoming very rare because of overexploitation and illegal cutting, even from protected populations (Hartvig* in litt., *2012).*

B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences

The wood, which is highly desirable for premium wooden furniture, has recently become one of the most expensive kinds of wood in the world. The wood has recently been used to make furniture, carvings, wood turnery, fine-art articles, musical instruments and sewing machines. The wood from the stumps and roots can also be used for making handicrafts. Root, bark and sap can be part of traditional medicine. The primary parts in the international trade are logs and sawn wood but wooden furniture and handy craft finished products are also found in international trade. The wood is not as popular with local people due to a local belief that restricts utilization by ordinary people. However, a belief in an overseas market that furniture made from the Rosewood is good for the health of the owner has created a great demand for the wood. Illegal logging to meet high demand (with the price of USD1500 to 2000/cubic meter) from overseas markets posts a major threat to the survival of the species.	*The results of the FAO Forest Resource Assessment (2010) showed that range states have no large forest stocks of* D. cochinchinensis *to sustain the current levels of trade. The scarcity of suitable quality wood and the expanding size of the market have prompted traders to seek substitute* (Dalbergia) *species from other regions. China's import of Rosewood (species or genus unknown) sourced from Lao PDR and Viet Nam has increased substantially since 2005. In 2011 approximately 500 000 cubic metres were imported into China, based on China customs data. Import levels of roundwood for USA and the European Union are estimated to be 20 000 cubic metres each, mostly in the form of musical instruments (Jenkins* et al., *2012).* *Actual data on export and import levels are limited. According to Global Timber (2012), imports into China are increasing every year, mostly from Cambodia and Viet Nam.* *There are many companies and websites selling* D. cochinchinensis *timber for prices ranging up to USD3900 - USD6000 or even USD50 000 per* m^3 *(UNEP-WCMC, 2008; EIA, 2012c). One unnamed company exported 1200* m^3 *of* D. cochinchinensis *logs to*

Supporting Statement (SS)	Additional information
Evidence suggests that the species is threatened with extinction, a major rosewood trader complained in April 2011 that "the species is finished ... there are only about five years left in the trade."	*Yantai City in China in January 2011* (*EIA, 2012c*). *A recent EIA report (2012b) published the findings of an enquiry on the illegal trade in Lao PDR and Viet Nam, with a company based in Haiphong (Viet Nam), offering up to 50 000 m^3 of* D. cochinchinensis *and* D. oliveri *for export.* *About 70% of Viet Nam's 450 export companies are specialising in exports of indoor furniture made of* D. cochinchinensis *(and other valuable timber species) mainly to Asian countries such as China, Hong Kong, Taiwan POC and Singapore (Forest Trends, 2010). Furniture sellers have commented that prices of rosewood increased by 30-40% in 2012 compared to 2011. The number of companies trading rosewood from Thailand in China increased by 30-40% in 2012 with annual rosewood prices increasing by 15-40% (EIA, 2012a). The wood is also used for making chop sticks, tea-containers and acoustic instruments, all available on the internet (EIA, 2012a).*
Thailand Due to a National Logging Ban in Thailand, illegal logging is now practically the only way to obtain the timber of *D. cochinchinensis* in the country, especially since the auction of released exhibits (seized timbers) was stopped in 2007 when the international demand started to surge rapidly. Speculation by overseas traders that the wood will soon be unavailable has led to extremely high price which is a great driving force for illegal trade.	***Thailand*** *In 2009, Thailand's Department of National Parks seized 1222 rosewood logs in 134 cases, in 2010 2739 logs were seized in 223 separate cases and in 2011 4850 logs were seized in 560 cases (EIA, 2012a).* *In 2006 the Lao embassy and forest police confiscated 1664 high grade logs, identified as* Dalbergia cochinchinensis, *believed to belong to a transitional illegal logging network preparing to export the timber. The Customs invoice showed that the logs had been transported to the depot by a Thai freight company destined for export to China by a Lao firm but no export permit had been issued. It is likely that the seized timber had been smuggled in and illegally felled from a Thai forest (TRAFFIC, 2012).*
The illegal trade in Thailand doubled each year between 2009 and 2011 with a rise in the number of cases from 134 to 687; number of specimens from 1222 to 5956 and volume from 184 to 596 m^3. In addition, 6780 logs from 786 cases were seized in the first 9 months of 2012.	*It is not clear from the SS, if the figures quoted for the illegal trade are just of Thai* D. cochinchinensis *or rosewood in general.*
Approximately 178 609 pieces of wood were confiscated in over 3000 illegal logging cases during the past 6 years in Thailand. These specimens had a market price of approximately USD3 billion. This volume of seized logs (0.63 million m^3) can be roughly converted to being the equivalent of at least 600 000 trees measuring 50 cm in DBH removed from the wild. The auctioning of seized timber in Thailand stopped in 2007, when international demand started to rapidly increase.	*According to the SS, confiscations are estimated to be equivalent to 600 000 trees. This figure suggests the original population estimate in 2005 (300 000 trees) may have been in error, some of the confiscated wood may have originated from stockpiles of Thai* D. cochinchinensis*, that confiscations included trees harvested outside of Thailand, that the confiscation calculation of 0.63million m^3, may have been in error, that other timber species are included or a combination of any number of these factors.*

Supporting Statement (SS)	Additional information
Viet Nam The species has been exposed to high rates of exploitation of the prime timber. There were 74 illegal logging cases of Rosewood in 2010.	***Viet Nam*** *In 2011 Viet Nam exported 123 000 m^3 of rosewood logs (Vietnamese* Dalbergia *species) to China which was illegally felled from protected areas, especially in Quang Binh province, with reports of Chinese buyers being backed up by criminal gangs from Viet Nam. However, the majority of Vietnamese rosewood exports originate from Lao PDR, Thailand and Cambodia. Lao PDR exported 80 000 m^3 to China in 2011 despite harvest bans. The bulk is exported through Viet Nam with companies boasting of circumventing restrictions (EIA, 2012c).* ***Cambodia*** *The most serious threat to this species in Cambodia is illegal logging and trade. It appears that little effort is made to control the logging. There is evidence that officials who should be preventing the logging are themselves benefitting from the trade (Newman* in litt., *2012). They are also making high profits and logging will not cease due to the value of the timber* *Cross border illegal logging has increased in protected areas in the last few years and it is evident that populations have been severely reduced by illegal logging and deforestation. Mature trees are very rarely seen, even within protected areas. Large numbers of logs have been confiscated by Forest Administration district officers in protected areas and undoubtedly larger amounts do make it across the border. According to the Forest Administration officers, the logs are exported to Viet Nam and China where the demand is huge. (Hartvig* in litt., *2012).* *Logging of* Dalbergia *species was very active in Cambodian Forests in 2010. Piles of marked logs (*Dalbergia *but species not specified) were observed by the road from Promaoy Commune, Veal Veang District in Phnum Samkoh Wildlife Sanctuary on the road from Promaoy to Koh Kong in May 2010. Logging here and in the Cardamom Mountains Protected Area seemed to be going ahead completely unhindered by the authorities. (Newman* in litt., *2012).* *In Cambodia about 30 containers (each holding 20 m^3) of* D. cambodiana *and* D. bariensis *are exported abroad per month illegally (UNEP-WCMC, 2008; TRAFFIC, 2012).* *A report in the 'Cambodia Daily' (2012) based on official Chinese import documents revealed 36 000 m^3 of rosewood logs (species unknown) have been recorded entering China from Cambodia between January 2007 and August 2012. In 2011, 9800 m^3 of rosewood logs were imported into Shanghai in 3 shipments and 4300 m^3 in 2012. A further 10 000 m^3 of logs and 15 000 m^3 sawn wood of various timber types have entered China from Cambodia since 2005. The Chinese Customs applies a specific*

Supporting Statement (SS)	Additional information
	import code for the rosewood imports. This continues despite the Cambodia's Forestry Law (2002) which prohibits logging of rare tree species. The rosewood is said to be destined for markets in Viet Nam and China. The value of rosewood imports since 2007 was registered by China Customs as USD61 million and considerably more in the retail market. Many companies can be found on the Chinese trading website 'Alibaba' selling the wood for as high as USD35 000 per cubic meter. ***Lao PDR*** *Field surveys carried out in Bolikhamsay and Khammouane provinces Lao PDR in November 2012 (by Ida Hartvig and National Herbarium of Lao PDR) have confirmed that natural populations of* D. cochinchinensis *in Lao PDR are under severe and continuing threat from illegal logging. No mature individuals were found and all trees with a DBH over 15 cm had been logged. This trend was observed for all surveyed populations, even within strictly protected areas such as Phu Khao Khuay National Park. According to locals and staff of the National Park felling had been ordered by Chinese businessmen, carried out by locals and timber exported to China directly after logging. The majority of this occurred in 2007 when all valuable trees were removed and there is photographic evidence of more recent logging (Hartvig* in litt., *2012).*
Inclusion in Appendix II to improve control of other listed species **<u>A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I</u>** The wood of *D. oliveri* (sometime known as *D. bariensis*) is similar to that of *D. cochinchinensis*. The two closely related species can be differentiated from each other by bark colour and general appearance; wood colour; characteristics of specific gravity and hardness at specified moisture content; and presence of solitary pores and multiple pores with metatrachal parenchyma.	*There are an estimated 250* Dalbergia *species (Lewis* et al., *2005).Ten other* Dalbergia *species are already listed in CITES Appendices – all on Appendix III, apart from* D. nigra *which is listed in Appendix I. As a consequence issue is already being addressed by Parties to some extent.* *The genus is in need of global revision.* D. oliveri *and* D. cochinchinensis *are not closely related but the heartwood is similar and the trees are easily discriminated by bark, leaf, flower and fruit characteristics as well as by molecular markers (Niyomdham,* et al., *1997; Hartvig, 2011*; *Hartvig* in litt., *2012).*
Other information **<u>Threats</u>** Over-exploitation for the extremely highly-priced timber of *D. cochinchinensis* is the major threat to the species throughout its range. Habitat loss is an additional threat. For example, in Thailand deforestation for economic crop production threatens the	*In Cambodia and Lao PDR, habitat loss poses a great threat for* D. cochinchinensis *populations. Large areas of forest are being cleared for the purpose of rubber plantations, acacia, rice and for other agricultural or development purposes. This is*

Supporting Statement (SS)	Additional information
species.	*true for most of Cambodia, but particularly for the north-western provinces of Otdor Meanchey, (parts of) Siem Reap and Preah Vihear, that until recently were very remote and difficult to access. These provinces have the largest and most continuous populations of* D. cochinchinensis *across its distribution area, but that may no longer be true in the future if deforestation continues (Hartvig* in litt., *2012).* *Data in the table below are derived from FAO (2010) showing the forest extent in range states, deforestation and forests in protected areas.*

Country	*% forest land area*	*forest area 1990 (1000 ha)*	*forest area 2010 (1000 ha)*	*Annual change rate 2005-2010 (1000 ha yr)*	*Forests in protected areas (1000 ha)*
Lao PDR	*68*	*17314*	*15751*	*-78*	*-*
Thailand	*37*	*19549*	*18972*	*15*	*9426 (50%)*
Viet Nam	*44*	*9363*	*13797*	*144*	*-*
Cambodia	*57*	*12944*	*10094*	*-127*	*3092 (31%)*

Conservation, management and legislation

There are currently no international measures implementing control of movement of *D. cochinchinensis* timber across international borders, however, collaboration on the control of cross border illegal trade among the range States was recently initiated

A workshop held in Chiang Mai, Thailand in November 2011 proposed that the species be listed as globally Critically Endangered based on rate of decline. The rationale for this noted that "the level of forest clearing and exploitation in Viet Nam and Thailand has lead to a severe reduction in population size and dispersal of the species and it now only occurs in protected areas. In Cambodia and Lao PDR, there are still significant populations, but they are severely threatened by illegal cutting and forest clearing" (Hartvig in litt., *2012). Ida Hartvig Larsen, a participant in the workshop, is undertaking a PhD that aims to develop a strategy for sustainable use and management of* Dalbergia *in Cambodia and adjacent countries in the context of REDD. She has commented on this from a further survey in Lao PDR in 2012 where she doubts these significant populations exist (Hartvig* in litt., *2012).*

Cambodia
Harvesting this species is banned by Cambodian Forestry Law 2002 No.35.

Cambodia
In Cambodia a network of conservation stands has been protected by Royal Decree to preserve genetic variation within the species. There is a restoration programme for the species at Sre Noy, Siem Reap. (Hartvig et al., *2011). In Cambodia the vast intact forest area in the Central Lowlands known as Prey Long has been proposed as Protected Forest in 2011. This prime habitat for* D. cochinchinensis *is however classified as production forest and is under immediate threat from industrial logging, economic land concessions and illegal logging (Strange* et al., *2007).*

Supporting Statement (SS)	Additional information
Lao PDR The Prime Ministerial Order No-17/PM of 2008 explicitly prohibits harvesting all domestic *Dalbergia* species. In addition, Prime Minister's Order No 010/PM of 2011 bans the exploitation, trading and export of *D. cochinchinensis* wood.	***Lao PDR*** *According to Lao Forestry Law, logging is only allowed in "production forest areas" that have approved management plans in place and export of roundwood, sawnwood and semi-finished products is prohibited as is harvesting of the species. The Lao Forestry Law bans the export of roundwood, however, companies find a way around this by converting it into sawn wood for which a special logging quota can be obtained which allows the harvest and export of the wood regardless of legislation (DFID, Forest Trends, 2010).*
Thailand *D. cochinchinensis* is listed as Category A (general restrict): restricted timber No. 53 by Thai Forest Act, B.E. 2484. As a result, no harvest of the species from forest without permit or concession is legal in Thailand. However, logging from private property can still be performed. In addition, Thailand has prohibited logging of natural forest trees nationwide since 1989. Export permit from the Ministry of Commerce for the logs has also been required.	***Thailand*** *Customs and the Royal Forestry Department are monitoring imports of timber to check for the presence of rosewood (EU FLEGT, 2012).*
Viet Nam In Viet Nam, *D. cochinchinensis* was listed as group IIA protected species under Forest Law in 2006. Later, it has been placed in danger of extinction at level EN A1a, c, d in 2007. As a result, it is prohibited to exploit, dispatch or store the wood, according to Vietnamese government decision 32/2006/ND-CP.	***Viet Nam*** *It was assessed as Endangered A1 acd by Dang and Nguyen in 2007 (Hien and Phong, 2012). There are not thought to be equivalent national red list assessments for Cambodia, Lao P.D.R. and Thailand.* *There is a specific conservation site for the species in Dak Ha KonThum province.*
<u>Captive Breeding/Artificial Propagation</u>	
For a long time, it has been known that the natural stands of *D. cochinchinensis* grow slowly. The species has, thus, not been of interest for commercial planting programs (has only trial plantations). Many trial plantations of the species have been established in Thailand since 1989. Thailand has selected 570 parental stocks in 18 provinces since 1987 for sourcing seed and there are now at least 20 000 trees growing in plantations. Since 2002, Cambodia has selected 121 parental stocks within 50 hectares of a conserved area in Seam Reap and Lao PDR has protected 108 hectares in three natural forests for this purpose. Viet Nam has established two *ex situ* collections of 2600 trees since 1990. A number of plots in trial plantations in Lao PDR and Thailand have shown that *D. cochinchinensis* can potentially grow as fast as teak under favourable conditions, however, give a low heartwood yield. There is no information on the extent of artificial propagation outside the countries of origin.	*The Forestry Administration of Cambodia has established a 500 ha plantation of* D. cochinchinensis *in July 2012, close to the protected seed source area at Sre Noy, Siem Reap. A similar plantation is underway close to Prasat Preah Vihear, province of Preah Vihear (Hartvig* in litt., *2012).* *In Viet Nam two* ex situ *stands with 2600 trees have been established since 1990 and 10 ha were planted for conservation and seed supply (APFORGEN).* *This species occurs in four botanical gardens in Viet Nam, Thailand, Singapore and USA (BGCI Plantsearch, 2012).*

Supporting Statement (SS)	Additional information
Listing *D. cochinchinensis* in the CITES Appendix II would enhance the success of commercial plantation, which is of future economic benefit to rural people. A number of molecular genetic studies have also been executed to develop a network of *in situ* gene banks as well as sustainable seed gardens for future planting. All range states started planting programs for the species, some with assistances from international agencies.	
Other comments	
Thailand is directly sending this draft proposal to authorities of all range States of this species, five international organizations as well as the Netherlands, requesting comments. A comment from Vietnamese CITES Management Authority, which was received by 25 September 2012, is incorporated in this document. Moreover, ITTO and IUFRO expressed their support to this proposal.	*The PhD project undertaken by Ida Hartvig is testing the use of DNA fingerprinting methods to determine the species and geographic origin of traded timber of* Dalbergia *spp. in Cambodia and neighboring countries. Once research is completed, it is hoped that a tool suitable for use in global certification schemes and/or FLEGT programmes can be developed.* *Hartvig* in litt. *(2012) suggested that* D. oliveri *should also be considered for inclusion in Appendix II. Although not yet as desired as* D. cochinchinensis*, the species is also illegally logged in Cambodia, Lao PDR and Viet Nam (Thailand unknown), and this poses a severe threat to its further survival. Hartvig expects than when* D. cochinchinensis *stands have been completely exploited for high value trees (as has already happened in many areas), the focus will change to* D. oliveri*. The wood has the same qualities as* D. cochinchiensis *and at least in Cambodia, is used for the same purposes (luxury furniture, fine handicraft etc) (Hartvig* in litt., *2012).*

Reviewers: I. Hartvig, C. Hin Keong, J. de Koning, M. Newman, J. Nunez-Mino and I. Theilade.

Inclusion of *Dalbergia retusa* and *Dalbergia granadillo* in Appendix II

Proponent: Belize

Summary: *Dalbergia* is a large and very widespread genus of trees, shrubs and lianas; many of the species yield valuable timber traded under a variety of different names, most frequently as rosewood. *Dalbergia retusa* (Black Rosewood, Nicaraguan Rosewood, cocobolo) is a tree occurring in tropical dry forest habitats in Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua and Panama. It may also occur in Colombia and Belize (taxonomic clarification is required to determine if trees referred to as '*Dalbergia* spp.' and/or 'rosewood' in the Chiquibul Forest Reserve, Belize are in fact *D. retusa*). *Dalbergia granadillo* is a similar species, occurring in El Salvador and Mexico.

The range of *D. retusa* is said to be highly fragmented because of overexploitation and land conversion. Like other rosewood-bearing trees the species is slow growing. Natural regeneration is generally low, but may be enhanced in clearings and open areas including areas periodically exposed to fire. The species has been extensively felled to harvest the beautiful, dense and durable wood, which is prized for a wide range of uses. The heartwood is surrounded by white sapwood and the density varies with age and habitat conditions. The poorly formed stems yield the most uniquely figured and highly prized wood which is hard, heavy and lustrous in colour with high oil content and a high natural polish. Little information is available on current abundance and there are conflicting accounts of the conservation status of the species, even within particular countries. It has been reported to be threatened in Costa Rica, Guatemala, Mexico, Nicaragua and Panama, but its conservation status has also been described as good in both Costa Rica and Nicaragua. There is also inconsistent information regarding the current origin of cocobolo wood in trade. The species is known to have been the subject of heavy exploitation in the past, particularly in Costa Rica and Panama. There are recent unconfirmed reports of uncontrolled harvest in the Darien region of Panama and illegal shipments of cocobolo, apparently destined for China, were seized in Guatemala in 2011. However, it has also been said that much of the recent cocobolo in trade originates on private fincas (farms) where 80 to 100 year old trees have been able to mature. In the past two decades small-scale plantations are reported to have been established in Costa Rica and Guatemala, and there has been some re-planting in reserves in Panama. It seems unlikely that any of these efforts have yet produced commercial quantities of cocobolo.

Much less is known of *D. granadillo*. Its timber is said to be virtually indistinguishable from that of *D. retusa* and it has been assessed as nationally endangered in Mexico.

A proposal to include these species in CITES Appendix II at CoP14 was withdrawn with an agreement among range and import States to take further measures to increase knowledge and regional information sharing on the trade and population status and trends. Guatemala included its population of *D. retusa* in Appendix III in 2008 and Panama included its population in 2011. No annotation is specified for either species in the current proposal.

Analysis: Information on the conservation status of *Dalbergia retusa* is conflicting. The species is known to be in demand internationally for its timber, and the market for rosewoods in general has grown very rapidly in Asia, particularly China, in recent years. Populations are said to have declined historically as a result of overharvest and land conversion for agriculture and pasture. Little is known about the current level of harvest for international trade or the impact of such harvest on the species, although there are indications of uncontrolled harvest of wild populations in at least one range State, and of illegal trade in another (Guatemala). There is overall insufficient information to determine whether the species meets the criteria for inclusion in Appendix II set out in Annex 2 a of *Resolution Conf. 9.24 (Rev. CoP15).*

Dalbergia granadillo has a more restricted distribution. Its wood is considered to be indistinguishable from that of *D. retusa* and is traded under the same name. If *D. retusa* were to be listed in Appendix II, implementation of such a listing would be greatly facilitated by the inclusion of *D. granadillo* in Appendix II.

Supporting Statement (SS)	Additional information
Range	
Dalbergia retusa: Mexico, Panama, Costa Rica, El Salvador, Honduras, Nicaragua, Guatemala, and possibly Belize. Also reported from north-western Colombia, though conflicting studies suggest this species does not occur in Colombia. *Dalbergia granadillo:* El Salvador and Mexico.	D. retusa*: UNEP-WCMC Species Database (2012) includes Belize.*
IUCN Global Category	
	D. retusa *is included in the IUCN Red List as Vulnerable A1acd based on a 1998 assessment (ver. 2.3).* D.granadillo *is not currently listed.*
Biological and trade criteria for inclusion in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)	
A) Trade regulation needed to prevent future inclusion in Appendix I	
Dalbergia retusa Much of the habitat that should be available to *D. retusa* has been destroyed or heavily exploited (See figures in "threats" for forest loss). Some areas where the species was formerly widespread now hold populations which are almost completely exhausted. Cocobolo is so rare that very little of it reaches the world market; it has been heavily exploited and is now mainly harvested from private fincas (farms) where 80 to 100 year old trees have been able to mature.	*Found in tropical dry forests, evergreen forests, live oak forests and also in disturbed areas and plantations. No country has information regarding population size, coverage or density or inventories in natural forests for* D. retusa *or* D. granadillo *(PC19 Doc. 16.1 (Rev. 1), 2011).*
Colombia: Its occurrence in Colombia questioned.	
Costa Rica: *D. retusa* occupies 13 698 km^2 distributed in northern Pacific from 0 – 300 m. Its available habitat has been reduced by 61.5%. Populations are fragmented but localized. 6.2% of its habitat occurs within State protected areas. State of conservation is reported as good, although elsewhere in the SS it notes that areas where the species was formerly widespread now contain populations almost completely exhausted. There is good regeneration (tree has regrowth after cutting or burning).	*Costa Rica: classified as Endangered by Estrada* et al*, (2005). Restricted to the Pacific Coast and is not found in the northern zone of Los Chile (CoP14 Prop. 31 IUCN/TRAFFIC Analyses). No detailed information on coverage.*
El Salvador: Distribution is restricted to the north-western region; no data are	*El Salvador: Rare.*

Supporting Statement (SS)	Additional information
available regarding size, cover, density, vertical or horizontal structure or regeneration status. Reported as vulnerable.	
Guatemala: No records of population status. Its status is unknown but data on population will be available shortly. Included in Category 2 of the List of Threatened Species of Guatemala (which refers to species with distribution range restricted to one type of habitat).	*Guatemala: Endangered in Guatemala's Red List of Trees in (Vivero et al., 2006).*
Honduras: Reported from western areas of the country. No data on status of populations. Included it in the list of "Species of Special Concern in Honduras" in the category vulnerable A1 cd+2cd according to IUCN categories.	*Honduras: No detailed information on coverage.*
Mexico: Occurs in southwest and southeast Mexico, there are records of the distribution of the species in Chiapas and Oaxaca, but no data on population status. In Mexico, a research project is being developed which will assist in determining the commercial and conservation status of the genus *Dalbergia*; there is no record of harvest inside Natural Protected Areas.	*Mexico Endangered (CoP14 Prop. 31 IUCN/TRAFFIC Analyses). No detailed information on coverage.*
Nicaragua: Frequent from the Pacific to the Atlantic coasts (Stevens *et al*., 2001). Good presence in open areas the species is distributed across the country mainly outside of forests at a density of 0.064 trees per hectare. Regeneration is abundant and the species has no health problems or plagues. Sustainable silvicultural criteria are applied to harvest.	*Nicaragua: Considered to be in a critical state (CoP14 Prop. 31 IUCN/TRAFFIC Analyses).*
Panama: It is only found in the drier, southern parts of the isthmus, but is never common. Intensive commercial harvest of the timber for at least 100 years, combined with artisanal harvest and in addition to its restricted distribution is thought to have made it a scarce resource in Panama.	*Panama: Endangered (CoP14 Prop. 31 IUCN/TRAFFIC Analyses).*
B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences	
Dalbergia retusa is heavily exploited and in international trade mainly for its heartwood, which is considered to be beautiful. It is also extremely strong and durable. It is used for various purposes including marine uses, making woodwind instruments and decorating items. Most internationally traded timber now comes from plantations, although historically large volumes of the wood were extracted from the wild.	*There is also very little information on the volume of international trade although cocobolo is available from numerous sources online and is currently subject to high demand in China. Seizures of illegally trafficked timber in Guatemala suggest there is an organised smuggling ring capable of exporting large quantities. The demand for* D. retusa *from the Darien Region of Panama has been described as "out of control" (Jenkins* et al*., 2012).* *The main exported product is sawn wood. Guatemala reported that it exported almost*

Supporting Statement (SS)	Additional information
At the time of writing very little trade data specifically relating to *D. retusa* was available. The USA reports that in 2008, one shipment of 15 cubic meters of wild Guatemalan-origin *Dalbergia retusa* sawn wood was imported into the United States from Guatemala.	*20 m^3 in* D. retusa *in 2008. For* D. granadillo *Mexico has reported that there have been no exported specimens in the past 5 years.* D. granadillo *is less sought after than* D. retusa *and is cheaper. A websearch for traders wanting to buy* D. retusa *resulted in 19 importers, of which half were from China (Jenkins* et al., *2012).*
ITTO (2004) does not report any export trade in Dalbergia retusa, although five of the range States (Colombia, Guatemala, Honduras, Mexico, Panama) are ITTO members. Similarly, ITTO does not report any import trade despite the evidence of trade in the species in the United States, which is an ITTO member, but not a range State.	*Direct Trade during 2001 – 2010 'importers quantity recorded' was 24 m^3 (UNEP-WCMC CITES Database).*
A search on eBay in USA for cocobolo in 2006 showed 944 wood items for sale. The USA reports that in 2008, one shipment of 15 m^3 of wild Guatemalan-origin *Dalbergia retusa* sawn wood was imported into USA from Guatemala**.** Illegal trade in *D. retusa* has increased considerably throughout its known range. Several shipments in Guatemala have been seized in 2011 of around 200 m^3. The shipments were destined for China. The increase in the imports of timber generally referred to as 'rosewood' by China from the range States, has raised serious concerns within the region.	*There is very little information on the volume of international trade but Cocobolo wood and finished products are available through many websites. There are approximately 200 items listed as 'cocobolo' on eBay in the UK (Oct 2012) comprising musical instruments, collectables, furniture and crafts. A search on eBay in the USA shows 1775 items, which includes lumber, an increase from 944 in 2006.*

Inclusion in Appendix II to improve control of other listed species

A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I

The timber of *Dalbergia granadillo* (range States El Salvador and Mexico) is not distinguishable from that of *D. granadillo*. Although it has the common name "granadillo", it is often traded under the name "cocobolo". Inclusion of this species in CITES Appendix II is therefore proposed for look-alike reasons. *D. retusa* wood is denser and stronger than Brazilian rosewood *Dalbergia nigra.*	*There are an estimated 250* Dalbergia *species (Lewis* et al., *2005).* *21* Dalbergia *species occur in the region (CoP14 Prop. 31 Annex 1).* *The decline in Madagascan* Dalbergia *species has led to a decline of export of these species to China over the past two years which has led to a huge rise in imports from Central America from negligible volumes in 2009 to 29 310 m^3 in 2011. As a result, Belize banned the harvesting and export of rosewood in March 2012, Nicaragua and Guatemala announced a crackdown on trafficking in 2011 (EIA, 2012).* D. retusa *(from FSC sources) is recommended as an alternative to the CITES*

Supporting Statement (SS)	Additional information
	Appendix I listed D. nigra *by the Mesoamerican and Caribbean Forest and Trade Network (CoP14 Prop. 31).*

Other information

Threats

The tropical dry forests of Central America have been subject to human influences such as hunting, harvesting and grazing in the understory, land conversion for agriculture and pasture and land clearance through burning. It is considered to be the most endangered major tropical ecosystem, with less than 2% remaining intact.

FAO report that the annual rates of forest cover change between -0.4% (Colombia) and -4.6% (El Salvador) for the range States between 1990 and 2000. The change in forest cover in the range states is summarised in the table below (FAO). In Costa Rica, *D. retusa* occupies 13 697.7 km^2 but its available habitat has been reduced by 61.5%, indicating that the species is exploited and rare, of which 6.2% occur within State protected areas.

Country	Forest cover change 1990-2000	
	Annual ('000 ha)	Annual rate (%)
Colombia	-190	-0.4
Costa Rica	-16	-0.8
El Salvador	-7	-4.6
Guatemala	-54	-1.7
Mexico	-631	-1.1
Honduras	-59	-1.0
Nicaragua	-117	-3.0
Panama	-52	-1.6
Belize	*-36*	*-2.3*

Dry forests in central America are generally under threat and the fact that Costa Rica has lost 61.5% of its habitat for these species is significant (Gill in litt., *2012).*

Supporting Statement (SS)	Additional information
Given the increasing importance of tourism in the region, the prominence of carvings in the tourist trade, the continuing demand for the wood for a range of uses internationally and the high level of wastage, the total trade may represent utilisation of a great many trees.	
Conservation, management and legislation	
Costa Rica Included under Decree 27388 from 1998.	*Costa Rica and Guatemala have management plans for* D. retusa *for a period of 10 to 40 years with minimum cutting diameters from 40 to 60 cm to ensure sustainable harvesting of timber (CITES, 2011).*
El Salvador Plans of Territorial Regulation are being developed which regulate change of land use. Included in Law of Wildlife Conservation.	*El Salvador is preparing similar measures to those of Guatemala (CITES, 2011).*
Guatemala Included in Category 2 of the List of Threatened Species of Guatemala and in Appendix III of CITES Guatemala reports the Decree 4-89 "Law of Protected Areas", Regulations specific for threatened species. The only territorial regulations are the master plans of natural protected areas. Change of land use is forbidden.	*Guatemala has zoning and land use regulations on harvesting* D. retusa *in accordance with the management categories of the national system of protected wild areas. Guatemala reported on a validated methodology for undertaking the consolidated national inventory of CITES-listed timber species (CITES, 2011).*
Honduras Resolution GG-MP-104-2007 establishes a ban for this species. A Territorial Regulation Law (Decree 180-2003) is in place. Some municipalities have territorial regulation plans.	
In México a research project is being developed which will assist in determining the commercial and conservation status of the genus *Dalbergia*. There is no record of harvest inside Natural Protected Areas. Mexico has the Agrarian Law, Federal Law of Administrative Procedure, General Law of Sustainable Forestry Development and its regulation, General Law of Ecological Equilibrium and the Protection of Environment and its regulations in the matter of environmental impact and Natural Protected Areas, General Wildlife Law, Federal Law of Rights, Official Mexican Norm NOM-059-SEMARNAT-2010 that lists species at risk. Forestry Law determines that land use changes are only issued by exception. In some cases there are regulation plans at the municipal level which determine land use.	*In Mexico* D. granadillo *is listed as a species at risk, Category P – Endangered (Semarnat, 2010).*
Nicaragua, for its harvest, all sustainable silvicultural criteria are applied. Nicaragua has the Forestry Law 462 and its regulation 73-2003; There are no Plans of Territorial Regulation for the species, there are general plans which establish adequate use of the land.	
Panamá listed their populations of *Dalbergia retusa* in CITES Appendix III.	

Supporting Statement (SS)	Additional information

Captive Breeding/Artificial Propagation

Dalbergia trees are slow growing, but due to the value of their timber, NAS (1979) recommend that efforts be made to extend their cultivation. During trials in a dry tropical region in Costa Rica, they exhibited good growth in height and good productivity when compared to six other native slow growth species that were also planted in pure and mixed plantations.

The Forest Stewardship Council lists two organisations that maintainplantations including *D. retusa* holding their certificate in forest management in Costa Rica and Nicaragua.

Most of the cocobolo available today is not cut from the natural rainforest, but from privately owned fincas with trees planted 80 to 100 years ago. Seedlings of *D. retusa* are being planted in local reserves in Gamboa, Panama. It has been planted for lumber in Costa Rica. *Dalbergia retusa* was included in plantation trials of native precious wood species in Costa Rica, which started in 1992 and is noted as a choice for reforestation in the central Pacific zone of Costa Rica. In managed plantations, trees may reach 13 cm diameter breast height and 8 m in height after 17 years and have been found to grow at a rate of 1.1 m/year.

Seeds of *D. retusa* are available from the CATIE forest seed bank and commercial suppliers. Guatemala reports a plantation of 58 ha between 1998-2004. It was included in a 10 year reforestation programme in 2003 for 4000 ha of former pastures in Nicaragua.

Other comments

The Working Group on the Bigleaf Mahogany and Other Neotropical Timber Species (CoP16 Doc.69) has tested the criteria for D. retusa and D. granadillo. *They note that information for* D. retusa *fulfils the trade criterion, the main trade is not reflected in the trade data as most trade is in finished products that are not covered by the Appendix III annotations. There is also evidence of illegal trade. Data required to assess Annex 2a, Criterion B is still lacking. Some of the major exporting countries do not provide data on the conservation status of their populations. In Costa Rica populations are well protected in designated protected areas but non protected population are highly fragmented. In Guatemala the population occurs throughout 10 – 20 % of the country and is listed as a threatened species. Information is lacking on the progress in the implementation of the Action Plan such as information on Forest Inventories of natural populations, harvest zoning, size, coverage and density of population, vertical and*

Supporting Statement (SS)	Additional information
	horizontal structure occupied by the species and the percentage of volume exported originating from plantations. In light of this Criterion B of Annex 2a may apply. Only two of the range states – Guatemala and Panama have included D. retusa *in Appendix III.* D. granadillo *was included in the action plan owing to its similarity to* D. retusa *and therefore any decision relating to this species is determined by the decision made for* D. retusa.

Reviewers: D. Gill, C. Hin Keong, J. de Koning, J. Nunez-Mino, S. Oldfield, G. Pinelo, N. Zamora.

Inclusion of *Dalbergia stevensonii* in Appendix II

Proponent: Belize

Summary: *Dalbergia stevensonii* is a species of rosewood known to occur in Belize, Guatemala and Mexico. It inhabits tropical broadleaf forests and has a restricted distribution, mainly concentrated in the Toledo district of southern Belize. In 2012 it was reported that commercially viable standing stock of *D. stevensonii* in Toledo had been assessed at approximately 140 000 m^3, believed to represent a decrease of around 13 % over three years. There is no information regarding the population size in any other range State. As well as logging, the species is reported to be affected by habitat loss. The human population of the Toledo district is increasing and previously remote areas are becoming accessible owing to road construction. The species has not been assessed by IUCN. Like other rosewood-producing trees it is believed to be slow growing, with a generation time measured in decades.

D. stevensonii appears to be of limited availability in trade, although it is very much sought after as a tonewood for musical instruments and increasingly over the past few years for furniture and cabinet-making in Asia, especially China. Export from Belize has taken place since the early 20th Century. Legislation was changed in 1996 to allow the export of raw timber (roundwood), causing exports to increase, and records from 1999 to January 2012 indicate around 26 000 m^3 rosewood exported from Belize in that period, the majority thought to be *D. stevensonii* with perhaps a small percentage other *Dalbergia* species. A moratorium on harvesting and export was declared in March 2012. A further 1378 m^3 was legally exported in the period February-July 2012 after the rosewood moratorium was declared. The date of the last legally permitted export was 24 August 2012. China is reported to have imported over 6000 m^2 of rosewood (species not specified) from Belize in the period 2010-2102, over half of this in 2012. In 2012 it was reported that illegal felling of the tree in forest reserves in Belize continued. Information on harvest of and trade in *D. stevensonii* in other range States is scarce, although there is a record of 254 m^3 of timber extracted in Guatemala and exported in 2004.

The species was proposed for inclusion in Appendix II at CITES CoP14. The proposal was withdrawn and a recommendation made for range and import states to take further measures to increase knowledge and regional information sharing on trade in the species and its population status and trends. Guatemala included *Dalbergia stevensonii* is Appendix III in 2008. No annotation is specified in the proposal.

Analysis: *Dalbergia stevensonii* is a rosewood tree from Central America that yields a highly valuable timber, in demand for the manufacture of musical instruments and furniture; the latter particularly in Asia where demand for rosewood in general has grown very significantly in recent years. It is thought that the main population is in southern Belize, where the harvest of trees has reportedly increased markedly in recent years, and from where exports to Asia are known to take place. In early 2012 a moratorium on felling and export was imposed in Belize, although illegal felling is still believed to take place and enforcement capacity within the country is limited. All recorded export is believed to be in timber from the wild. Given the exceptionally high demand for rosewood internationally, and the apparently limited distribution of species, it would appear likely that it meets the criteria for inclusion in Appendix II in that regulation of trade in it is required to ensure that the harvest of specimens from the wild is not reducing its population to a level at which its survival might be threatened by continued harvesting or other influences.

Supporting Statement (SS)	Additional information
Range	
Belize, Guatemala, Mexico, possibly Honduras (specimen may actually be referring to British Honduras now called Belize).	D. stevensonii *does not occur in Honduras as there is no suitable habitat / forest type (Pinelo,* in litt., *2012).*
IUCN Global Category	
	Not currently listed.

Biological and trade criteria for inclusion in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)

A) Trade regulation needed to prevent future inclusion in Appendix I

Dalbergia stevensonii has a restricted distribution, mainly concentrated in the Toledo district of southern Belize. No information is available as to whether it was previously more or less widespread. It has been reported to be endemic in Belize and although it has been found in other countries since, this suggests that it has never been common elsewhere.	*It is restricted in distribution to Belize, Guatemala (Peten, Alta Verapaz and El Quiche) and Mexico (Chiapas). Within Belize, the species is mainly known from the south of the country, primarily within Toledo District, with scattered records from elsewhere (FFI, 2007; Gillett and Ferriss, 2005). Its presence in Panama is yet to be confirmed but is unlikely.*
Information is lacking on the population size of *D. stevensonii*, though it is likely to be small. In 1979, the genus *Dalbergia* was described as scarce as all accessible stands of the genus having long since been logged out.	*Little is known about the biology and status of* D. stevensonii. *It is however known that it is slow growing and requires ample seed for survival (Jenkins* et al., *2012).*
Changes in population size can be inferred from changes in habitat availability. High rates of deforestation in the range States imply that the population is likely to be decreasing (see Threats section) and selective logging will worsen the problem for valuable species such as *D. stevensonii*.	*The population surveyed in the forested areas in Toledo in 2007 showed 224 trees (a density of 5.07trees/ha) with DBH over 10cm and 326 seedlings (density of 8.33 seedlings / ha). The average density of commercial sized trees (DBH ≥ 25cm) was 1.85 trees/ha (83 trees) and an average of only 0.52 trees/ha with DBH ≥ 45 cm. (Gill* in litt., *2012).*
Anecdotal evidence from suppliers suggests that it is rare: “this premier wood for orchestral marimbas is rare and expensive”, “Limited quantities … can, however, be obtained at high prices from importers” “generally believed to be fairly scarce”, “difficult to obtain”. Reports of timber extraction and habitat loss indicate that populations of *D. stevensonii* are declining.	
Information on the breeding system of *D. stevensonii* is not available. However, some aspects of the reproductive biology of other species in the same genus have been studied. These studies show some common features for the genus: mass flowering but relatively few mature fruits have been observed, and high levels of seed abortion. Pollen is dispersed by bees and seeds dispersed by wind and/or water. It is likely that the above characteristics are shared by *D. stevensonii*.	

Supporting Statement (SS)	Additional information
Belize *Dalbergia stevensonii* may once have been locally common, it was described in 1962 as awaiting utilisation in 'large volumes' in Belize. Although confined to a small area, in Belize *D. stevensonii* had previously been reported to occur in fairly large patches within its habitat. A report in 2012, concludes that current commercial stocking of *D. stevensonii* in Toledo is approximately 142 091 m^3, after a reduction of around13 % over 3 years during 2010-2012. Since 2007, harvesting of *D. stevensonii* from the Toledo district has been steadily increasing. Given the sheer volumes of timber that have been exported, it is highly likely that selective logging of *D. stevensonii* in the Toledo district will have contributed to a decrease in population size. A high number of large, mature, seed-bearing trees have been removed. Guatemala, Honduras and Mexico do not have data on the status of their populations. No information is available on trends for the species in Guatemala or Mexico. In Honduras and Guatemala there is no data of potential area of distribution; in Mexico, based on data from the SNIB, REMIB and National Forestry Inventory of 2008 a map was created of potential distribution.	

B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences

The species is threatened by high levels of logging (legal and illegal). It is very much sought after, particularly as a tonewood for musical instruments, and increasingly by the Asian market for furniture and cabinet-making. There are no comprehensive reports of the levels of local or international trade in the species. The restricted growth area of the species limits the amount of trade and there is some difficulty in fulfilling demand. In spite of its rarity, there is a high level of wastage of up to 80%. Increased accessibility to its habitat and declining stocks of other rosewoods has led to growing pressure to turn to this species to meet demand. Over-harvesting may well have already seriously impeded regeneration of the species in the wild and this in turn will have an effect on genetic diversity. **Belize** Records of trade in the early 20th century indicate that during 1925-1933 361 tons	*The low regeneration is indicative of the removal of mature, large seed-bearing trees and failed attempts at propagation suggests it is unlikely that populations in Belize will be able to recover to meet the current demand without further significantly reducing wild populations (Gill* in litt., *2012).* *The average market value is USD77 471 m^3 (instrument blanks) and USD11 004 m^3 (sawn wood) (Jenkins* et al., *2012).* *The increase in the imports of timber generally referred to as 'rosewood' by China from the range States, has raised serious concerns within the region (see supporting statement for proposal CoP16 Prop. 61).* ***Belize*** *Between 2008 and 2011, 20 m^3 of sawn wood was reported by importing countries*

Supporting Statement (SS)

were exported from Belize to the USA and Europe.

Maximum timber extraction from the forests of Columbia River Forest Reserve occurred between 1925 and 1960, and most *D. stevensonii* had been extracted when inventories were undertaken in 1978.

Records of trade from 1999 to January 2012 indicate 25 705 m^3 rosewood was exported from Belize, the majority of this is thought to be *D. stevensonii* with perhaps a small percentage being other *Dalbergia* species. Belize reports a total export of 1378 m^3 from February to July 2012 after the rosewood moratorium was issued (see below). China reported importing 6213 m^3 of rosewood (species unknown) from Belize between 2010 and 2012, importing 3400 m^3 in 2012 alone.

Legislation was changed in 1996 to allow the export of raw lumber. Since this time, there has been a steady rise in harvesting of the species, fuelled primarily by demand from the Asian market.

Since 2007, harvesting of *D. stevensonii* from the Toledo district of Belize has been steadily increasing reaching a peak in February 2012. Given the sheer volumes of timber that have been exported, it is highly likely that selective logging of *D. stevensonii* in the Toledo district will have contributed to a decrease in population size over the last 5 years. A high number of large, mature, seed-bearing trees have been removed.

In the last five years, by far the greatest threat to the species in Belize has come from very high levels of selective logging. A moratorium on harvesting and export was issued in March 2012. If harvesting had continued at the current rate without a moratorium, *D. stevensonii* would have been wiped out (commercially) from Belize by 2033.

Further indication of the increasing value of the species came in 2011 when the Belize Forest Department received a request for permission to uproot and export stumps of logged trees but this was declined.

Illegal logging in Belize occurs even within protected areas, when permits or licences are obtained often the volume of timber is greater than the allowance and lumber is often transported without the official Forest Department stamp.

Additional information

(China and Germany) as being exported from Belize (UNEP-WCMC CITES Database). All was reportedly from wild sources. In addition, 26 kg of sawn wood of Belizean origin (no source code) was re-exported from the USA to Slovakia in 2010.

Data on D. stevensonii *production and export provided by the Belize Forest Department (FFI, 2007):*

	Rosewood production			Rosewood Export
YEAR	No of Logs	Tonnage Volume (m^3)		Volume (m^3)
2005	3428	373.62	194.31	72.37
2006	1282	122.43	63.68	71.38

The discrepancy between production and exports for 2006 is probably due to factors such as late submission of inspection reports, incomplete data entry, illegal harvesting and import of rosewood from Guatemala (FFI, 2007).

Overall the timber does not appear to be readily available internationally but where companies do offer D. stevensonii *on the international market its origin is reported to be from Belize. Illegal felling and cross border trade are problems. The moratorium came into place in March 2012 following widespread clearance for the Asian market (Jenkins* et al., *2012).*

The Ya'axché Conservation Trust observed the felling of an exceptionally large number of mature trees being extracted from community lands in Belize likely destined for export. A survey in Belize 2007 showed a low density (0.52 trees per ha) of mature trees. The Ya'axché Conservation Trust also observed increasing number of non-mature individuals being extracted over time, an indication that larger individuals were starting to disappear. Illegal logging in forest reserves has been observed by the Ya'axché Conservation Trust's ranger (Gill in litt,, *2012).*

There are concerns for the current level of illegal extraction in Toledo and it is possible that this species will completely disappear from community lands in the near future (Jenkins et al., *2012).*

Supporting Statement (SS)	Additional information
Guatemala In 2004, 254 m^3 *D. stevensonii* timber was extracted from outside protected areas in Guatemala and exported to Japan, El Salvador, USA, Germany, Belize and Netherlands, valued at USD381 390.	***Guatemala*** *Importing countries (China, European countries, Japan and the USA) reported importing 182 m^3 of sawn wood from Guatemala between 2008 and 2011, all from wild sources. In addition, the USA, Germany and Spain reported re-exporting 470 078 m^3 and 30 632 kg of sawn wood/logs during the same period, originally from Guatemala and from wild sources (or 'o' code- Pre-Convention species).*
A total of 12 shipments of 67 m^3 of wild Guatemalan sawn wood were imported into USA from Guatemala between 2008 and 2011. In addition, 1372 kg of Guatemalan-origin logs were imported into the USA from Germany.	*Guatemala reported the export of over 250 m^3 in 2004 valued at USD380 000 to a range of countries including Japan, USA, Germany and the Netherlands (Jenkins* et al., *2012).*
Between 2007 and 2012 rosewood (logs reported as 'rosewood'/ 'padauk' but species unknown) imports by China were1754 m^3.	*In February 2012 seizures of illegally trafficked timber in Guatemala suggest there is an organised smuggling ring to transport large quantities of the wood, authorities seized three shipping containers in November and December 2011 each containing 58.28 m^3 of Dalbergia species (Jenkins* et al., *2012).*
	There is only one major exporter of finished rosewood products that has Export Processing Zone status and can thus import rosewood from Guatemala for re-export. However, the species also supports a significant local wood-carving industry, largely for the tourist market, so further exports of finished carvings are likely to be occurring (FFI, 2007).
Honduras Between 2007 and 2012 rosewood (species unknown) imports by China were negligible.	***Honduras*** *There are no reports of exports from Honduras in the CITES trade database. Between 2007 and 2012 rosewood (species not specified) imports by China from Honduras were 45 m^3 (see supporting statement for proposal CoP16 Prop. 61). As there is no record of this in the CITES trade database, it seems likely that the species of rosewood imported were not* D. stevensonii.
Mexico Between 2007 and 2012 rosewood (species unknown) imports by China amounted to 10 662 m^3.	***Mexico*** *There are no reports of exports from Mexico in the CITES trade database.*
General ITTO does not report any export or import trade in *D. stevensonii* from their member States (Guatemala and México) and commented that "We haven't seen any official export reports on these species from our members in the region (Guatemala, Honduras, Mexico, Panama) for the past decade. This can mean zero or insignificant levels of exports are occurring (or that "unofficial" exports are occurring that aren't	

Supporting Statement (SS)	Additional information
captured by official statistics.)" Belize is not a member of the ITTO. In September 2012, 62 items for Honduras Rosewood were available on Ebay. *Dalbergia stevensonii* is recommended as an acceptable, even superior substitute for Brazilian Rosewood (*D. nigra*) in the manufactureof guitars and is used as a substitute following listing of *D. nigra* in CITES Appendix I (1992*)* despite its limited availability, increasing pressure on this species.	

Inclusion in Appendix II to improve control of other listed species

A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I

Dalbergia nigra was included in CITES Appendix I in 1992.

Other information

Threats

Belize
Deforestation is impacting the species throughout its range. Forest cover in Belize in 1927 was reported to be 87%. This has declined to 79% according to a report published in 1994 and 63% in 2010. The deforestation rate between 1980 and 2010 is expected to be under 25 000 acres (100 km^2) annually.

Southern Belize has escaped major deforestation for a long time due to its inaccessibility and distance from population centres. However, the area is now subject to a high rate of settlement by colonists practicing agriculture. The extremely high rate of human population growth and increased accessibility to southern areas is putting additional pressure on *Dalbergia* habitats in Belize. Core populations of the species exist in Toledo in Belize, one of the poorest districts in the country with little funding to manage protected areas and enforce environmental regulations

Village farms are expanding at a very fast rate in the Maya Mountain North Forest Reserve and towards Bladen Nature Reserve, both areas known to contain *D. stevensonii*.

Guatemala
Forest cover in Guatemala was reported to be 26.3% of land area in 2000 and the annual deforestation rate in 1999-2000 was 54 000 ha (540 km^2) (-1.7%). Cattle

Belize
Much of the logging on or around community lands was done via petty permits / short term licences which are notoriously difficult to monitor and manage. In 2011-12 there seems to have been a free-for-all to extract as much rosewood as possible and monitoring this seems to have been beyond the capacity of the Forestry Department (Gill in litt., *2012).*

Another cause for decline of this species is devastation from hurricanes. In 2001 populations were damaged in northern Toledo District by Hurricane Iris. Following this the Forest Department granted permits for 'salvage logging' of damaged trees with no restrictions on size or number (FFI, 2007).

Guatemala
Significant threats at the Maya Biosphere Reserve (where D. stevensonii *occurs) include building of airstrips to transport drugs, development of huge cattle ranches and organized crime groups moving their illegal logging network toward the reserve to*

Supporting Statement (SS)	Additional information
ranching and slash and burn agriculture methods are destroying the forest of Petén in Guatemala. Based on trends observed between 1986-1995 using remote sensing imagery, it was predicted that only 2% of the Petén's forest would survive by 2010. **Mexico** Forest cover in Mexico was 28.9% of land area in 2000 and the annual deforestation rate in 1999-2000 was 631 000 ha (-1.1%). It is highest in Chiapas, with 70 000 ha being lost each year.	*supply Asian markets with prime tropical hardwoods (Allen, 2012).*
<u>Conservation, management and legislation</u>	
Belize *Dalbergia stevensonii* is listed in the First Schedule of the Belize Forests Act 2003, which specifies that no person shall convert the wood without first having obtained a licence. Additionally, a licence is required to cut or otherwise injure any tree within forest reserves, national land and private land to which the Act has been applied. The export of raw lumber was prohibited until 1992 when only finished or semi-finished products could be exported. In 1996 legislation changed to allow export of raw lumber. Since this time, there has been a steady rise in harvesting of the species. A moratorium on cutting and export was issued in March 2012. Exports were permitted for a limited time period after the moratorium was issued in order to move large quantities of raw lumber that would have otherwise gone to waste. Exports of raw *D. stevensonii* lumber from Belize ceased altogether in August 2012. The date of the last legally permitted export was 24 August 2012. The logging season reopened on 15 October 2012 and no permits have been authorised by the Chief Forest Officer. The moratorium overrides any existing long-term forest licenses or concessions that previously included permission to cut *D. stevensonii.* The species occurs in several protected areas in Belize. The eastern side of Bladen Nature Reserve has a high level of protection but there is increasing concern for illegal extraction on the western side of the reserve, owing to cross border incursions from Guatemala. The species is managed in community lands complicated by land tenure issues. Only two of these communities have forest management plans in place and as a result, in the last 12 months vast quantities of *D. stevensonii* were extracted from many of these areas with no consideration given to sustainable	

Supporting Statement (SS)	Additional information
management. Disappearance of the species from community lands is putting increased pressure on populations in protected areas and on private land.	
Guatemala *Dalbergia stevensonii* was listed on CITES Appendix III by Guatemala in 2008. The listing applies only to lumber coming from Guatemala.	***Guatemala*** *It has been assessed in the Guatemala National Red List as Endangered A2cd;B2ab(ii,iii) and proposed Global Category as Vulnerable A2cd, which notes the export of sawn wood as a major threat (Vivero* et al., *2006).*
Dalbergia stevensonii is listed in Category 3 of CONAP (*Consejo Nacional de Áreas Protegidas*) to prevent the species from becoming in danger of extinction.	*In 2011 Guatemala announced a crackdown on 'eco-trafficking' to enforce stricter security measures at airports but not seaports, the main method of trade.*
It is included in Category 2 of the List of Threatened Species of Guatemala. There is no ban on harvesting the species, and management is carried out through specific regulations if the populations are in or outside the Guatemalan System of Protected Areas. The northern forests of the Petén have been protected by the Maya Biosphere reserve since 1995.	
Honduras It is listed as a 'Species of Special Concern in Honduras (IUCN VU A1cd+2cd). Honduras reported the Resolution GG-MP-104- 2007, which establishes a ban for this species.	***Honduras*** *Honduras has a ban on exporting (PC19 Doc. 16.1 (Rev. 1), 2011).*
Mexico This species range occurs in the Montes Azules Biosphere Reserve, Mexico. In Mexico the species has no established measures of bans total or temporal or any similar measures. Research is being developed in Mexico to assess the population and conservation status of the species.	***Mexico*** *It is not listed in the Mexican Red List of Threatened Species.*
General There are no suppliers of *D. stevensonii* with FSC certification listed on the Forest Stewardship Council database.	*The majority of exports are destined for the Chinese market. Imports and exports are banned in the USA under the Lacey Act.*

Supporting Statement (SS)	Additional information
Captive Breeding/Artificial Propagation	
Dalbergia stevensonii does not appear to be widely grown in plantations although it may be suitable for commercial growth. The stumps of the trees sprout freely, quickly producing heartwood, and that with careful attention and selective thinning valuable timber should be obtainable in a fairly short time.	D. stevensonii *is not easy to cultivate which has implications for the sustainable management and exploitation of the species (FFI, 2007). There is potential for regrowth from stumps although this would take many years to be commercially viable again and will also lead to reduced genetic diversity (Gill* in litt., *2012).*
There are no known plantations in Belize. In Guatemala, there is no available data on area planted nor of volume harvested from plantations, these are of pure stands and mixed and in Mexico no plantations carry the species.	D. stevensonii *is known to be slow growing and requires ample seed for survival due to high seed abortion rates. It is not known to be growing commercially in plantations although it has been used in at least one tree planting scheme in Belize. (Jenkins* et al., *2012).*
Following hurricane Iris in 2001 in Belize a tree planting scheme was established by the Ya'axche Conservation Trust but has had little success raising from seeds which are becoming more difficult to acquire and becoming very rare.	*In Guatemala the species is reported to exist in single-species and mixed plantations but no data is available on potential harvestable volume (PC19 Doc. 16.1 (Rev. 1), 2011).*
	It is not currently recorded in any botanic gardens or ex situ *propagation (Plantsearch, 2012).*
Other comments	
Dalbergia tilarana can be confused with *D. stevensonii*.	*The proposal mentions El Salvador and Nicaragua but these are not range states for this species. The species can be confused with Dalbergia tucurensis, a closely related species that also grows in Belize but is not protected by logging bans. The two species can be distinguished by density tests (Wiemann and Ruffinatto, 2012). Central American Dalbergia species included in CITES Appendix III in addition to the Guatemalan population of* D. stevensonii *are:* Dalbergia darienensis *(Panama) and* Dalbergia retusa *(Guatemala and Panama).*

Reviewers: D. Gill, C. Hin Keong, J. Nunez-Mino, S. Oldfield, G. Pinelo, G. Scott.

Inclusion of the genus *Dalbergia* (populations of Madagascar) in Appendix II, and limited to logs, sawn wood and veneer sheets by an annotation

Proponent: Madagascar

Summary: *Dalbergia* is a large and very widespread genus of trees, shrubs and lianas; many of the species yield valuable timber traded under a variety of different names, most frequently as rosewood. There are 48 currently recognized species of *Dalbergia* in Madagascar, 47 of which are endemic and some of which produce rosewood. Malagasy *Dalbergia* species occupy a variety of habitats including humid and dry dense forests, semi-deciduous forests, thickets and savannas. Some species, including *D. aurea, D. brachystachya, D. davidii* and *D. histicalyx,* have restricted ranges, while others such as *D. baronii, D. greveana* and *D. trichocarpa* are more widespread. The conservation status of 43 Malagasy *Dalbergia* species was assessed by IUCN in 1998. Three species were reassessed in 2012, with two of these (*D. andapensis* and *D. humbertii*) being classified as Endangered and one, *D. chapelieri,* as Near Threatened. Of those not reassessed, 33 had been classified in 1998 as threatened (Endangered or Vulnerable using the categories valid at the time); these classifications are all recorded as in need of updating. Selective logging was noted as a threat for various species; others were recorded as having very small populations in areas where logging occurs. A further species (*D. peltieri*) was assessed for the first time in 2012 and was considered Least Concern.

Rosewood from Madagascar (and from *Dalbergia* species elsewhere) is highly sought after in international trade. There is a long tradition of export of the wood from Madagascar, but in recent years (since 2007) logging for international trade has risen dramatically, as a result of high demand and correspondingly high prices (notably in China) and political upheavals in Madagascar. Virtually all harvest in recent years has evidently been intended for export, with a very large proportion of exports apparently destined for China. The most valuable species are believed to include *Dalbergia abrahamii, D. bathiei, D. baronii, D. davidii, D. greveana, D. louvelii, D. maritima, D. mollis, D. monticola, D. normandii, D. purpurascens, D. trichocarpa, D. tsiandalana, D. viguieri* and *D. xerophila.* In addition *D. madagascariensis* is exported; this species lacks the typical lustre of rosewoods and is generally referred to in Madagascar as pallisandre. There is little information available on growth rates or regeneration potential of Malagasy *Dalbergia*, but growth of rosewood-producing trees in general is believed to be slow, with many years needed to produce the dense, lustrous wood that is most highly sought-after. Generation times for most species are likely to be measured in decades. A modelling exercise in 2010 concluded on the basis of hypothesized original distributions that eight economically important species (*D. bathiei, D. baronii, D. louvelii, D. mollis, D. monticola, D. purpurascens, D. tsiandalana* and *D. viguieri*) might have undergone long-term range reductions of between 54% and 98%. For two economically important species (*D. davidii* and *D. normandii*) data were insufficient to make any assessment.

The great majority of rosewood export appears to be in roundwood. In 2000-2001, exports were reported to be in the region of 5000 tonnes per year, declining to almost nothing for the period 2002-2006, increasing to nearly 14 000 tonnes in 2008 and to more than 36 000 tonnes in 2009, coinciding with the period of political upheaval. In May 2010 it was reported that, at a conservative estimate, some 1100 containers each carrying just over 100 rosewood logs had been exported since April 2009. More recently it has been claimed that there are as many as half a million rosewood logs stockpiled in Madagascar awaiting export.

It has been reported that the overwhelming majority of Madagascar rosewood exported in the period 2007-2010 was illegally logged within Masoala and Marojejy National Parks (which are part of the Rainforests of the Antsiranana UNESCO World Heritage Site), as well as Mananara-Nord Biosphere Reserve and the vast Makira Conservation Site.

Madagascar introduced a temporary ban on harvest, transport and export of precious woods in 2010, envisaged to be for between 2-5 years. *D. madagascariensis* ("pallisandre") is apparently not covered by this ban. As of late 2012 the ban reportedly remained in place. Despite the ban, logging of rosewoods was reported to be continuing in at least some protected areas (e.g. Masoala National Park) although not in others (e.g. Marojejy National Park).

In 2011, in response to the major increase in illegal logging that began in 2009, Madagascar requested the inclusion of five species of *Dalbergia* in Appendix III of CITES (*D. louvelii, D. monticola, D. normandii, D. purpurascens* and *D. xerophila*). CoP15 adopted a Decision directing Madagascar and the Plants Committee to review and gather further information on species (including tree species) that would benefit from CITES listing. Information on the taxonomy, distribution and conservation status of *Dalbergia* spp. was presented to the nineteenth meeting of the Plants Committee in April 2011 (Document PC19 Doc. 14.3).

Analysis: Information on populations of all *Dalbergia* species in Madagascar is scarce. Rosewood-bearing trees in the genus *Dalbergia* are known to have been subject to intensive, often uncontrolled and illegal, logging in recent years to supply the export market. Indications are that volumes of rosewood logged and exported from Madagascar in the period 2007-2010 were several times those recorded earlier in that decade. There is no information on volumes of individual species of rosewood harvested and traded, or comprehensive inventory data for any species. It is thus extremely difficult to determine whether any one species meets the criteria for inclusion in Appendix II set out Annex 2 a of *Resolution Conf. 9.24 (Rev. CoP15)*. However, some rosewood-bearing *Dalbergia* species are known to have restricted distributions in areas that have been subject to intensive logging in recent years. Given this, the generally long generation time of rosewood-bearing trees and the very large increase in logging and export of rosewood recorded recently, it is likely that some species at least meet these criteria in that regulation of trade in them is required to ensure that the harvest of specimens from the wild is not reducing their populations to a level at which their survival might be threatened by continued harvesting or other influences.

Experts are currently unable to accurately identify any given log of Malagasy rosewood to the species level and thus, if it is considered that one or more than one *Dalbergia* species meets the criteria in Annex 2 a, then other species would meet the criteria in Annex 2 bA of *Resolution Conf. 9.24 (Rev. CoP15*).

Supporting Statement (SS)	Additional information
Taxonomy	
The Catalogue of Vascular Plants of Madagascar lists 48 species.	*Du Puy* et al*. (2002) list 42 endemic species and 1 non endemic (*D. bracteolata*) in Madagascar. Subsequently 5 new species have been described.*
Range	
47 species occur only in Madagascar, *Dalbergia bracteolata* occurs in Kenya; Madagascar; Mozambique; Tanzania.	

Supporting Statement (SS)	Additional information
IUCN Global Category	
	44 species of Madagascan Dalbergia *spp. are included on the IUCN Red List of Threatened species as Endangered (20 species), Vulnerable (16 species) and Least Concern/Lower Concern/Near Threatened (eight species).* *Of the 44 species, 43 were assessed in 1998 for the first time. The IUCN Red List notes that the 1998 assessments "need updating". In 2012, three species were reassessed (two remained endangered whilst the third was reassessed from Vulnerable to Near Threatened), and a fourth was assessed for the first time.*
Biological and trade criteria for inclusion in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)	
A) Trade regulation needed to prevent future inclusion in Appendix I	
The proposal lists 48 species of Dalbergia. Seven species of Dalbergia are the most commercialised outside of Madagascar. Some species are confined to restricted areas as is the case *for Dalbergia aurea, D. brachystachya, D. davidii,* and *D. histicalyx*. Others have a wide geographical distribution as D. baronii, D. greveana and D. trichocarpa. The geographical distribution of some species of Dalbergias is given in Appendix 3 of the supporting statement. In general, *Dalbergia* species have a relatively low rate of regeneration and the absence of certain classes of individual's diameter (10-20cm, 20-30cm) disrupts further regeneration. Selective cutting of exploitable individuals is the main cause of this disturbance. The structure of the population of the species of Dalbergia presents a disturbance marked by the absence of certain diameter classes both inside and outside protected areas. Individual seed trees with a DBH greater than 20 cm represented by large trees are increasingly rare. The natural regeneration rate is generally low and growth in thickness is slow (3 mm/yr). Dalbergia species show great variability in density from 10 to 320 individuals per hectare (Table below). In addition, the biovolume and basal area are low. This indicates that the majority of individuals are not usable. In the rain forest of Andohahela the observed density of exploitable Dalbergia is 12	Dalbergia *are very slow growing (Patel* in litt., *2012).* *Loggers have selectively logged rosewood in up to 20 450 ha in the north east region to date (Barrett* et al., *2010).* *Barrett et al. (2010) listed the following ten species as being economically important* D. bathiei, D. baronii, D. davidii, D. louvelii, D. mollis, D. monticola, D. normandii, D. purpurascens, D. tsiandalana *and* D. viguieri. *Based on various deforestation scenarios and hypothesised historical distributions they calculated long-term range reductions for all species except* D. davidii *and* D. normandii *to be between 54% and 98%. There was insufficient information for* D. davidii *and* D. normandii *to make any assessment.* *DBEV and WWF (2010) identified* Dalbergia abrahamii, D.baronii, D. greveana, D. louvelii, D. madagascariensis, D. mollis, D. monticola, D. normandii, D. purpurascens, D. trichocarpa *and* D. xerophila *as being traded internationally.* *Jenkins* et al. *(2012) state that the species which are particularly valued for trade include* D. baronii, D. louvelii. D. maritima, D. greveana *and* D. madagascariensis (*which lacks the typical lustre of rosewood, is generally referred to as pallisandre in Madagascar and is not covered by the 'unconditional' export ban of 2010).* *Eighteen species of threatened and Near Threatened species are recorded as being felled for timber on the IUCN Red List or in the document submitted to the nineteenth meeting of the CITES Plants Committee by the nomenclature specialist and*

Supporting Statement (SS)

individuals per hectare at 400 metres altitude. Densities of 2-5 individuals per hectare are recorded on lower western slopes in the Masoala plots. In 1994, 3 – 8 individuals per hectare were measured in low – medium altitude wet forests of Ranomafana.

Table: Characteristics of some species of *Dalbergia* in Madagascar

Species	Density (ind / ha)	Basal area (m^2 / ha)	Biovolume (m^3 / ha)
Dalbergia abrahamii	120	1.9	6.6
Dalbergia baronii	10	1.5	5.7
Dalbergia greveana	270	4.2	16.6
	310	4.7	34.7
Dalbergia madagascariensis	250	4.1	16.5
Dalbergia mollis	210	4.8	44
	220	2, 6	24.7
Dalbergia trichocarpa	300	11.1	40.3
Dalbergia louvelii	200	0.3	4
Dalbegia monticola	200	3.2	12.9
Dalbergia normandii	260	4.3	11.4
Dalbergia purpurascens	240	7.1	18.7
	100	7.2	37.3
	320	6	50
Dalbergia xerophila	240	3.7	36.1

Additional information

Madagascar (Document PC19 Doc. 14.3). This documents also presents preliminary assessments using the IUCN Red List categories and criteria (version 3.1) undertaken by the IUCN/SSC Madagascan Plants Specialist Group that have not yet been published. These are included below.

The following species have been identified by one of the sources above as being valuable for trade:

- **Dalbergia abrahamii**- *(Endangered)-A tree known only from a few localities around Autsiranana and the Ankarana Massif. Much of the range is decreasing through forest destruction. Subpopulations are fragmented. The main threat comes from selective felling for timber and charcoal (Du Puy, 1998i). The extent of occurrence (E00) has been calculated at 637 km^2 (DBEV and WWF, 2010), though it is not clear what the basis for the estimate of extent of occurrence is and it is likely to be an underestimate. The same applies for the extent of occurrence calculated for the following species. DBEV and WWF (2010). Reported in PC19 Doc. 14.3 as assessed as meeting the IUCN criteria for Endangered.*

- **D. baronii**- *(Vulnerable) A widespread species confined to the lowland plains of eastern Madagascar. This fine rosewood timber species grows in lowland rainforest, often in marshy areas and near mangroves.* (*Du Puy, 1998a). Reported in PC19 Doc. 14.3 as assessed as meeting the IUCN criteria for Vulnerable.*

- **D. bathiei**- *(Endangered) A tree confined to a few small areas of lowland, evergreen, humid forest, mainly along river margins. This species is a fine rosewood and is traded nationally and locally. As a result of selective exploitation, this species is now very rare (Du Puy, 1998j). The extent of occurrence has been calculated as 11 965km^2 (DBEV and WWF, 2010). Reported in PC19 Doc. 14.3 as assessed as meeting the IUCN criteria for Critically Endangered.*

- **D. davidii**- *(Endangered) Occurs in an area where* Dalbergia *species are being selectively felled for the export market. Despite its presence in Ankarafantsika Natural Reserve, the species is still under threat from logging (Du Puy, 1998k). The extent of occurrence has been calculated as <100 km^2 (DBEV and WWF, 2010). Reported in PC19 Doc. 14.3 as assessed as meeting the IUCN criteria for Critically Endangered.*

- **D. greveana**- *(Lower Risk/near threatened) Still widespread in western*

Supporting Statement (SS)	Additional information
	Madagascar, but population numbers have declined over the entire range. This species occurs in deciduous, seasonally dry forest and woodland up to 800 m. Trees are sought after and selectively felled for the high-quality wood which forms the bulk of timber wood exports from western Madagascar. Some localities are protected in Ankarafantsika Nature Reserve and in Ankarana Special Reserve (Du Puy, 1998d). The extent of occurrence has been calculated as 423 423 km^2 (DBEV and WWF, 2010). Reported in PC19 Doc. 14.3 as assessed as meeting the IUCN criteria for Least Concern. • **D. louvelii-** *(Endangered) Eastern Madagascar. Populations of this rare rosewood species are now severely fragmented. A species confined to the drastically reduced lowland, humid forest (Du Puy, 1998b). The extent of occurrence has been calculated as 5358 km^2 (DBEV and WWF, 2010). Reported in PC19 Doc. 14.3 as assessed as meeting the IUCN criteria for Endangered.* • **D. madagascariensis**- *(Vulnerable) A widespread species found in humid, evergreen forest. The extent of the forest is in decline and trees are selectively felled for the timber (Du Puy, 1998l). The extent of occurrence has been calculated as 195 960 km^2 (DBEV and WWF, 2010). Reported in PC19 Doc. 14.3 as assessed as meeting the IUCN criteria for Least Concern.* • **D. maritima**- *(Endangered) A lowland tree restricted to humid, evergreen, coastal forest. This type of forest has been almost completely destroyed. The remaining forests are seriously threatened by exploitation and clearing. Selective felling for export, fragmented subpopulations and titanium mining activities threaten this endemic species (Du Puy, 1998c).* • **D. mollis**- *(Lower Risk/near threatened). The extent of occurrence has been calculated as 285 208km^2 (DBEV and WWF, 2010). Reported in PC19 Doc. 14.3 as assessed as meeting the IUCN criteria for Least Concern.* • **D. monticola-** *(Vulnerable) (Appendix III) Extensive distribution along the eastern escarpment of Madagascar, including areas with extensive forest cover. This much sought-after rosewood is selectively felled for export and mature trees are considered rare. Although it was said that many localities received protection in Perinet/Andasibe, Zahamena, and Ranomafana Protected Areas (Du Puy, 1998e). The extent of occurrence has been calculated as 122 991 km^2 (DBEV and WWF, 2010). Reported in PC19 Doc. 14.3 as assessed as meeting the IUCN criteria for Vulnerable or Least Concern.*

Supporting Statement (SS)	Additional information
	• **D. normandii**- *(Endangered) (Appendix III) A very rare species known from only two localities, Antalaha and the Isle Sainte Marie in north-east Madagascar. This tree has been severely exploited for the excellent quality of its rosewood. (Du Puy, 1998f). The extent of occurrence has been calculated as <5000km^2 (DBEV and WWF, 2010). Reported in PC19 Doc. 14.3 as assessed as meeting the IUCN criteria for Endangered.* • **D. purpurascens-** *(Vulnerable) (Appendix III), Widespread in east, west and south-west Madagascar, where it was locally common (in 1998). This species produces a notably attractive high-quality rosewood which is selectively felled, seriously reducing populations. (Du Puy, 1998g). The extent of occurrence has been calculated as 480 363 km^2 (DBEV and WWF, 2010). Reported in PC19 Doc. 14.3 as assessed as meeting the IUCN criteria for Least Concern.* • **D. tsiandalana**- *(Endangered) Very restricted, this poorly known species occurs around Soalala and Mahajanga in western Madagascar. The habitat of this species is very reduced and fragmented. This good-quality rosewood is selectively felled (Du Puy, 1998m). Reported in PC19 Doc. 14.3 as assessed as meeting the IUCN criteria for Endangered.* • **D. viguieri**- *(Vulnerable) A poorly known rosewood tree that is restricted to broadleaved transition forest in north-east Madagascar. The species is known from only three rapidly diminishing sites, all of which are fragmented and isolated Du Puy, 1998n). Reported in PC19 Doc. 14.3 as assessed as meeting the IUCN criteria for Endangered.* • **D. xerophila-** *(Endangered) (Appendix III). This species has a very restricted distribution in south-east Madagascar. (Du Puy, 1998h). The extent of occurrence has been calculated as 1859 km^2 (DBEV and WWF, 2010). Reported in PC19 Doc. 14.3 as assessed as meeting the IUCN criteria for Endangered.*

B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences

Market demand for the timber of the species is seriously threatening *Dalbergia* spp. in Madagascar.

On the national and international market, precious woods are more expensive especially rosewood (about 6000 euros per ton) which results in illegal exploitation becoming more numerous and occurring even in protected areas.

Between 2000 - 2001 (prior to 2002 political turmoil) rosewood exports amounted to almost 5000 tonnes annually, declining to almost nothing for 5 - 6 years, and then increasing to 2385 in 2007. Exports then increased to almost 14 000 tonnes in 2008 (prior to the current political turmoil) and increased further to more than 36 000 tonnes in 2009. The figures presented for 2007 and 2008 mostly pertain to rosewood seized by the state and sold by auction to a single buyer. The Forestry Administration

Supporting Statement (SS)	Additional information
In 2009 at least 52 000 tonnes of precious wood (approximately 100 000 feet of rosewood and ebony) was harvested; more than 60 000 feet from protected areas. It has been estimated that rosewood from Madagascar is worth 400 000 euros per day on international markets.	*estimated a further reserve of 15 600 tonnes awaiting export in 2009. This does not include containers smuggled out of Madagascar (Randriamalala and Liu, 2010). Foreign exports of Madagascar rosewood occurred at "low" levels (1000 to 5000 tonnes) between 1998 and 2007. Approximately 10 280 tonnes of illegally logged rosewood is believed to remain stockpiled in numerous locations in north-eastern Madagascar, such as the ports of Vohemar and Antalaha as well as private residences in those cities and Sambava, Ampanifena, Ambohitralalana, and others (National Geographic, 2010).* *Prior to September 2009 13 authorized exporters were identified, concentrated in Antalaha, but following the publication of Order No. 38244/2009 in September 2009, this rose to 23 authorized exporters by December 2009 . In 2009 the number of rosewood trees in protected areas was estimated at 3-5 trees per hectare. In 2009 100 000 rosewood trees were felled in the SAVA region and Analanjirofo (Randriamalala and Liu, 2010).* *As logging after March 2009 increased, loggers moved south (Randriamalala, 2012b).* *Exports of rosewood from China to Madagascar rose by 340% in one year reaching 22 000 m^3 in 2010. This is by far the largest threat to the species and rainforests of Madagascar (EIA, 2012). Of exports from Madagascar, 95% go to China and the remaining 5% to USA or Europe (Patel* in litt.*, 2012).* *Barrett* et al. *(2010) reported that a conservative estimate of 1137 containers, each carrying 114 rosewood logs each on average, and with a value in excess of USD227.4 million, had been exported since April 2009.* *Patel* in litt. (*2012) reported that there were 500 000 logs stockpiled. Cutting continues in Masoala National Park and Mananara-Nord at least, but there has been no cutting in Marojejy in last 24 months (Patel* in litt.*, 2012).* *Each 150-kilogram log has an approximate market value of USD1300 (National Geographic, 2010).* *A report by Randriamalala (2012a) based on press clippings, cargo manifests and eye-witness accounts indicates that traders are covertly reducing rosewood stockpiles accumulated during a spate of logging in the aftermath of the 2009 regime change. Rosewood logs are reportedly ferried by small boats to "mother ships" anchored from beaches in northeastern Madagascar.*

Supporting Statement (SS)	Additional information
	It has been claimed that the overwhelming majority of exported Madagascar rosewood is illegally logged within Masoala National Park and Marojejy National Park (which are part of the Rainforests of the Antsiranana UNESCO World Heritage Site), as well as Mananara-Nord Biosphere Reserve and the vast Makira Conservation Site) (Jenkins et al*., 2012).* *In 2010 UNESCO added the Madagascan World Heritage Site Rainforests to its list of 'World Heritage in Danger', the vast quantities being felled have been valued at several hundred million dollars worth extracted in 2009 (Jenkins* et al*., 2012).* *Import to Europe and USA have not ceased as several rosewood species are readily available for sale from specialist timber traders on the internet. A brief search on the internet shows various companies selling guitars and other products made of Madagascan Rosewood.* *A wide range of timber sizes has been found by EIA Investigations suggesting indiscriminate felling of rosewood trees of any age and size. Very little, if any rosewood logging is legal (National Geographic, 2010).*

Other information

Threats

In addition to the damage caused by illegal exploitation of *Dalbergia* species, habitat destruction is exacerbated by shifting cultivation and fires.	*Original forest extent was 70-90% land cover, in 2000 it was 16% (Patel* in litt., *2012).* *Illegal logging has emerged as the most severe threat to Madagascar's dwindling north-eastern rainforest. Documented long-term ecological consequences of selective logging in Madagascar include invasion of persistent, dominant non-native plant species, impaired habitat for animals, and a diminution of endemic mammalian species richness (WWF, 2012). Dalbergia species which are not internationally traded for high quality wood are also felled for charcoal and fuel for local use and has caused fragmentation and degradation of vegetation and habitats (Du Puy* et al., *2002).* *According to a WWF study the number of species found in Andranopasy (Southwest Madagascar) is far less than what is expected based on previous inventories in the same area (18 species were inventoried at Mikea forest in 2005). The plausible explanation of this is that their overexploitation resulted in their extirpation from Andranopasy. Most mature individuals in both sites are gone due to illegal logging and the stock of trees with exploitable size is very low in both sites, with almost zero stock for Andranopasy. Ongoing selective logging activities and forest conversions were still being recorded in both sites during the study (WWF, 2012).*

Supporting Statement (SS)	Additional information
Conservation, management and legislation	
The Government of Madagascar plans to increase the size of protected areas as a means to contribute to the conservation of species of *Dalbergia*.	*Five species were listed in CITES Appendix III (Madagascar) at the end of 2011:* D. louvelii, D. monticola, D. normandii, D. purpurascens and D. xerophila. *These species were included in CITES after illegal trade increased by 25% in 2009 and approximately 25 000 m^3 of rosewood were exported.* D. madagascariensis *lacks the typical lustre of rosewood and is not covered by the 'unconditional' export ban of 2010 (Jenkins* et al., *2012).*
Madagascar listed 5 species in Appendix II.	
Rosewoods occur primarily outside protected areas which contain 10 – 25% of the total population.	*Rosewoods are virtually exclusively found inside protected areas (Patel* in litt., *2012).*
	The Government legalised export in December 2009, then on 24 March 2010 Decree 2010-121 was issued which unconditionally bans all harvest, transport or export of rosewood in Madagascar for the next 2-5 years (Barrett et al., *2010). It is unclear if this ban is still in place. In May 2010 the Prime Minister issued a service note permitting export of 79 containers which had been impounded for export under Inter-ministerial Order 38409/2009 (Global Witness and Environmental Investigation Agency, 2010).*
	The illegal logging peaked during 2009 and 2010 and then slowed due to an unconditional export ban in 2010 with heavier penalties being introduced in 2011. However, the order was lifted in January 2012, re-authorising export which is currently under review due to pressures from foreign traders, tourism and conservation groups. A report in the L'Express de Madagascar (15 March 2012) stated that the decree 2010-141 has been reinstated banning the harvest, transport and export of Rosewood (Jenkins et al*., 2012). Illegal logging of this has heavily impacted some reserves such as Betampona Natural Reserve (National Geographic, 2010).*
	The precious timber trade was so widespread it appeared legal. In September 2009, 50% of villagers around the Masoala National Park were at any given time away in the forest harvesting. The situation in 2012 has improved, loggers are being imprisoned and trucks with logs confiscated. However, Rosewood containers are still being exported under false customs declarations (Patel in litt., *2012).*
	The Lacey Act prohibits the import of illegal Malagasy wood into the United States.

Supporting Statement (SS)	Additional information
	Other comments
	Two species listed in the IUCN Red List as occurring in Madagascar are not included in the Annex to the proposal: D. hutibertii *(VN) and* D. catipenonii *(VN).* *Further recommendations that should be implemented include sustainable land use planning strategies, species management policies, chain-of-custody timber tracking and log DNA barcode (Barret* et al., *2010). Research is being carried out to obtain DNA samples for bar coding Dalbergia species (Hassold, S. 2012).* *Due to the lack or poor quality of roads the logs are transported by boat it is estimated that for 100 000 trees logged, at least 500 000 additional trees were felled (e.g.* Dombeya spp*) to make rafts – on average five high buoyancy trees are required to float one log, as well as tens of thousands of vines for binding the rafts were cut (Randriamalala and Liu, 2010).*

Reviewers: M. Barret, C. Birkinshaw, S. Hassold, C. Hin Keong, J. de Koning, J. Nunez-Mino, S. Oldfield, E. Patel, G. Schatz.

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Inclusion of *Senna meridionalis* in Appendix II

Proponent: Madagascar

Summary: *Senna meridionalis* is a deciduous much-branched shrub or shrubby tree, two to five metres tall found only in Madagascar. It is one of 250 or so species of *Senna*, a genus of leguminous plants widespread in the tropics. The species has a relatively extensive distribution over an area of at least 20 000 km^2 in southern and western Madagascar, growing mainly on calcareous soils in arid and semi-arid areas in deciduous forest and thorny scrub. Distribution within this area is fragmented, but the species is at least locally common and is reported from at least two protected areas (Tsimanampetsotsa National Park and Cap Sainte Marie Special Reserve). *Senna meridionalis* has a bonsai-like appearance and is in some demand for the international horticultural trade, chiefly grown by hobbyists. It does not appear to be widely available at present. The plant is reported to have been collected particularly from the Table de Toliara mountain (Andatabo) near Toliara in south-west Madagascar. Malagasy authorities report the export of some 700 in the period 2003–2006, most of these (just under 500) in 2004. No subsequent exports are reported. It may be assumed that some or all of these were wild-collected plants. The species can reportedly be propagated from both seeds and cuttings.

This species was proposed for inclusion in Appendix II of CITES by Madagascar at CoP15. The proposal was withdrawn at the CoP.

Analysis: *Senna meridionalis* has a reasonably widespread distribution in southern Madagascar, where it is at least locally common. It is offered for sale in various parts of the world, but trade appears to be limited. The plants offered for sale range from small individuals grown from cuttings, to larger individuals of unknown origin. Some wild collection is known to have taken place in the early 2000s. No exports have been reported from Madagascar since 2006. Given the distribution of the species and the absence of any reported recent trade from the range State, it seems very unlikely that regulation of trade is necessary to prevent the species becoming eligible for inclusion in Appendix I in the near future, or that harvest for trade is reducing the population to a level at which its survival might be threatened by other influences. The species would therefore not appear to meet the criteria for inclusion in Appendix II.

Supporting Statement (SS)	Additional information
Taxonomy	
Synonyms: *Cassia viguierella* var. *Meridionalis* , *Cassia meridionalis*.	
Range	
Madagascar.	
IUCN Global Category	
	Not currently listed.

Supporting Statement (SS)	Additional information

Biological and trade criteria for inclusion in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)

A) Trade regulation needed to prevent future inclusion in Appendix I

	The species normally grows on limestone and has a very slow growth rate (Rakotoarisoa in litt., *2012).*
Around 420 individuals, of which 150 are mature individuals, were counted in Ahaviro Toliara. Recent observations (since January 2012) in Andatabo, an area of collection, found around 73 mature individuals per hectare, with a total population in this two hectare area estimated to be 146 mature individuals.	*The area of Andatabo, for which population numbers are reported in the proposal, is a much degraded site due to human activities, particularly charcoal production. The sites of Soalaro and Itampolo are thought to be more representative of the population as they are less perturbed. Although no formal population assessment of the species was undertaken at this site, it is thought that the population greatly exceeds 500 individuals as the species is widely distributed on the Mahafaly plateau from Itampolo to Andatabo. All sites noted in the proposal (Itampolo, Tsimanampetsotsa, Andatabo and Soalaro) are parts of Mahafaly Plateau and therefore not thought to be fragmented. All sites are collection sites (Rakotoarisoa* in litt., *2012).*
The species has been assessed using the IUCN criteria as endangered.	*The conservation status of* S. meridionalis *is not published on the IUCN Red List. The IUCN status assessment given in the proposal was assigned using GIS data, which were used to calculate Area of Occupancy and Extent of Occurrence and to predict future decline (PC20 Inf. 4, 2012).*
A future decline of 78% is predicted due to extraction from the wild and habitat destruction through anthropogenic activities.	*The future decline predicted in the proposal is over an unspecified time period. The evidence upon which the decline is predicted is not detailed in the proposal.*
The species has a fragmented and restricted distribution. It is found in the xerophitic thicket of the South West of the island, for example Itampolo Tsimanampetsotsa, Soalaro, and Andatabo. The Area of Occupancy of *S. meridionalis* is 126 km^2 and the Extent of Occurrence is 21 532 km^2.	
The dry thorny thicket of the South west, covers an area of approximately 18 355 km^2 (of which 4.5% is found within protected areas). This type of land cover has reduced by 30% since the 1970s.	
Exploitation for export could lead to the absence of natural regeneration, which is already very low (9%) and the decline or even disappearance of populations in collection areas. In the long term this would pose a serious threat to the species.	

Supporting Statement (SS)	Additional information
B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences	
S. meridionalis is sought after in the international market as an ornamental plant. When its stems are cut, this species takes the form of a bonsai. It is collected from the wild and is reported to be becoming rare. An absence of individuals of juvenile to adult size is observed in areas of collection. Andatabo is the principal area of collection for this species. However, this area did not have any conservation measures in place before 2008.	*Yuan* in litt. *(2012) reports that* S. meridionalis *is sold in Hong Kong and Taiwan POC as seedlings, but notes that mature plants may not be available. Wang and Chen* in litt. *(2012) report that the species is available for sale in China.*
S. meridionalis is exported as a living plant. Reported export numbers of living plants are as follows: 2004 (483), 2005 (166) and 2006 (23).	*No trade was reported subsequent to 2006.*
No illegal trade of *S. meridionalis* has been recorded to date. The species is rarely sold in local markets. The harvest and export of this species is not subject to any regulation.	*A nine-day web survey to investigate web trade for* S. meridionalis *was conducted in 2011. The species was observed to not be subject to wide sales; only three plants and one package of seeds were offered from France and the USA (Augugliaro* in litt., *2012).*
The proposal reports four web sources selling mature plants and seeds of *S. meridionalis* of wild or unknown origin. Price per plant ranged from USD20.35 – 150.00 and per seed USD0.51.	*Additional web sites selling* S. meridionalis *within the price range identified in the proposal were identified during the analysis process. These sellers were based in the USA, Thailand and Reunion. Some sales were of root cuttings, for example a seller in the USA offered small rooted cuttings in one-gallon pots for USD25 and it is noted that a caudex-like trunk will form with time. An individual with 2 cm trunk and 29 cm in height, of unknown origin was available from a seller located in Thailand for USD35. Seeds were available for USD3.4 per seed from a seller based in Reunion. The origin of the material is not provided. It notes the rarity of the species and that it is ideal for bonsai.*
Inclusion in Appendix II to improve control of other listed species	
A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I	
Senna meridionalis is easily identifiable.	

Supporting Statement (SS)	Additional information
Other information	
Threats	
Habitat destruction; the limestone rock found there has been used for making bricks. The habitat of this species has therefore undergone progressive destruction, leading to natural regeneration difficulties.	
Conservation, management and legislation	
Collection and export are only regulated at a national level. Para 7.1 of the SS states: collection and export [of this species] are not subject to any controls. Para 8.1 of the SS states: National management measures are detailed in the proposal: The number of specimens authorised for export is based on the supply of the species in horticultural centres. A single harvest authorization per species per operator is provided, to serve as parental stock. Operators should undertake ex situ reproduction. Permits and exportation authorizations are supplied only for individuals reproduced artificially. Certain populations of this species are found within the National Parks of Andohahela and Tsimanampetsotse, and la Réserve Spéciale de Cap Sainte Marie. Other populations are assumed to be found in the new protected areas of Amoron'ny Onilahy, which would reinforce the conservation of the habitat of *S. meridionalis.*	*The level of national legislation afforded to this species is unclear as the proposal notes that harvest and export are not subject to regulation and later that they are subject to national authorization procedures. Information as to whether national management measures have been enforced or how successfully is not provided. Expert reviewers were asked to provide additional information about national legislation and its effectiveness but none of the comments received clarified this.* *According to PlantSearch, an online database of botanic garden collections maintained by Botanic Gardens Conservation International (BGCI), 7 gardens record holding S*. meridionalis *in their collection. None of these gardens are within Madagascar, potentially limiting their involvement in restoration activities.* *In addition,* S. meridionalis *is also held in the collections of Phyto-Logic Paradise Gardens and Arboretum d'Antsokay in Madagascar. Phyto-Logic Paradise Gardens have not attempted propagation of the species yet (Cooke* in litt., *2012). It is not known whether Arboretum d'Antsokay is propagating the species.*
Captive Breeding/Artificial Propagation	
Even though propagation from seed is easy for this species, harvesters have a tendency to collect from the wild.	S. meridionalis *is reported as being easily grown and in varying light, water and soil conditions (Anon, undated).* *Bihrmann* in litt. *(2012) notes that* S. meridionalis *is rather fast growing. Small seedlings do form the caudex. Propagation is rather easy from seed as well as cuttings. Cuttings do not form the same size caudex.*
Other comments	
This species was already the subject of a study on trade with the aim of its integration in Annex II of CITES in 2010. Biological and ecological data obtained were updated and supplemented for the preparation of this new proposal.	

Supporting Statement (SS)	Additional information
Under an agreement between the CITES Secretariat and the Scientific Authority Flore-Madagascar, *S. meridionalis* will continue to be the subject of research in 2012 to supplement existing data. In addition to the species' ornamental value, the wood is used for construction and the leaves have medicinal value, used to treat haemorrhoids.	

Reviewers: C. Augugliaro, S. Rakotoarisoa, D. Newton.

Inclusion of *Adenia firingalavensis* in Appendix II

Proponent: Madagascar

Summary: *Adenia firingala*vensis is a climbing succulent shrub with a caudiciform (swollen) stem and roots. It is one of 100 or so members of *Adenia*, a genus widespread in Madagascar and Africa. It is endemic to Madagascar where it is reportedly widespread and common, occurring from the north of the island to the south, chiefly in the west but with populations also recently discovered in the eastern part of the country. The species is used locally in Madagascar in traditional medicine. The bark is used to treat scabies. Its habitat is affected by a number of factors, including agricultural expansion, bushfires and charcoal production. The species has appeared in the live-plant trade and is available to buy in Asia, Europe and the USA. Seeds and small plants are available to purchase from various sources, as well as mature individuals with a developed caudex stem. Propagation from seed is reported to be easy but slow, and propagation from cuttings possible but rather difficult. Demand generally appears to be relatively low. Some trade from Madagascar has been reported - just over 450 exported in the period 2003-2006, the great majority (358 in 2004). It is likely that most if not all of these were wild-collected. No export trade has been reported since 2006. Current legal controls in Madagascar on collection and export are unclear.

The species was proposed for inclusion in Appendix II at CoP15 but the proposal was withdrawn at the meeting. At CoP15 one Malagasy *Adenia* species (*Adenia olaboensis*) was included in Appendix II; no trade in it has been recorded under CITES since the listing.

Analysis: *Adenia firingalavensis* appears to be a widespread and common plant in Madagascar. There has been some collection from the wild for export as live plants which may have led to localised depletion at collection sites, but no export has been reported since 2006 and the species is not reportedly in wide demand. It is extremely unlikely that regulation of trade is necessary to prevent the species becoming eligible for inclusion in Appendix I in the near future, or that harvest for trade is reducing the population to a level at which its survival might be threatened by other influences. The species would therefore not appear to meet the criteria for inclusion in Appendix II.

Supporting Statement (SS)	Additional information
Taxonomy	
Synonyms: *Ophiocaulon firingalavense.*	
Range	
Madagascar.	
IUCN Global Category	
	Not currently listed.

Supporting Statement (SS)	Additional information

Biological and trade criteria for inclusion in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)

A) Trade regulation needed to prevent future inclusion in Appendix I

The species has a wide distribution and is found in all deciduous forests of Western, South western and Southern Madagascar. It is partly found within the protected areas of la Réserve Spéciale d'Ankarana, Bemaraha National Park, Ankarafantsika National Park and the Mikea forests les Réserves Spéciales de Kirindy and Andranomena.	*Petignat and Cooke (2009) report that* Adenia firingalavensis *is common in the North and West of Madagascar. Rauh (1998) reports that the species is distributed from Sambirano in the north to Morondava-Manja in the south. These distributions align with the map presented in the proposal.* *The Plant Resources of Tropical Africa (PROTA) website reports that* Adenia firingalavensis *is generally common.*
The species is found in two main types of habitat; dry thorny thicket and dry forest. The dry thorny thicket of the South and South West of the island covers an area of approximately 18 355 km^2, (4.5% is located within protected areas) and has reduced by 29.7% since the 1970s. The dry forest of the West of the island covers an area of 31 970 km^2 (of which 17% is within protected areas). This type of forest reduced by 39.7% since the 1970s.	*Hearn* in litt. *(2012) notes that* A. firingalavensis *is widespread and common; many new populations of* A. firingalavensis *were found in eastern Madagascar between Antalaha and Daraina during surveys in the early 2000's and 2010. Hearn also notes distribution in the South of the island. Hearn* in litt. *(2012) comments that* A. firingalavensis *is a very variable species, some of these distinct forms from the south are likely to be more threatened than the Eastern elongate forms.*
The species is reported to have been assessed as vulnerable using the IUCN criteria.	*The species is not currently listed on the IUCN Red List. The IUCN status (Vulnerable) given in the proposal was assigned using GIS data, which were used to calculate Area of Occupancy and Extent of Occurrence and to predict future decline (PC20 Inf. 5, 2012).*
The Area of Occupancy of *A. firingalavensis* is estimated to be 99 km^2 and the Extent of Occurrence is estimated to be 91 994 km^2. The area occupied by the species continues to decrease each year due to fires and deforestation caused by the expansion of agricultural lands. The distribution is fragmented.	*It is not clear what the basis for the estimation of area of occupancy is, given the extremely widespread distribution; it is like to be a considerable underestimate. Hearn* in litt. *(2012) notes that the area occupied by the species is likely to be greater than the reported estimate of 99 km^2.*
The species has a fairly low density, between 60 and 70 individuals per hectare. Regeneration potential is low; 18.2% at Beroboka and 150% at Andranomena. A future population decline of 70% is predicted due to wild collection and habitat destruction.	*The proposal notes a future decline of 70%. It does not mention over what time frame this decline is expected.*
The species is collected from the wild and, in collection areas, individuals of a commercially exploitable size are reported as becoming increasingly rare.	
Harvesting could lead to the absence of natural regeneration and the decline or even disappearance of populations in certain areas of collection. In the long term this would pose a serious threat to the survival of the species. As the geographic	

Supporting Statement (SS)	Additional information
distribution of the species is fragmented, collectors change areas of collection as one area becomes exhausted.	
B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences	
The species is a sought after ornamental plant on the international market. It is exported as a living plant. Reported exports of living plants are as follows: 2003 (18), 2004 (358), 2005 (68), 2006 (10), 2007 (0) and 2008 (0). No illegal trade in the species has been recorded to date. The species is rarely traded in local markets.	*The species is reported to be very easy to see in the north of Mahajanga (18 km from the town) and collection of mature individuals for sale to the international market is reported from this locality. The number of plants has been observed to be decreasing due to wild collection (Rakotonasolo* in litt., *2012).* *Hearn* in litt. *(2012) notes that* A. firingalavensis *is collected by hobbyists, but he has not seen the plant sold in other contexts.* *Reports of trade in the species are rather conflicting. Cattabriga* in litt. *(2012) reports that the species is often available on European markets in the form of small specimens of wild origin. Eggli* in litt. *(2012) reports that there is no substantial market for large ex-habitat specimen plants and that the hobby community interested in the warmth-loving Madagascan succulents is not very large. He also notes that the demand from public gardens should be negligible due to CBD/ABS regulations.* *The Plant Resources of Tropical Africa (PROTA) website reports that the species is traded internationally as an ornamental, but on a small scale only*. *PROTA reports that the species is likely to remain of marginal economic importance* (Oyen, 2010). *Dotort (2007) reports that the genus Adenia are 'not easy to find for sale, but a few succulent garden nurseries are currently propagating them'.* *Yuan* in litt. *(2012) reports that* A. firingalavensis *is common in China, with trade being mainly of seeds and small seedlings. However, Wang and Chen (2012) report that although the species is available for sale in China, sales are limited.* *Rakotonasolo* in litt. *(2012) reports that seedlings of* A. firingalavensis *are slender and not considered attractive, so collector interest is limited to mature individuals. However, the presence of seeds and seedlings in trade indicates that there is also interest in small plants. This is confirmed by Hearn* in litt. *(2012) who reports that smaller seedlings are still quite desirable in the succulent trade.*
The proposal reports three web sources selling mature *A. firingalavensis* plants or	*A web review confirms the availability of* A. firingalavensis *to purchase from online*

Supporting Statement (SS)	Additional information
seeds. The majority are of unknown origin. One source sold propagated material. Prices per plant ranged from USD75.00 – 236.72 and per seed USD1.41.	*sources. Seed, small plants and larger individuals with developed caudex stems were offered.* • *An individual with developed caudex base was offered for USD38 from a seller in the USA. The origin of the plant is unknown.* • *Individuals with small base (1/2 - 3/4inch) were available for USD12 from a seller in the USA. The origin of the plant is unknown.* • *Individuals are offered at a price of USD4.80 from a seller in China. The origin and size of the plants is unknown.* *A nine-day web survey to investigate web trade for* A. firingalavensis *was conducted in 2011 that identified seven plants and two packages of seeds offered from Germany, the Netherlands and the USA, with prices ranging from USD5 to 75 (Augugliaro* in litt., *2012).*

Inclusion in Appendix II to improve control of other listed species

A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I

	The species is highly variable and bears some resemblance to a number of other Malagasy Adenia *species, only one of which,* A. olaboensis, *is included in Appendix II. The latter species was included in Appendix II in 2010. No trade in this has been reported since then.*

Other information

Threats

In addition to collection from the wild, habitat destruction by various anthropogenic activities results in a gradual decline of the number of existing populations.	*Collection for traditional purposes appears to be limited. A poor quality fibre can be produced from the stem. The wax covering the stem is also collected. The plant is very toxic so its use as a medicinal plant is limited to experienced traditional healers (Oyen, 2010)*.
Forests are disappearing rapidly and are becoming fragmented due to charcoal production from wood, agricultural expansion for maize production and bushfires to create new pasture for livestock.	*The population at Mahajanga is reported to be being destroyed due to charcoal production (Rakotonasolo* in litt., *2012).*

Conservation, management and legislation

Collection and export are regulated at a national level.	*The level of national legislation afforded to this species is unclear as the proposal notes that harvest and export are not subject to regulation and later that they are*

Supporting Statement (SS)	Additional information
Para 7.1 of the SS states: collection and export [of this species] are not subject to any controls. Para 8.1 of the SS states: National management measures are detailed in the proposal: The number of specimens authorised for export is based on the supply of the species in horticultural centres. A single harvest authorization per species per operator is provided, to serve as parental stock. Operators should undertake ex situ reproduction. Permits and exportation authorizations are supplied only for individuals reproduced artificially.	*subject to national authorization procedures. Information as to whether national management measures have been enforced or how successfully is not provided. Expert reviewers were asked to provide additional information about national legislation and its effectiveness but none of the comments received clarified this.*
Part of the habitat of *A. firingalavensis* is located within protected areas (Ankarana, Bemaraha, Kirindy, Andranomena, Kirindy Mitea, and Tsimanapetsotsa). The recently delineated new protected areas could broaden the conservation areas for this species, such as Corridor Bongolava, Amoron'ny Onilahy and Ekodida. A trade study was carried out previously for *A. firingalavensis* with the aim of its integration in Appendix II of CITES in 2010. The proposal suggests that to ensure the sustainability of the species, licenses and export permits must be limited to artificially propagated specimens.	Adenia firingalavensis *is also reported in Tsingy de Namoroka protected area (Anon, undated).* *According to the online database of Botanic Gardens Conservation International (BGCI), PlantSearch, 13 gardens record holding* A. firingalavensis *in their collection. None of these gardens are within Madagascar, potentially limiting their involvement in restoration activities.* *The species is not held in the collection of Phyto-logic Paradise Gardens in Madagascar (Cooke* in litt., *2012). The Parc Botanique et Zoologique de Tsimbazaza (PBZT) in Madagascar holds five mature individuals of* A. firingalavensis *which are around 25 years old. No propagation from seeds has been undertaken (Rakotonasolo* in litt., *2012).*
Captive Breeding/Artificial Propagation	
Propagation from seed is easy but slow. Propagation from cuttings is possible.	*Bihrmann* in litt. *(2012) reports that* A. firingalavensis *is a slow growing species. Small seedlings do form the caudex. Propagation from cuttings is also possible, but rather difficult. Hearn* in litt. *(2012) notes that rooted stem cuttings are not as desirable as seedlings and field collected plants.* *No propagation of* A. firingalavensis *has been observed in Madagascan nurseries (Rakotonasolo* in litt., *2012). It is therefore assumed that all exports are wild collected specimens.*
Other comments	
A. firingalavensis was proposed for inclusion in Annex II at CoP15 in 2010. Biological and ecological data obtained were updated and supplemented for the preparation of this new proposal.	*Several other Malagasy* Adenia *species such as* A. epigea, A. litoralis, A. stylosa, A. boivinii, A. lapiazicola, *and* A. metamorpha *resemble* A. firingalavenis*. Some of these are rare and have been exported.*

Supporting Statement (SS)	Additional information
Under an agreement between the CITES Secretariat and the Scientific Authority Flore-Madagascar, *A. firingalavensis* is the subject of research in the year 2012 to supplement existing data.	*Hearn* in litt. *(2012) notes that the species' appearance varies a lot across its range, from small succulent plants to elongated forms.* *Eggli* in litt. *(2012) reports that differentiating between the various taxa is difficult, and that this is especially true when plants are shipped as pruned individuals, and without leaves or other growth. Hearn (2007) suggests using molecular and morphological data, that the form* A. firingalavensis var. stylosa*, is a separate species,* A. stylosa.

Reviewers: C. Augugliaro, A. Cattabriga, U. Eggli, D. Hearn, D. Newton, F. Rakotonasolo.

Inclusion of *Adenia subsessifolia* in Appendix II

[According to the standard nomenclatural reference adopted by the Conference of the Parties, this species is named *Adenia subsessilifolia*]

Proponent: Madagascar

Summary: *Adenia subsessilifolia* is a succulent plant with caudiciform roots and tubers. It is one of 100 or so members of *Adenia*, a genus widespread in Madagascar and Africa. It is endemic to Madagascar; it occurs in the southern part of the country where it has been recorded at various locations from Toliara in the west to Andohahela in the east. It forms a low-lying multi-branched herb or sub-shrub. It is reported not to grow at high densities but is evidently relatively widespread within its range and is known from at least three protected areas (Cap Sainte Marie Special Reserve and Andohahela and Tsimananpetsotsa National Parks). Its habitat is affected by clearance for agriculture and charcoal production, and by fire. The species has been in international trade as a horticultural plant, chiefly grown by specialist collectors. However, it is reported not to be considered particularly attractive and demand is said to be low. It is reportedly very difficult to extract mature wild plants intact from the limestone in which they grow; in contrast, artificial propagation is said to be easy, although information on the latter is inconsistent. However, some wild collection has been reported, notably from the Table de Toliara Mountain near Toliara in the early 2000s. The CITES Management Authority of Madagascar has reported a small number of specimens (126) exported in the period 2003-2006, virtually all (115) in 2004; it seems likely that at least some of these were wild-collected. No export has been reported since 2006. Very few plants have been found offered for sale outside Madagascar recently. Prices are low, indicating that they are very likely to have been artificially propagated. Current legal controls in Madagascar on collection and export are unclear.

The species was proposed for inclusion in Appendix II at CoP15 but the proposal was withdrawn at the meeting. At CoP15 one Malagasy *Adenia* species (*Adenia olaboensis*) was included in Appendix II; no trade in it has been recorded under CITES since the listing.

Analysis: *Adenia subsessilifolia* is a relatively widespread plant in southern Madagascar, easy to propagate but difficult to collect from the wild. It has in the past appeared in international trade with at least some of these specimens very likely to have been wild-collected. However, no trade from the range State has been recorded for the past six years and the species is evidently in low demand in horticulture. The few specimens offered for sale recently are very likely to have been artificially propagated. It seems highly unlikely that regulation of trade is necessary to prevent the species becoming eligible for inclusion in Appendix I in the near future, or that harvest for trade is reducing the population to a level at which its survival might be threatened by other influences. The species would therefore not appear to meet the criteria for inclusion in Appendix II.

Supporting Statement (SS)	Additional information
Range	
Madagascar.	
IUCN Global Category	
	Not currently listed.

Supporting Statement (SS)	Additional information

Biological and trade criteria for inclusion in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)

A) Trade regulation needed to prevent future inclusion in Appendix I

The species has reportedly been assessed as endangered using the IUCN criteria.

A combination of large-scale collection for export and the destruction of habitat is causing the gradual decline in the population, which is predicted in the future to decline by 82%.

In 2006, approximately 100 individuals were counted in the mountains of Toliara (Andatabo) and 50 mature individuals were counted at Cap Sainte Marie and at Behara. Approximately 76 mature individuals per ha were counted at Andatabo, an area in which collectors operate where *A. subsessilifolia* has become very rare. Due to habitat degradation, natural regeneration is disrupted and has become very low. Regeneration potential at collection sites is 22%.

The species has a restricted distribution from the Toliara region to la Réserve Spéciale de Cap Sainte Marie. The Area of Occupancy of *A. subsessilifolia* is 117 km^2 and the Extent of Occurrence is 32 541 km^2.

Populations are very fragmented. *A. subsessilifolia* is found in the dry thorny thicket of the South West of the island (4.5% is found within protected areas). This type of land cover has reduced by 29.7% since the 1970s.

Subpopulations have been recorded in the national parks of Cap Sainte Marie, Andohaela and Tsimanapetsotse.

The absence of individuals at a size suitable for exportation can be seen at collection sites. Collection can prohibit natural regeneration and cause decline or even the disappearance of populations in the areas of collection.

As the geographic distribution of the species is fragmented, collectors change areas of collection when individuals at previous collection sites are exhausted.

A. subsessilifolia *is not currently listed on the IUCN Red List. The IUCN status estimate given in the proposal was assigned using GIS data, which were used to calculate Area of Occupancy and Extent of Occurrence and to predict future decline (PC20 Inf. 4, 2012).*

Hearn in litt. *(2012) notes that during fieldwork in the early 2000s his team came across multiple individuals of* A. subsessilifolia*, in particular along the roadside between Toliara and St. Augustin. He notes that these species were intact in the early 2000s.*

A. subsessilifolia *is noted to be rare in comparison with* A. firingalavensis *(which is also proposed for inclusion in Appendix II at CoP16). Field observations in Andohahela National Park provide an estimated distribution of 4-5 mature individuals per hectare. It is noted that sometimes during a 2 km walk in this area no individuals of this species are observed (Rakotonasolo* in litt., *2012).*

B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences

This species is difficult to uproot, due to its swollen roots with one or more tubers.

Collection of this species from the wild is noted to be rare and extraction is reported to

Supporting Statement (SS)	Additional information
When collectors are unable to harvest the whole plant including the root, they reject the plant without replanting it. There are uprooted seedlings scattered at collection sites in the Andatabo area.	*be very difficult from the limestone upon which it grows (Rakotonasolo* in litt., *2012).*
The species is exported internationally as an ornamental plant in the form of seedlings. Reported exports of living plants are as follows: 2003 (0), 2004 (115), 2005 (3), 2006 (8), 2007 (0) and 2008 (0).	*The vegetative part of the plant is reported not to be attractive, so international trade is low if any (Rakotonasolo* in litt., *2012).*
No illegal trade in *A. subsessilifolia* has been recorded. The species is rarely sold in local markets.	*Eggli* in litt. *(2012) reports that there is no substantial market for large ex-habitat specimen plants and that the hobby community interested in the warmth-loving Madagascan succulents is not very large. He also notes that the demand from public gardens should be negligible due to CBD/ABS regulations.* *Trade in* A. subsessilifolia *is reported to be uncommon in mainland China, but common in Hong Kong and Taiwan (Yuan* in litt., *2012).*
Two web sources of *A. subsessilifolia*, selling mature plants of unknown origin are reported in the proposal. Prices per plant ranged from USD8.00 – 15.65.	*Dotort (2007) reports that the genus Adenia are 'not easy to find for sale, but a few succulent garden nurseries are currently propagating them'.* *A web review identified records of previous sales of seeds of* A. subsessilifolia *(sales made in 2010). Seed sales were not reported in the proposal.* *A nine-day web survey to investigate web trade for* A. subsessilifolia *was conducted in 2011. Only one plant was found offered from USA for USD5.50 (Augugliaro* in litt., *2012).*
Inclusion in Appendix II to improve control of other listed species **A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I**	
	The species is reported to be relatively easy to distinguish from other Adenia *species, only one of which,* A. olaboensis *is currently included in the Appendices. The latter, also endemic to Madagascar, was included in Appendix II in 2010. No trade in it has been reported since then.*

Supporting Statement (SS)	Additional information
Other information	
Threats	
Habitat destruction.	*Its habitat is affected by clearance for agriculture and charcoal production, and by fire (Jenkins* in litt., *2012).*
Conservation, management and legislation	
Collection and export are only regulated at a national level. Para 7.1 of the SS states: collection and export [of this species] are not subject to any controls. Para 8.1 of the SS states: National management measures are detailed in the proposal: The number of specimens authorised for export is based on the supply of the species in horticultural centres. A single harvest authorization per species per operator is provided, to serve as parental stock. Operators should undertake ex situ reproduction. Permits and exportation authorizations are supplied only for individuals reproduced artificially. The delineation of new protected areas including the preferential collection area of Andatabo could contribute to the conservation of the species and its habitat.	*The level of national legislation afforded to this species is unclear as the proposal notes that harvest and export are not subject to regulation and later that they are subject to national authorization procedures. Information as to whether national management measures have been enforced or how successfully is not provided. Expert reviewers were asked to provide additional information about national legislation and its effectiveness but none of the comments received clarified this.* *According to PlantSearch, an online database of botanic garden collections maintained by Botanic Gardens Conservation International (BGCI), 6 gardens record holding* A. subsessilifolia *in their collection. None of these gardens are within Madagascar, potentially limiting their involvement in restoration activities.* *The species is not held in the collection of Phyto-logic Paradise Gardens in Madagascar (Cooke* in litt., *2012) or the Parc Botanique et Zoologique de Tsimbazaza (PBZT). Efforts were made to grow individuals from seed collected at Andohahela in the nursery at PBZT but this was not successful (Rakotonasolo* in litt., *2012).*
Captive Breeding/Artificial Propagation	
Propagation by seed is easy but slow. Propagation by cuttings is also possible.	*Rakotonasolo* in litt. *(2012) reports that propagation from seed is reported to be very difficult. It is thought that a particular substrate may be needed for successful propagation from seed. However, Hearn* in litt. *(2012) reports that the species propagates well from stem cuttings and seeds. Cuttings produce the tubers and growth habit that is typical from seedlings. Hearn also notes that as the species propagates well there is no reason for field collection of mature plants, which are very hard to extract intact from the field.*
Other comments	
Adenia subsessilifolia was previously the subject of a trade study in 2010, providing information for its integration in Appendix II of CITES at CoP15. Under an agreement between the CITES Secretariat and the Scientific Authority Flore-Madagascar, *A.*	*The tubers are bitter and inedible (Schmelzer and Gurib-Fakim, 2008).* *Hearn* in litt. *(2012) notes that he wouldn't consider the species to be a succulent*

Supporting Statement (SS)	Additional information
subsessilifolia will continue to be the object of research for the year 2012 to supplement existing data. Biological and ecological data obtained were updated and supplemented for the preparation of this new proposal. The leaves of *Adenia* plants are eaten by butterfly larvae of the genus *Acrae.* The local population prepare a powder from the stems of the plant which is used to heal wounds.	*liana, as stated in the proposal. It almost always remains as a low-lying, multi-branched herb or sub-shrub. Only occasionally do stems become long vines, in which case the stem remains narrow with a low degree of woodiness.* *The species resembles a* Seyrigia *plant. It is easy to distinguish from other* Adenia *species by its subsessile leaves which are the smallest of all the Madagascan species (Rauh, 1998).* *Hearn* in litt. *(2012) also notes that the species resembles Seyrigia and that few other taxa resemble* A. subsessilifolia. *Eggli* in litt. *(2012) reports that differentiating between various Adenia taxa is difficult, and that this is especially true when plants are shipped as pruned individuals, and without leaves or other growth.*

Reviewers: C. Augugliaro, A. Cattabriga, U. Eggli, D. Hearn, D. Newton, F. Rakotonasolo.

Inclusion of *Uncarina grandidieri* in Appendix II

Proponent: Madagascar

Summary: *Uncarina grandidieri* is a succulent shrub, one of around ten species in the genus, all of which occur in Madagascar. It has a wide though evidently patchy distribution in south-west and southern Madagascar, from the Mangoky River basin in the region of Morondava southwards. It grows in dry thorny thicket and dry forest, habitats that are affected by conversion to agriculture, burning and charcoal production. Ground observations have provided a population estimate of 420 individuals in a 2 hectare plot within the protected area of Beza-Mahafaly Special Reserve. The species is also reported from Andohahela National Park in south-east Madagascar. It is in cultivation, both as an ornamental plants (apparently on a small scale) in Madagascar and elsewhere. It is said to be easy to propagate from seeds and cuttings and to grow rapidly. Export of plants was reported in the early 2000s, amounting to around 4600 plants in the period 2000-2005, with highest exports (just over 2000) in 2004. No plants were reported in 2006 and export has not been reported since then. The majority of the limited trade outside Madagascar at present appears to be in seeds or plants propagated from seeds or cuttings. Current legal controls in Madagascar on collection and export are unclear.

Analysis: *Uncarina grandidieri* has a wide distribution in south and south-west Madagascar. It is in cultivation, and is reportedly easy to propagate. Recent trade outside Madagascar appears to be very largely in seeds or in propagated plants. Some export of plants, some or all of which are presumed wild-collected, has taken place in the past, although there is no indication of ongoing export of plants from the range State. The scale of the reported trade is small compared with the likely population of the species based on observed densities. It seems very unlikely that regulation of trade is necessary to prevent the species becoming eligible for inclusion in Appendix I in the near future, or that harvest for trade is reducing the population to a level at which its survival might be threatened by other influences. The species would therefore not appear to meet the criteria for inclusion in Appendix II.

Supporting Statement (SS)	Additional information
	Taxonomy
	Synonyms: Uncaria grandidieri, Uncarina didiera, Uncarina dimidiata, Harpagophytum dimidiatum, Harpagophytum grandidieri *(Eggli* in litt., *2012).*
	Range
Madagascar.	
	IUCN Global Category
	Not currently listed.

Supporting Statement (SS)	Additional information

Biological and trade criteria for inclusion in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)

A) Trade regulation needed to prevent future inclusion in Appendix I

Ground observations in December 2009 in the South West region, within la Réserve Spéciale de Bezé-Mahafaly, provided information about the abundance of *Uncarina grandidieri*: It was estimated that there were approximately 210 mature individuals per ha, and the estimated area occupied by *U. grandidieri* within the reserve is two hectares, giving a total population estimate within the reserve of 420 individuals.

A study into the regeneration of *U. grandidieri* showed regeneration difficulty with a regeneration rate of 52%. International trade could lead to the absence of natural regeneration and the decline or even the disappearance of populations in areas of collection which in the long term would be a serious threat to the species.

A future decline of 77% is predicted (a figure of 64% is also given).

Two different figures are presented in the proposal for predicted future decline and neither is over a specified time period. The evidence upon which the decline is predicted is not detailed in the proposal.

In 2011, the conservation status of *U. grandidieri* according to IUCN criteria was estimated to be endangered.

The conservation status of U. grandidieri *is not published on the IUCN Red List. The IUCN status assessment given in the proposal was assigned using GIS data, which were used to calculate Area of Occupancy and Extent of Occurrence and to predict future decline (CITES, 2012).*

Uncarina grandidieri has a narrow distribution in Madagascar. It is only found in the South of the Island with the majority of occurrence outside of protected areas. The Area of Occupancy of *U. grandidieri* is less than 500 km^2 (297 km^2) and the Extent of Occurrence is 342 260 km^2.

The Extent of Occurrence quoted in the proposal is large (342 260 km^2). However, the text reports that the distribution is restricted and the map presented in Annex I of the proposal shows a smaller distribution. It is thought that the figure may be misreported.

The species is found in two main types of habitat, dry thorny thicket and dry forest. The dry thorny thicket of the South and South West of the island covers an area of approximately 18 355 km^2, of which 4.5% is located within protected areas. This type of land cover has reduced by 29.7% since the 1970s. The dry forest of the West of the island covers an area of 31 970 km^2, of which 17.1% is within protected areas. This type of forest has reduced by 39.7% since the 1970s.

Rauh (1998) reports that U. grandidieri *grows in the same regions as* U. decaryi: *in the Mangoky river basin, in the Mandrare valley, near Ampanihy, Ambovombe, Tsihombe and Faux Cap (all in the South of Madagascar).*

In exploited areas, individuals reaching a size suitable for commercial export are becoming increasingly rare.

Supporting Statement (SS)	Additional information
B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences	
All species of *Uncarina* are ornamental plants sought after in international markets. *U. grandidieri* is currently traded legally in international markets as young living plants and as seed. *U. grandidieri* is collected from the wild and is reported as becoming rare as a result.	*Yuan* in litt. *(2012) reports that* U. grandidieri *is common in China and that trade is of cultivated plants.*
Reported exports of living plants are as follows: 2000 (321), 2001 (3), 2002 (8), 900 in 2003 (900), 2097 in 2004 (2097), 1314 in 2005 (1314) and 0 in 2006 (0).	*Export figures for years subsequent to 2006 are not provided in the proposal. The availability of seeds in international trade is not reported in the proposal.*
No illegal trade in *U. grandidieri* has been registered. The species is rarely sold in local markets. The harvest and export of *U. grandidieri* are not currently subject to any international regulation and collectors have a tendency to abstract large numbers.	
A study by Royal Botanic Gardens Kew found ten web sources of *U. grandidieri*, selling mature plants or seedlings. Their origin is not recorded. Price per plant ranged from USD30-500.	*A further web review found seeds of* U. grandidieri *available from sellers in Germany (USD3.37 for 10 seeds) and the UK (USD4.43 for five seeds, the seller notes* U. grandidieri *is rarely offered). An additional seller located in the Netherlands offers packs of 20 seeds for USD11.70, 100 seeds for USD47.05 and 1000 seeds for USD313.66. The origin of the seeds is not reported.* *A web review also identified individuals were found for sale at a price lower than that noted in the proposal. A seller in Germany offers individuals of* U. grandidieri *for USD18.30, the origin of material and the size of the individual offered is not provided. A seller based in the USA offers individuals for USD24.95, but information on size or origin is not provided.* *An additional nine-day web survey to investigate web trade for* U. grandidieri *was conducted in Autumn 2012. One plant and three packages of seeds of* U. grandidieri *were found sold. The plant has been sold from UK to Singapore. Another thirteen plants and one package of seeds were offered from Germany, USA, New Zealand, UK, and South Africa. The price of four plants was over USD100 The highest price reached USD500 (Augugliaro* in litt., *2012).* *Other species of* Uncarina *were also identified as available to buy from online searches, including* U. decaryi *which has a similar distribution to* U. grandidieri *and species with a smaller distribution, such as* U. roeoesliana *(distribution information taken from Rauh, 1998).* *A two day review of web sellers based in Japan selling* U. grandidieri *was conducted*

Supporting Statement (SS)	Additional information
	(04-05 December 2012). Two websites selling U. grandidieri *plants were identified (although these directed to the same source) and one website selling seeds was identified (TRAFFIC Japan, 2012).*

Inclusion in Appendix II to improve control of other listed species

A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I

	U. grandidieri, *when not in leaf and/or pruned, will be difficult to distinguish from other species of the genus (Eggli* in litt., *2012).* U. stellulifera *is proposed for inclusion in Appendix II (CoP16 Prop. 68).* *The fruits of U.* grandidieri, U. roeoesliana *and* U. decaryi *are very similar and cannot be distinguished with certainty, but the species can be distinguished by their habit, shape of the lamina and especially by the structure of their indumentums (Eggli, 2002).*

Other information

Threats

Habitat degradation by slash and burn agriculture threatens *U. grandidieri*. The increasing expansion of the shifting cultivation of maize and associated fires along with grazing animals constitutes a serious threat to habitat.	

Conservation, management and legislation

Collection and export are only regulated at a national level. Para 7.1 of the SS states: collection and export [of this species] are not subject to any controls. Para 8.1 of the SS states: National management measures are detailed in the proposal: The number of specimens authorised for export is based on the supply of the species in horticultural centres. A single harvest authorization per species per operator is provided, to serve as parental stock. Operators should undertake ex situ reproduction. Permits and exportation authorizations are supplied only for individuals reproduced artificially. Part of the Area of Occupancy of *U. grandidieri* is within protected areas; Andohaela National Park and la Réserve Spéciale de Bezé-Mahafaly. The State policy to increase the extent of protected areas and define new protected areas could add to	*The level of national legislation afforded to this species is unclear as the proposal notes that harvest and export are not subject to regulation and later that they are subject to national authorization procedures. Information as to whether national management measures have been enforced or how successfully is not provided. Expert reviewers were asked to provide additional information about national legislation and its effectiveness but none of the comments received clarified this.*

Supporting Statement (SS)	Additional information
the conservation of the species in its natural habitat.	
Captive Breeding/Artificial Propagation	
Propagation from cuttings is successful for *Uncarina* species, but it is also possible from seed. The proposal states that e*x situ* propagation is needed to create supplies for export. The local population also grow the species in enclosed gardens and as an ornamental plant.	*The species is of very easy cultivation as long as warmth and sufficient space is available. It is fast growing. The plants held at Sukkulenten Sammlung, Zuric, are pot-bound or planted out in a greenhouse and grow vigorously and flower regularly. Seed is easily produced in cultivation but since plants are self-sterile, at least two specimens are necessary. Propagation through cuttings is also straightforward (Eggli* in litt., *2012). The usual method of using a small brush to transfer pollen between plants doesn't work due to the specific pollination requirements of* U. grandidieri *(Bihrmann, undated). Small seedlings do form the caudex, but the caudex is not significant on even large plants. Seeds are common and propagation from cuttings is possible (Bihrmann* in litt., *2012).* U. grandidieri *is noted to be appreciated by collectors due to its long lasting showy blooming and rather easy cultivation: (Puccio, undated).* *According to the online database of Botanic Gardens Conservation International (BGCI), PlantSearch, 45 gardens record holding* U. grandidieri *in their collection. The majority of these gardens are located in Europe and the United States of America. In addition to this, U. grandidieri is also held in the collection of Phyto-Logic Paradise Gardens in Madagascar. The original specimen has been in the garden for more than 10 years. This botanic garden is propagating* U. grandidieri *and* U. stellulifera *from cuttings and both species are being planted in gardens within the city of Antananarivo, where the botanic garden is located (Cooke* in litt., *2012).*
Other comments	
Information on this species was presented to the Plants Committee in 2011. Biological and ecological data obtained were updated and supplemented for the preparation of this new proposal. This species plays an important role in the daily life of the local population, due to its uses in traditional medicine. *Uncarina* also have therapeutic qualities, the roots, leaves and stems are used in traditional medicines. The *Uncarina* genus is also known for its use as a cosmetic plant. The leaves and stems are mainly used for hair care (such as hair regrowth and dandruff treatments). The leaves of *U. grandidieri* are used by cosmetic manufacturers to make shampoo and by local populations as soap. The constant removal of leaves from individuals throughout the year could affect the reproductive capacity of the species.	*Pollination is by beetles (Bihrmann, undated).*

Reviewers: C. Augugliaro, A. Cattabriga, U. Eggli, D. Newton.

Inclusion of *Uncarina stellulifera* in Appendix II

Proponent: Madagascar

Summary: *Uncarina stellulifera* is a succulent shrub, one of around ten species in the genus, all of which occur in Madagascar. It has a relatively wide though evidently patchy distribution in south-west Madagascar, from Morondava southwards, where it grows in dry thorny thicket and dry forest, habitats that are affected by conversion to agriculture, burning and charcoal production. One observation on the ground found a density of around 160 mature individuals per hectare. The species is known to occur in at least three protected areas (Beza-Mahafaly Special Reserve and Kirindy-Mitea and Tsimanampetsotsa National Parks). The species is in cultivation, both as an ornamental plant (apparently on a small scale) in Madagascar and elsewhere. The species is said to be easy to propagate from seeds and to grow relatively rapidly. Some export of plants was reported in the early 2000s, amounting to just under 700 plants in total in the period 2000-2006, with a peak of just over 340 in 2004. It is not clear how many of these were wild collected. Export since 2006 has not been reported and the majority of the limited trade outside Madagascar at present appears to be in seeds. Current legal controls in Madagascar on collection and export are unclear.

Analysis: *Uncarina stellulifera* has a relatively wide distribution in south-west Madagascar. It is in cultivation, and is reportedly easy to propagate. Recent trade outside Madagascar appears to be largely in seeds. Some export of plants, presumed wild-collected has taken place in the past, although there is no indication of ongoing export of wild-collected plants The scale of the reported trade is very small compared with the likely population of the species based on observed densities. It seems very unlikely that regulation of trade is necessary to prevent the species becoming eligible for inclusion in Appendix I in the near future, or that harvest for trade is reducing the population to a level at which its survival might be threatened by other influences. The species would therefore not appear to meet the criteria for inclusion in Appendix II.

Supporting Statement (SS)	Additional information
Range	
Madagascar.	
IUCN Global Category	
	Not currently listed.

Biological and trade criteria for inclusion in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)

A) Trade regulation needed to prevent future inclusion in Appendix I

Ground observations in December 2010 in the South West region provided information about the abundance of *U. stellulifera*. It was estimated that within this region there were approximately 160 mature individuals per ha, and the estimated	

Supporting Statement (SS)	Additional information
area occupied by the species in this region was 1.5 hectares, giving a total subpopulation estimate in this region of 240 individuals.	
A future decline of 85% is predicted.	*The future decline predicted in the proposal is over an unspecified time period. The evidence upon which the decline is predicted is not detailed in the proposal.*
Regeneration of *U. stellulifera* is difficult, with a regeneration rate of 43.8%.	
In 2011, the species was assessed as endangered using the IUCN criteria.	*The conservation status of* U. stellulifera *is not published on the IUCN Red List. The IUCN status assessment given in the proposal was assigned using GIS data, which were used to calculate Area of Occupancy and Extent of Occurrence and to predict future decline (PC20 Inf. 5, 2012).* U. stellulifera *is reported as Near Threatened (NT) in the Guide des Plantes Medicinales et Alimentaires, but it is reported that if the plant is not soon brought under some type of conservation measure the species will be moved to one of the threatened categories (MPSG and Missouri Botanical Garden, 2011).*
U. stellulifera has a limited distribution, restricted to the South West of Madagascar. The Area of Occupancy is less than 500 km^2 and the Extent of Occurrence is 9,105 km^2. The zone occupied by the species continues to decrease due to diverse threats and pressures. The species is found in two main types of habitat, dry thorny thicket and dry forest. The dry thorny thicket of the South and South West of the island covers an area of approximately 18 355 km^2 (of which 4.5% is located within protected areas). This type of land cover has reduced by 29.7% since the 1970s. The dry forest of the West of the island covers an area of 31 970 km^2 (of which 17.1% is within protected areas). This type of forest reduced by 39.7% since the 1970s. In collection areas, commercially exploitable individuals are reported as becoming increasingly rare. Collectors have to go further to find the species as it is no longer found in areas of previous collection, close to inhabited areas. The level of harvest and international trade could lead to the cessation of natural regeneration and the decline or even disappearance of populations in areas of collection which in the long term would constitute a serious threat to the species.	*The species is reported to be scattered from Mahafaly Plateau around Itampolo and Tsimanampetsotsa Lake to Morondav, not only from Tsimanampetsotsa Lake to North of Toliara as reported in the proposal (Rakotoarisoa* in litt., *2012).* *Observations in Manja (South of Morondava) in March 2012 reported an important population of mature individuals of* U. stellulifera *from Manja to Andranompasy (West towards the beach) (Rakotoarisoa* in litt., *2012).*
B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences	
Uncarina stellulifera is traded legally internationally as a living plant.	*Yuan* in litt. *(2012) reports that trade of* U. stellulifera *is not common in China and that trade that is there, is of seed.*

Supporting Statement (SS)	Additional information
Reported export numbers of living plants are as follows: 2000 (17), 2001 (2), 2002 (0), 2003 (10), 2004 (343), 2005 (154) and 2006 (136).	*No trade was reported subsequent to 2006.*
No illegal trade in *U. stellulifera* has been registered. The species is rarely sold in local markets.	
A study by the Royal Botanic Gardens Kew found four web sources selling mature plants and seeds of *U. stellulifera* of wild or unknown origin. Price per plant was USD70.00 and per seed ranged from USD0.66 – 2.52.	*A further web search found various sites selling seeds of* U. stellulifera. *No seedlings or mature plants were found for sale. Seeds were identified as available from sellers in the USA and Réunion. Packages of up to 50 seeds could be purchased, at a price of USD20.09. Other species of* Uncarina *were noted to be available to buy from online sellers, including species with narrow distributions, such as* U. roeoesliana*.* *An additional nine-day web survey to investigate web trade for* U. stellulifera *was conducted in Autumn 2012, which identified three packages of seeds sold and eighteen packages of seeds offered from the USA and Réunion. Prices of seeds ranged from USD10 (for 10 seeds) to USD30 (for 50 seeds) (Augugliaro* in litt., *2012).*
Inclusion in Appendix II to improve control of other listed species	
A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I	
	U. stellulifera *when not in leaf and/or pruned will be difficult to distinguish from other species of the genus (Eggli* in litt., *2012).* U. grandidieri *is proposed for inclusion in Appendix II (CoP16 Prop. 68).*
Other information	
Threats	
Habitat degradation by slash and burn agriculture threatens *U. stellulifera*. The increasing expansion of shifting cultivation of maize and associated fires along with grazing animals constitutes a serious threat to habitat.	
Conservation, management and legislation	
Collection and export are only regulated at a national level. Para 7.1 of the SS states: collection and export [of this species] are not subject to any controls.	*The level of national legislation afforded to this species is unclear as the proposal notes that harvest and export are not subject to regulation and later that they are subject to national authorization procedures. Information as to whether national management measures have been enforced or how successfully is not provided. Expert reviewers were asked to provide additional information about national*

Supporting Statement (SS)	Additional information
Para 8.1 of the SS states: National management measures are detailed in the proposal: The number of specimens authorised for export is based on the supply of the species in horticultural centres. A single harvest authorization per species per operator is provided, to serve as parental stock. Operators should undertake ex situ reproduction. Permits and exportation authorizations are supplied only for individuals reproduced artificially.	*legislation and its effectiveness but none of the comments received clarified this.*
Certain populations of *U. stellulifera* are found within the National Park of Tsimanampetsotsa and la Réserve Spéciale de Bezà-Mahafaly. The State policy to increase the extent of protected areas and define new protected areas could add to the conservation of the species in its natural habitat.	U. stellulifera *is also recorded in the Kirindy Mitea national park (Anon, undated).*
The proposal suggests that reintroduction of the species to previous collections zones should be undertaken.	
Captive Breeding/Artificial Propagation	
The proposal suggests that e*x situ* propagation is needed to create supplies for export. Propagation from cuttings is successful for *Uncarina* species, but it is also possible from seed.	*The species can be propagated easily from vegetative stem cuttings (Rakotoarisoa* in litt., *2012). Like other* Uncarina *spp., cultivation is easy as long as warmth and space is available. Propagation through seed (easily obtained via cross-pollination) or cuttings is straight-forward, and plants are rapid growers, so horticultural demand should be easy to meet via seed-grown plants (Eggli* in litt., *2012). Bihrmann* in litt. *(2012) reports that* U. stellulifera *grow rather fast. Seeds are common and propagation from cuttings does work but may be slightly difficult.* *According to the online database of Botanic Gardens Conservation International (BGCI), PlantSearch, 17 gardens record holding* U. stellulifera *in their collection. All of these gardens are located in Europe or the United States of America. In addition to this,* U. stellulifera *is also held in the collection of Phyto-Logic Paradise Gardens in Madagascar. The original specimen has been in the garden for more than ten years. This botanic garden is propagating* U. stellulifera *and* U. grandidieri *from cuttings and both species are being planted in gardens within the city of Antananarivo, where the botanic garden is located (Cooke* in litt., *2012). Parc Botanique et Zoologique de Tsimbazaza in Madagascar holds one individual of* U. stellulifera*. The plant was collected as a wild seedling and the garden is not currently propagating the species.*
The local population grow the species in enclosed gardens as an ornamental plant.	*Observations support the presence of the garden as an ornamental plant in a small number of gardens in rural areas and towns in the South of Madagascar. It is thought these plants may also be used for shampoo from the leaves, but this is not confirmed (Rakotoarisoa* in litt., *2012).*

Supporting Statement (SS)	Additional information
Other comments	
Information on this species was presented to the Plants Committee in 2011. Biological and ecological data obtained were updated and supplemented for the preparation of this new proposal. This species has an important role in the daily lives of local people for its uses within traditional medicine. The *Uncarina* genus is also known for its use as a cosmetic plant. The leaves and stems are mainly used for hair care (such as hair regrowth and dandruff treatments). The leaves of *U. stellulifera* are used by cosmetic manufacturers to make shampoo and by local populations as soap. The constant removal of leaves from individuals throughout the year could affect the reproductive capacity of the species.	*Midgley and Illing (2009) hypothesised that the curious, heavily burred fruits of* Uncarina *spp. evolved to be dispersed on the feet of now-extinct elephant birds* Aepyornis. *U. stellulifera is also used in traditional medicine as a love spell (Ravaosolo, 2009).*

Reviewers: C. Augugliaro, A. Cattabriga, U. Eggli, D. Newton, S. Rakotoarisoa.

Inclusion of East African Sandalwood *Osyris lanceolata* in Appendix II

Proponent: Kenya

Summary: East African Sandalwood *Osyris lanceolata* is a semi-parasitic shrub or small tree with wood that yields a commercially important aromatic oil. The species occurs in a range of open habitats, generally in arid and semi-arid environments. It is widespread, occurring mainly in the tropics and some parts of the Mediterranean. It is uncertain whether the recorded distribution for some countries relates to introduced plants.

Subsistence uses of the species in East Africa include timber, fuelwood and herbal medicines. In the past decade, populations in Kenya and United Republic of Tanzania (Tanzania) have been intensively harvested to supply the international trade in sandalwood. Exploitation is reported to have spread to South Sudan and Uganda. Whole trees are uprooted for extraction of the oil that is contained in the trunk, branches and roots. In Tanzania processing factories were established in 2004 and trade in East African Sandalwood was first reported in Kenya in the same year. Increase in use of the species may be associated with a decline in supply of oils and associated products from other sandalwood species (primarily *Santalum* spp., and Red Sanders *Pterocarpus santalinus*, the latter being included in CITES Appendix II). Wood of *Osyris lanceolata* is exported to China and India and semi-processed products to Indonesia, India, South Africa, France, Germany and eastern Asia countries for the cosmetic and pharmaceutical industry.

In Kenya, the species has a wide but scattered distribution and population abundance is apparently low. Very few young plants have been observed in recent field surveys, with most stands aged 20 – 45 years. Studies at various localities reveal poor regeneration potential. Populations have reportedly been declining since 2002, as a result of the heavy exploitation for international trade. The sharp rise in extraction in Kenya is believed to be linked to overexploitation of the resource in Tanzania. In Tanzania, declines have been recorded in various parts of the country including Arusha, Manyara and Kilamanjaro Regions and the Eastern Arc Mountains. There is currently little information on the status of *Osyris lanceolata* in most other parts of its range, although there is no evidence of large-scale exploitation elsewhere. The species has been assessed nationally in both Namibia and South Africa as Least Concern.

Osyris lanceolata was protected in Kenya by Legal Notice No 3176 of 2007 under the Forests Act, 2005. This gave protection to the species for a period of five years to allow for the development of sustainable harvesting mechanisms.

Analysis: *Osyris lanceolata* is a widespread shrub or small tree from the tropics and subtropics, whose original range is unclear but is probably Africa and localised parts of southern Europe. It yields an aromatic oil that is in international demand. Exploitation in East Africa for production of oil and associated products began relatively recently (2004) and has apparently led to population declines in Kenya and Tanzania, with harvest reported now to be spreading to South Sudan and Uganda. However, the species is very widespread and at least locally common outside this region and there is no evidence of large-scale exploitation elsewhere. In view of this, the species would not appear to meet the criteria for inclusion in Appendix II set out in Annex 2 a of *Resolution Conf. 9.24 (Rev. CoP15).*

Supporting Statement (SS)	Additional information
Taxonomy	
Osyris lanceolata Hochst. & Steud. (1832).	*The genus is considered in the proposal to be monotypic but The Plant List (2012) lists two other accepted species names for the genus:* Osyris speciosa *(A.W. Hill) J.C. Manning & Goldblatt, and* Osyris alba *L. The African Plant Database (2012) also lists* Osyris compressa *(P. J. Bergius)*.
13 synonyms listed in the proposal.	*Great variation in leaf size and shape has elicited a considerable synonymy in this species. There are 15 synonyms listed on The Plant List and African Plants Database (2012).*
Range	
Africa: Kenya, United Republic of Tanzania, Uganda, South Sudan, Rwanda, Burundi, Malawi, Mozambique, Ethiopia, Algeria, South Africa, Zambia and Zimbabwe. Also in Europe (Iberian Peninsula and Balearic Islands), Asia (India to China).	*Also Democratic Republic of Congo, Morocco, Namibia, Botswana, Asia (India to SE Asia) (Flora Zambesiaca, 2012).* *According to Orwa* et al. *(2009) the tree is native to Kenya, Tanzania and South Africa and has been planted in Ethiopia, Mozambique, Zimbabwe, Namibia and Botswana.*
IUCN Global Category	
	Not currently listed.

Biological and trade criteria for inclusion in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)

A) Trade regulation needed to prevent future inclusion in Appendix I

Various assessments have been undertaken for trees of East Africa but do not include this species according to information provided by the East African Plant Red List Authority. O. lanceolata *was assessed as Least Concern against IUCN criteria in 2012 owing to its large extent of occurrence, area of occupancy and wide habitat and altitudinal range (Kalema and Beentje, 2012).*

O.lanceolata *was listed as Least Concern in the Red List of South African Plants in 2005 (Foden and Potter, 2005) and as Low Risk/Least Concern in the Southern African Plant Red Data List for Namibia in 2002 (Craven and Loot, 2002).*

B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences

The main traded products of *O. lanceolata* include aromatic oils extracted from the	*According to Dale and Greenway (1961), Breintenbach (1963), Walker (1966) and*

Supporting Statement (SS)	Additional information
heartwood, timber for handicrafts and sawdust for making incense. Heartwood of the trunk, branches and roots contain the essential oil, with highest concentrations in the roots. The oil is used in perfumery, pharmaceutical, religious and medicinal practices. The East African Sandalwood oil has been found to have comparable properties with the true Sandalwood oil although of different quality.	
Prior to entering into the international commercial market in 2004, Kenya's population of East African Sandalwood was used locally for timber, fuel or for herbal medicine at subsistence levels. Commercial exploitation started in Tanzania in 2004 and spread to Kenya in 2006 which is now the leading country for exports. Commercial exploitation has spread to South Sudan and Uganda.	
In Tanzania four sandalwood processing factories were established and licensed in 2004, but due to shortage of raw materials, three were closed down and only one in Babati, Manyara region is still operational. This factory sources its raw materials from most parts of East Africa. In 2011, Uganda authorized several shipments of *O. lanceolata,* some transiting through Kenya and others through Tanzania.	*Mwang'ingo* in litt. *(2012), the use of* Osysris lanceolata *as a substitute/supplement of Indian sandalwood in Tanzania seems to have started before 1960. Within Tanzania, harvesting was initially concentrated in a few populations yielding good quality material (Mwang'ingo* et al., *2003). Increased use of this species began in the early 1990s following a decline in the global sandalwood supply (exports are banned in India and Australia) leading to a decline in the resource and disappearance of the species in some areas. Sandalwood sourced from Africa is expected to remain a large part of the global resource for the next 5 – 10 years. As international volumes of sandalwood have declined, its price has steadily increased over the past few decades (Mwang'ingo* et al., *2003, cited in Page.* et al., *2012).*
Massive and unsustainable exploitation of this species triggered a ban on its harvesting and trade in Kenya in 2007 (Legal Notice No 3176 of 2007). During the period 2007 – 2011, 276 t of sandalwood material were seized and confiscated in Kenya. The most recent seizure of such materials in Kenya was on 18th September 2012 in Nairobi.	*African Sandalwood is harvested from natural populations of* O. lanceolata *in Chad, Sudan, Ethiopia, Uganda, Tanzania and Kenya (Mwang'ingo* in litt., *2012).*
Markets for specimens of *O. lanceolata* have been recorded in Germany, South Africa, France, India, Middle Eastern countries, United Kingdom, and the United States. There are no clear records on trade of the *O. lanceolata* but it is estimated that 1000 t are annually harvested from Africa, mostly from East Africa. It has been projected that East African Sandalwood is going to contribute significantly to global sandalwood oil trade in the coming 5-10 years. Currently, trade on *O. lanceolata* is exclusively harvested from the wild.	*In Kenya, a study carried out in 2005 revealed that the tree has been overexploited in the areas around Oloitoktok, where the species was formerly common, and the ranches in Kuku, Endonet and Rombo. Due to the overexploitation and resultant scarcity, exploitation then extended to Chyulu and Kibwezi areas. The abundance was reported to increase in Chyulu but it was noted that the only remaining alternative of getting the raw materials is Chyulu national park (Mathenge* et al*., 2005).* *Subsequently it was reported that Kenya is losing the sandalwood tree to illegal harvesting in Kajiado, Taita, Amboseli and surrounding ranches, Samburu, Koibatek, and Kikuyu Escarpment amongst other areas. In the Chyulu hills the tree still grows in abundance compared to the other areas (Kenya Forests, 2009).* *A study in the Chyulu hills, Kenya (Ochanda, 2011) showed that locals used sandalwood both for commercial purposes and subsistence medicinal purposes for the treatment both for animals and people such as treatment of snake bites. Due to illegal harvesting, most of the mature trees have been removed. Attempts at local nursery propagation have been unsuccessful. Although the tree is dioecious and it*

Supporting Statement (SS)	Additional information
	produces seed three times a year, propagation by seed is challenging as most of the seedlings died in the nursery and after transplanting, (presumably due to the absence of host plants). *In Tanzania, the species has been recorded from the following Districts: Arumeru, Monduli, Kilolo, Ludewa, Makete, Mufindi, Njombe, Same, Babati, Mbeya Rural, Kilosa, Rufiji, Sumbawanga Rural ("Ufipa" in text), Singida Rural, and Lushoto (Tropicos.org).* *In Tanzania, a small factory operating in Tanga was the major consumer of sandalwood obtained from Lushoto, Same and Kilamanjaro but due to unsustainable overharvesting the traditional sources ran out. Harvesting has since shifted to Babati, Kondoa, Handeni-Kiteto, Singida, Mbulu and to a lesser extent Iringa. The stock is nearly extinct in the Eastern Arc Mountains with few remnants harvested, in Lushoto and Mwanga Districts. Baga, Mazumbai and Mkuzu FRs and the surrounding general lands are the key areas where* O. lanceolata *is found, there is illegal harvesting in Lushoto District, Mramba and Minja FRs. Malimbwi* et al. *(2006) reported six legally registered processing industries in Tanzania with annual demand of 6000 t (which seem too high compared to the existing stock or supply)* (*Forestry and Beekeeping Division, 2007).* *In Tanzania, the Ngorongoro Conservation Area Authority reported increased illegal logging in Ngorongoro and Karatu districts, Arusha Region, stating that in the past the trees used to be found in many parts of Arusha, Manyara and Kilamanjaro Regions but many have now disappeared. Buyers pay for truck loads of tree trunks, branches and roots – in 2011 10 t of illegally harvested sandalwood logs were impounded. (Tanzania Daily News, 2012; Arusha Times, 2011).* *In Uganda, the areas of occurrence are mainly close to Kenya in Karamoja and Mbale. This poses a potential problem of easy smuggling of material from either country into the other, depending on where there are 'softer' regulations and control measures. There are unconfirmed reports of some exploitation but this does not seem to be much since the supply is limited. The species often naturally grows in low abundance in its areas of occurrence (Kalema* in litt., *2012).* *It is thought that one large sandalwood processing plant currently operates in Babati with a monthly consumption of about 40 m^3 thus making an annual requirement of about 500 t. The rest of the sandalwood is likely to be exported as raw material (Mwang'ingo* in litt., *2012). Unregistered sandalwood processing plants are reported to be in Dar (Chenga* in litt., *2012).*

Supporting Statement (SS)	Additional information
	Various references state that the demand from India has surged following the decline in Indian and Australian Sandalwood (Machua et al., *2009; Mwang'ingo* et al., *2003). India is the major importer of timber products from Tanzania including all sandalwood exported in the last half of 2005 (Milledge* et al., *2007).*
Inclusion in Appendix II to improve control of other listed species **A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I**	
Other species that could be considered similar by virtue of the derivatives sought by the market, are the true sandalwoods of the *Santalum* genus mainly *Santalum album* and *S. spicatum.*	*Sandalwood is a common name of many other plant species together with their wood and oils. The genus* Santalum *has about 25 species and* Thesium, *the largest genus in the family Santalaceae, has over 300 species (Mabberley, 2008).* Pterocarpus santalinus *(Red Sandalwood) is the only "Sandalwood" currently listed under CITES, on Appendix II.* *Due to the inter-changeable common names and uses for these various "Sandalwood" species, combined with the facts that these species are often traded as derivatives (oils, wood chips and incense) and are globally distributed, serious enforcement issues are likely to arise if* O. lanceolata *is listed in Appendix II.* *The mixing of Indian sandalwood products with imported African sandalwood has reduced the confidence in sandalwood products originating from India (Page* et al., *2012).*

Supporting Statement (SS)	Additional information
Threats	
O. lanceaolata commonly called East African Sandalwood (or false Sandalwood) has recently entered the international market as a substitute for the traditional sandalwood oil derived from species of *Santalum*. Diminishing populations and strict regulations on Australian sandalwood, *Santalum spicatum* and Indian Sandalwood *Santalum album* have lead to increasing demands for East African Sandalwood. The tree is exploited for its aromatic essential oils found in the heartwood which matures from 15 years (good quality oil has only been obtained from *S. album* and *S. spicatum* of ages 30 years and above). Older trees are targeted and destructive harvesting methods are used where the whole plant is uprooted. Coupled with poor recruitment rates, slow growth and attack by diseases and pests, exploitation is having a detrimental impact on the population. There are reported cases of unsustainable exploitation of *O. lanceolata* from Kenya, Tanzania, Uganda, and South Sudan. In Kenya, highly affected areas include Baringo, Pokot, Taita, Samburu and Chyulu hills. In Kenya, habitats of *O. lanceolata* face threats from conversion for agriculture and mining.	*A taskforce of government institutions was formed to look into the harvesting and trade of sandalwood. In its preliminary survey report it says that poverty in the areas where this species occurs is an underlying factor that might make the fight against the illegal trade difficult to win. Communities around Chyulu National Park earn KShs 4 to KShs 7 for every kilo harvested, which the middleman sells at Kshs 80 per kilo. Successful intervention measures therefore would have to address poverty, and alternative livelihoods (Kenya Forests, 2009).* *Harvesting has now moved into national parks where reasonable resources are still available, compared to small amount that can be collected on public land (Mwang'ingo* in litt*., 2012).*
Conservation, management and legislation	
Kenya and Tanzania have Decrees controlling trade in wild harvested specimens of the species. *O. lanceolata* is protected in Kenya and Tanzania under Presidential decrees. In Kenya, Legal Notice No 3176 of 2007 under the Forests Act (2005) placed East African Sandalwood under Presidential Protection to allow for development of mechanisms for sustainable harvesting of the species. Further, species exploitation is regulated by the Wildlife Act Cap.376, Environment and Management Coordination Act, 1999, and The Constitution of Kenya, 2010. Kenya and Tanzania have initiated programs for carrying out species status assessments that will lead to establishment of certification measures for sustainable harvesting of *O. lanceolata*. Both countries have initiated baseline surveys as a basis for species monitoring. Scientific information generated in Kenya and Tanzania shows that currently significant subpopulations of the species in the two countries exist in protected areas, while most of the specimens harvested have been from non-protected areas.	*The Kenyan Wildlife Service has been instrumental in enforcing the 2007 presidential decree to protect East African Sandalwood from exploitation through illegal trade and has managed to eradicate the illegal harvesting of the plant within protected areas (Karanja, 2012). However, Kenyan forestry agencies have faced difficulties in enforcing the ban on sandalwood exploitation (Kenya Forests, 2010).* *The Presidential Decree was issued on 14th February 2007 effective for five years (State House Kenya, 2007; Kenya Law, 2007). As the Presidential Decree expired in March 2012 there is currently no legal protection for the species in Kenya. The Draft Wildlife Bill for the Republic of Kenya (2011) states this species is nationally listed as a protected Endangered species and also as a wild species for which game farming may be allowed. This is yet to be accepted.* *In Tanzania there are gaps in the legal framework as to banning of harvest and allowing processing (ACP FLEGT, 2012). The existence of a Decree in Tanzania is disputed (Anon* in litt*., 2012).*
Captive Breeding/Artificial Propagation	
There are no established plantations in the species range States. Kenya and Tanzania are, however, actively involved in research and development for improved	*Preliminary investigations on the regeneration potential of the tree showed that the tree regenerates primarily by exposed root suckers.*

Supporting Statement (SS)	Additional information
propagation to enhance establishment of the species in large scale plantations.	*The Drylands Forestry Research Programme led by Kenya Forestry Research Institute (2011) has been focusing on development of technologies for propagation, establishment and management of* O. lanceolata*. Various propagation methods have been tried with varying degrees of success. Seed germination was found to be low, slow and highly variable among seedlots. Propagation through cuttings was hindered by a severe endogenous fungal attack whereas propagation through air layering resulted in over 60% rooting, success. An attempt to propagate East African Sandalwood through tissue culture established a surface sterilization protocol for explant materials. The main problem has been to find a suitable host. Establishment of the species at the nursery required a primary host such as the grain legume* Cajanus cajan*. Indigenous wild fruits such as* Rhus natalensis *and* Carissa spinarum *resulted in higher survival over an 18 months period (Kamweti* et al., *2009; Machua* et al., *2009).* *The Kitui Regional Research Centre has undertaken research on the domestication of high value indigenous tree species including* O. lanceolata*.* *Seeds of the species are being conserved by the Millennium Seed Bank.*
	Other comments
	In October 2008 40 t harvested in Maralal (Samburu district) were seized at Namanga. Kenya Wildlife Service seized a further 20 t in 2009 and made 40 arrests. As transportation became increasingly difficult it is being processed into chips and sawdust by traders which facilitates transport and export in packages similar to cigarette packs, often sent as 'free samples' which are exempt from duty. In Kenya it is well protected but the volume of impounded products is not well recorded so it is not possible to gauge the scale of illegal activities that are undermining its conservation (Gichora, 2011). *Information from the Kenya Plant Health Inspectorate Service indicates that sandalwood from Kenya is sometimes transported in oil tankers to Tanzania which is difficult to monitor (ACP FLEGT, 2012).* *In 2011 over 10 t of illegally harvested sandalwood was impounded (Tanzania Daily News, 2012).*

Reviewers: S. Ball, H. Beentje, J. Chenga, R. Gereau, J. Kalema , J. de Koning, J. Lovett, P. Mwang'ingo, D. Newton, J. Timberlake and A. Timoshyna.

Proposal: To delete annotation to the listing of Aquilaria spp. and Gyrinops spp. in Appendix II, and replace it with a new annotation with new number as follows:

All parts and derivatives, except:
a) seeds and pollen;
b) seedling or tissue cultures obtained *in vitro*, in solid or liquid media, transported in sterile containers;
c) fruits;
d) leaves;
e) mixed oil containing less than 15% of agarwood oil, attached with labels of following words
"Mixed oil containing xx% of agarwood obtained through controlled harvesting and production in collaboration with the CITES Management Authorities of XX (name of the export state) ";
samples of the labels and list of relevant exporters should be communicated to the Secretariat by export states and then inform all parties through a notification;
f) exhausted agarwood powder, including compressed powder in all shapes;
g) finished products packaged and ready for retail trade, this exemption does not apply to beads, prayer beads and carvings.

Proponent: China, Kuwait, Indonesia

Summary: *Aquilaria* and *Gyrinops* are two genera of trees in the family Thymelaeaceae, the former with 15 generally recognised species, the latter with eight, distributed from India to New Guinea. In some trees, a still imprecisely understood combination of wounding, vectors of infection (bacterial infection, fungus) and resinous response induces the formation of a resinous heartwood (agarwood) that is fragrant and highly valued. The primary source of agarwood in reported trade is *Aquilaria malaccensis*. Agarwood is used in perfumes, incense and traditional medicines, and as an essential oil, distilled from the wood. Carvings and beads, including prayer beads, are also produced from the wood. So-called exhausted wood powder – the residue left after the distillation process – is often compressed to make incense sticks and small statues.

All agarwood-producing taxa are currently included in Appendix II; *Aquilaria malaccensis* was listed in 1994, and the rest of the genus *Aquilaria* and *Gyrinops* spp. in 2004. The two genera are currently covered by annotation #4, the relevant parts of which are: “All parts and derivatives, except: a) seeds, spores and pollen (including pollinia); b) seedling or tissue cultures obtained *in vitro*, in solid or liquid media, transported in sterile containers; c) cut flowers of artificially propagated plants”.

International agarwood trade is complex, as it is traded in a variety of forms and at various stages of processing, from raw whole pieces to finished products such as perfumes, which may contain only small amounts of agarwood oil. Some processing of agarwood to produce end-products takes place in range States; some takes place elsewhere with resulting products, either sold domestically or re-exported to other consumer countries.

Of the main products in trade, large whole pieces of wood may be traded for further processing or for sale as prestige items; wood chips are traded for burning as 'incense wood', or for further processing; un-exhausted powder is generally a by-product of carving or wood chip production and is traded for further processing; exhausted powder is also traded for further processing; oil may be traded in pure form or in various concentrations for further processing; the various end-products listed above (carvings, beads and prayer beads, medicines, incense sticks, perfumes, tea etc.) are also traded.

At present all these parts and derivatives are covered by the Appendix-II listing.

According to the CITES trade database the key *Aquilaria* commodities originating from the wild reported in export have been wood chips and powder. Wild-origin timber and pieces are also reported as exported in fairly high quantities. Some wild origin oil has been exported, with quantities of oil reported as exports by range States recently showing an upward trend. *Gyrinops* species are recorded in trade in much lower quantities than *Aquilaria;* wood chips are the main commodity reported in trade.

The proponents seek to adopt a new annotation that will apply only to *Aquilaria* spp. and *Gyrinops* spp.. The relevant differences between the proposed annotation and existing annotation #4 are the **exemption of**: fruits; leaves; mixed oil containing less than 15% of agarwood oil (labelled as indicated); exhausted agarwood powder, including compressed powder in all shapes; finished products packaged and ready for retail trade, except for beads, prayer beads and carvings.

Two of the proponents of the present proposal (Indonesia and Kuwait) have also proposed an amendment to *Resolution Conf. 13.7 (Rev. CoP14)* on control in trade of personal and household effects (see document CoP16 Doc. 47) to exempt the following when they are deemed personal or household effects: - Specimens of agarwood – up to 1 kg woodchips, 60 ml oil, and two pieces of beads, (or prayer beads, necklaces, bracelets) per person.

Analyses: Under *Resolution Conf. 11.21 (Rev. CoP15)* regarding Use of Annotations in Appendices I and II, the Parties recommended that two main principles be followed as standard guidance when drafting future annotations for medicinal plants:
i) controls should concentrate on those commodities that first appear in international trade as exports from range States; these may range from crude to processed material; and
ii) controls should include only those commodities that dominate the trade and the demand for the wild resource.

The essential questions are whether any of the products proposed for exemption in the current proposal meet the above criteria or not, and if not whether exempting them would create implementation problems for regulation of the other products in trade that do meet these criteria.

Leaves and **fruits** are a minor part of the trade, and can be non-destructively harvested. It would appear that exempting these from CITES controls will not cause conservation, implementation or enforcement problems.

Oils: Because current CITES reporting does not indicate the percentage purity of oils in trade, it is not possible to determine what proportion of the reported export trade in agarwood oil from range States at present is accounted for by oils less than 15% purity. From an understanding of the trade dynamics it can be inferred that oil at less than 15% concentration is likely to be relatively small and that it is therefore not a product that dominates the initial export trade or the demand for the wild resource. It also seems likely that products containing less than 15% agarwood oil are likely to be finished products packaged for the retail trade, which would in any case be exempted under proposed paragraph g).

It is not clear how easy it would be to distinguish oils of less than 15% purity from more concentrated or pure oils. Realistically, for mixed oils this would have to be based on labelling. The proposal is for a form of labelling similar to that currently used for *Hoodia* spp. (see proposal CoP16 Prop. 52) to distinguish the two. This labelling is not known to have been used in practice, at least in part because the commercial demand for *Hoodia* extract has not materialised to the extent anticipated when the taxon was listed in 2004. It is not clear from the present agarwood proposal whether this labelling is intended to apply to all agarwood mixed-oil products in trade, or only those exported by range States. It is assumed that labelling of this form would not be expected to apply to finished products composed of or containing mixed-oils, as these would be exempted under paragraph g) for which no such labelling is specified.

Powder: A substantial amount of reported export from range States of agarwood has been in the form of powder. These quantities are likely to include un-exhausted powder (i.e. not a byproduct of any distillation process), which would not be exempt from Appendix-II controls. It is not clear how easy the two forms might be to distinguish, although the proponents state that there are consistent differences between the two forms. Exhausted powder is clearly not a product that dominates the demand for the wild resource and is unlikely to dominate the trade, although because at present different kinds of powder are not distinguished in the CITES trade database, it is not possible to determine what proportion of the powder reported in trade is exhausted.

Finished products The kinds of finished products that would be included in the exemption are not specified. The proponent notes in the supporting statement that the exemption does not apply *inter alia* to patent medicines; however the proposal would exclude “g) finished products packaged and ready for retail trade” and does not mention not exempting patent medicines, which would presumably be considered to be “finished products”.

Background Information

Table: All trade in key *Aquilaria* commodities as reported by exporter (excluding re-exports) 1995 onwards.

Aquilaria species	Commodity	Source	Quantity	Unit
	Chips	Wild	7255770	kg
	Chips	Art Prop	410197	kg
	Timber/timber pieces/sawn wood/logs	Wild	323994	kg
	Timber/timber pieces/sawn wood/logs	Wild	300	CUM
	Timber/timber pieces/sawn wood/logs	Art Prop	50424	kg
	Powder	Wild	1353756	kg
	Powder	Art Prop	176188	kg
	Oil	Wild	1307	kg
	Oil	Wild	1269	litres
	Oil	Art Prop	6010	kg
	Oil	Art Prop	46.4	litres
	Derivative/extract	Wild	1030	kg
	Derivative/extract	Art Prop	1852	kg

Table: *Aquilaria* wood equivalent calculations for oil and derivative/extract reported as exports (excluding re-exports), 1995 onwards.

Commodity	Source	Quantity	Unit	Pure Oil wood equivalent (kg) *	15% oil wood equivalent
Oil	Wild	1307	kg	188208	28231
Oil	Wild	1269	litres	182736	27410
Oil	Art Prop	6010	kg	865440	129816
Oil	Art Prop	46.4	litres	6682	1002
Derivative/extract	Wild	1030	kg	148320	22248
Derivative/extract	Art Prop	1852	kg	266688	40003

Antonopoulou *et al.* (2010) suggest a conversion rate of 1kg or 1 litre of pure oil requiring 144 kg* of wood. This would equate to nearly 520 000 kg additional wood (chips) to produce the amount of wild sourced oil and derivatives reported in the table above, assuming all shipments are of pure oil. If all shipments were of oil less than 15%, this would equate to a maximum of around 80 000 kg of wood.

Notable amounts of oil (and extract) have been reported as re-exported (Wild: 15 280 kg and 1044 litres; Artificially Propagated 206 kg) which are significantly higher than quantities reported as exports. These figures lend support to observations (Compton *in litt*., 2012) that significant volumes of oil extraction are carried out in end-processing markets, such as the Middle East.

CoP16 Inf. 3 notes that "powder" can be in two forms:

- Not exhausted Sawdust & Powder - Fine Agarwood substance obtained mostly as by product while working on Agarwood chips or grounded/fine Agarwood. Usually dark in colour with odour.
- Exhausted Powder - The residual Agarwood powder which has been distilled to obtain Agarwood oil and does not contains any essential oil. Usually pale with little odour.

Exhausted powder is often traded as a secondary product for use in forming incense sticks. For high quality end-products, merchants prefer to grind wood chips to make their own powder, so that they can be sure of its purity, rather than importing possibly adulterated supplies from source country or middlemen traders (Compton *in litt.*, 2012).

A TRAFFIC report on agarwood trade in Malaysia estimates that the oil extraction process produces approximately 7 kg of exhausted powder from 15 kg chips (Lim and Awang Anak, 2010). If all the powder reported as exported in CITES trade data were 'exhausted powder' this would have been the equivalent of around 3 million kg of chips, using this calculation. This is far in excess of the amount of powder that would have been produced as exhausted powder from the quantities of oil from wild sources. It would therefore appear that all powder exported is not "exhausted". The proposal only seeks to exclude exhausted powder, which is said to be distinguished from non-exhausted powder by its pale colour and little odour.

Of the 968 kg of carvings exported all but 50 kg exported by Indonesia as wild sourced were reported from Viet Nam declared as artificial propagated. Broad *in litt. (*2012) notes that there is a market in Asia for well-formed pieces of agarwood as high quality, prestige items.

A total of 16 kg of medicine (*Aquilaria* species only) has been reported as re-exported.

Reviewers: S. Broad, J. Compton.

Inclusion of *Cyphostemma laza* in Appendix II

Proponent: Madagascar

Summary: *Cyphostemma laza* is a succulent plant from Madagascar, believed to be the most widespread of around 23 Malagasy species in the large genus *Cyphostemma*. It forms an elongated, thickened trunk or caudex up to 50cm in diameter and 1.2 m in height, from which extend vines up to five metres or so in length. The species typically grows in partially shaded areas in semi-deciduous dry forest and has very wide distribution in Madagascar, being known from locations in the south, south-west, west and north. The species is recorded from at least eight protected areas across its range, and may occur in others. The population density of mature individuals appears to be generally low in areas where it occurs (around 20 per hectare or less). Its habitat in some areas is affected by conversion of habitat for agriculture, deforestation and charcoal production. The species is reported to be collected from the wild for international trade as an ornamental plant. The absence of individuals of a commercially exploitable size at collection sites is reported. It is exported both as plant and as seed. Considerable numbers of plants were reported as exported in the early 2000s, reaching a peak of nearly 8000 in 2006. However, no plants of the species were recorded as exported in 2007 and 2008. Export is not reported for later years. The species is available to purchase from multiple online sellers based in Europe, Asia and the USA. It is reported to be easy to grow and to propagate from seed, although slow-growing, so that plants take a considerable amount of time to develop caudex stems. Plants offered for sale outside Madagascar often have such stems. Current legal controls in Madagascar on collection and export are unclear.

C. laza was proposed for inclusion in Appendix II at CoP15 in 2010. The proposal was withdrawn at the CoP. Two other Malagasy *Cyphostemma* species – *C. elephantopus* and *C. montagnaci* – were included in Appendix II at that time. No trade in either species has subsequently been recorded in the CITES trade database.

Analysis: *Cyphostemma laza* is a very widespread plant in Madagascar. Although it is reported as occurring at generally low or very low density, its overall population is likely to be large or very large. The species is in cultivation and has been collected from the wild and exported in some quantity. It is assumed that most if not all exported plants were wild-collected. However, no export from the range State has been reported since 2006. Although collection for export may well have led to local depletion, it seems unlikely, given its very extensive range, that regulation of trade is necessary to prevent the species becoming eligible for inclusion in Appendix I in the near future, or that harvest for trade is reducing the population to a level at which its survival might be threatened by other influences. The species would therefore not appear to meet the criteria for inclusion in Appendix II.

Supporting Statement (SS)	Additional information
Taxonomy	
	Formerly included in the genus Cissus (Anon. A, undated). Cissus laza *is reported as a synonym (Bihrmann, undated).*

Supporting Statement (SS)	Additional information
Range	
Madagascar.	
IUCN Global Category	
	Not currently listed.

Biological and trade criteria for inclusion in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)

A) Trade regulation needed to prevent future inclusion in Appendix I

Around 250 individuals were counted in the forest of Andoharano north of Toliara, in the forest of Tongobory Betioky and in the forest of Elomaka Amboasary Sud in 2006. The species has a fairly low density (between 40 and 70 individuals per ha) with a specific low abundance of between 80 and 140 mature individuals.	
Regeneration potential is very low for *C. laza*: 28.6% in Beroboka and 166.7% in Andranomena. Exploitation for export could lead to the absence of natural regeneration and the decline or even disappearance of populations in some collection areas. In the long term this could pose a serious threat to the survival of the species. As the geographic distribution of the species is fragmented, collectors change areas of collection as one area becomes exhausted.	*Hearn* in litt. *(2012) notes that a regeneration potential of 166.7% seems like a high rate. It is unclear how the population decline predicted in the proposal was calculated.*
The species has been assessed as endangered using the IUCN criteria.	C. laza *is not currently listed on the IUCN Red List. The IUCN assessment of endangered given in the proposal was assigned using GIS data, which were used to calculate Area of Occupancy and Extent of Occurrence and to predict future decline (PC20 Inf. 5, 2012).*
A future population decline of 73.3% is predicted due to wild collection for export and habitat destruction.	*The future decline predicted in the proposal is over an unspecified time period. The evidence upon which the decline is predicted is not detailed in the proposal.*
C. laza is found in the West of Madagascar (Morondava and the surrounding area) and the South (Mikea Forest, la Réserve Spéciale Intégrale d'Andohahela and la Réserve Spéciale de Bezà-Mahafaly).The species has an Area of Occupancy of 135 km^2 and an Extent of Occurrence estimated to be 76 156 km^2. The area occupied by the species continues to decline each year due to fires and forest clearance for agricultural expansion.	C. laza *is probably the most widespread species of the genus in Madagascar. (Anon A, undated). The species typically occurs in partially shaded areas in semi-deciduous dry forest. Extent of occurrence has been estimated at 35 000 km^2 and area of occupancy at around 5300 km^2 (530 000 ha). A number of different populations are known. Population densities of between 60 and 730 plants per hectare were recorded at three different sites in field surveys in 2005. Regeneration as indicated by the proportion of young plants was generally poor at these sites. Around 50 young plants a year were reported as collected (Rakouth* et al., *2006).*
C. laza is found in dry thorny thicket and the remaining dry forest of south-western and southern Madagascar. The dry thorny thicket of the South West covers an area	

Supporting Statement (SS)	Additional information
of approximately 18 355 km^2 (of which 4.5% is found within protected areas). This type of land cover has reduced by 29.7% since the 1970s. The dry forest of the West covers an area of 31 970 km^2 (of which 17.1% is found within protected areas). This type of forest has reduced by 39.7% since the 1970s.	*Rakotonasolo* in litt. *(2012) notes that the species is reported to have a large distribution, but from field work observations the number of mature individuals per hectare is low (c. 20/ha). In 2008 a few mature individuals were observed in the dry forest in Beanka (70 km from Maintirano) growing on limestone. It is thought to be likely that this species also grows in Bemaraha National Park, as the same substrate is present as in Beanka.*
The absence of individuals of a commercially exploitable size can be observed at collection sites.	*Hearn* in litt. *(2012) notes that during travel to Madagascar in the early 2000s, himself and colleagues repeatedly looked for* C. laza *and only found a few scattered individuals. The population densities are very low and the overall abundance in its home range appears to be low overall.*
B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences	
The species is very sought after in the international market as an ornamental plant. Wild collections supply the international market. It is exported as a living plant. Reported exports of living plants are as follows: 2003 (419), 2004 (1177), 2005 (2487), 2006 (7814), 2007 (0) and 2008 (0). No illegal trade of *C. laza* has been recorded to date. The species is rarely sold at a national level.	*Despite the availability of* C. laza*, Eggli* in litt. *(2012) notes that in his experience there is not a substantial horticultural market for mature ex-habitat specimens. Yuan* in litt. *(2012) reports that trade in China exists but it is not common and the majority of trade is of seedlings.* *Rakotonasolo* in litt. *(2012) reports that the caudiciform structure takes a long time to develop so wild collected mature individuals are more popular with collectors.* *Mature individuals can reach very large sizes which may limit their suitability for private collections (Eggli* in litt., *2012).*
The proposal reports six web sources of *C. laza*, selling mature plants, seedlings and seeds of unknown origin. Prices per plant ranged from USD28 – 65 and per seed USD1.18.	*In Europe, individuals with developed caudex bases were available from web sellers in Germany, Hungary, Spain and the Czech Republic for prices ranging between USD21 – 116. The origin of the plants is unknown. In the USA, individuals with a developed caudex base were available from web sellers for prices ranging between USD35 – 50. The origin of the plants is unknown. In China, individuals with a developed caudex base were available from web sellers for prices ranging from USD48 - 75. The origin of the plants is unknown. Seeds were found for sale from sellers based in Bulgaria for USD0.7 per seed and a seller in la Réunion, but seeds were currently out of stock and no price was given.* *A nine-day web survey to investigate web trade for* C. laza *was conducted in 2011. Twenty six plants and twenty nine packages of seeds of* C. laza *were found sold from Thailand, Netherland, Italy, Germany, Hungary, South Africa, UK, USA, France, Germany, Italy, Czech Republic, USA, and Mauritius. Prices of plants ranged from USD6.00 to 175.00 (Augugliaro* in litt., *2012).*

Supporting Statement (SS)	Additional information
	A two day review of web sellers based in Japan selling C. laza *was conducted (04-05 December 2012). Four websites selling* C. laza *plants were identified (although three of these directed to the same source) and one website selling seeds was identified (TRAFFIC Japan, 2012).* *Various websites provide cultivation advice for* C. laza *in different climates, indicating an interest in cultivating the species in that region; Mediterranean (Anon B, undated), Denmark (Bihrmann, undated), the USA (Anon C, undated).* *Large specimens of Madagascan succulent plants, including 100* C. laza *individuals washed up on shore in August 2005 from a shipment from Pronatex Soavony on route to France. These plants had an export permit (Anon D, 2005).*
Inclusion in Appendix II to improve control of other listed species	
A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I	
	There are multiple species of Cyphostemma that resemble C. laza*, including* C. montagnacii*,* C. macrocarpum *and* C. roseiglandulosum *(Hearn* in litt., *2012).*
Other information	
Threats	
Forests are disappearing rapidly and becoming fragmented due to charcoal production, expansion of agriculture and maize production, bushfires for the generation of new pasture for livestock.	
Conservation, management and legislation	
Collection and export are only regulated at a national level. Para 7.1 of the SS states: collection and export [of this species] are not subject to any controls. Para 8.1 of the SS states: National management measures are detailed in the proposal: The number of specimens authorised for export is based on the supply of the species in horticultural centres. A single harvest authorization per species per operator is provided, to serve as parental stock. Operators should undertake ex situ	*The level of national legislation afforded to this species is unclear as the proposal notes that harvest and export are not subject to regulation and later that they are subject to national authorization procedures. Information as to whether national management measures have been enforced or how successfully is not provided. Expert reviewers were asked to provide additional information about national legislation and its effectiveness but none of the comments received clarified this.*

Supporting Statement (SS)	Additional information
reproduction. Permits and exportation authorizations are supplied only for individuals reproduced artificially.	
Some populations of *C. laza* occur in protected areas (Andranomena, Kirindy, Kirindy Mitea, Tsimanapetsotsa, Beza Mahafaly, Andohahela), representing a long term habitat for this species. Recently delineated protected areas could also contain this species, such as Amoron'ny Onlahy, Ekodida and could contribute to the sustainability of this species and the conservation of its habitat.	*It is thought that this species likely also occurs in Bemaraha National Park (Rakotonasolo* in litt., *2012).* C. laza *is also reported as present in Reserve Speciale d'Ankarana (Oldfield (comp.), 1997).*
To ensure the survival of the species, permits and licences should be strictly limited to artificially propagated species.	
Captive Breeding/Artificial Propagation	
Artificial propagation by seed is easy but slow. Propagation by cuttings is possible.	*Cultivation is reported to be fairly easy, by seed or cutting (Corman, 2008). Rakotonasolo* in litt. *(2012) also reports that* C. laza *is very easy to grow, but says that it takes a long time to develop the caudiciform structure. Bihrmann* in litt. *(2012) also reports that the species is slow growing. Small seedlings do form the caudex. Fruiting is common, but they are not numerous. Eggli* in litt. *(2012) also reports that the species is of easy cultivation, though much space is needed to get flowering and thus a possibility for fruit set.* *An online source offering propagation information about* C. laza *reports that propagation is usually from seeds which must be prepared, aged and scarified and even then germination is uncertain (Anon A, undated).This is not supported by reviewer comments.* *Hearn* in litt. *(2012) notes that the caudex forms from cuttings.* *The species is reported as not rare in cultivation. The largest specimens in Europe are in the 'Jardin Exotique' in Monaco, and also in 'Les Cedres', St. Jean Cap Ferrat, southern France. The trunks of these specimens are 6-7m tall and about 1m in basal diameter (Rauh, 1995).* *According to PlantSearch, an online database of botanic garden collections maintained by Botanic Gardens Conservation International (BGCI), 25 gardens record holding* C. laza *in their collection. None of these gardens are within Madagascar, potentially limiting their involvement in restoration activities.* *In addition, Phyto-logic Paradise Gardens in Madagascar hold one specimen of the plant, although have not attempted propagation yet (Cooke* in litt., *2012). The Parc*

Supporting Statement (SS)	Additional information
	Botanique et Zoologique de Tsimbazaza (PBZT) hold two mature individuals of C. laza*.*
Other comments	
C. laza was proposed for integration in Appendix II of CITES at CoP15 in 2010. Biological and ecological data obtained were updated and supplemented for the preparation of this new proposal. Under an agreement between the CITES Secretariat and the European Union, *C. laza* has been the object of research for the year 2012 to supplement existing data. The fruits of certain species of *Cyphostemma* are eaten by fruit bats and birds.	*The species is reported to be used locally by soothsayers for its narcoleptic qualities in Andohahela national park (Anon B, undated).*

Reviewers: C. Augugliaro, A. Cattabriga, U. Eggli, D. Hearn, D. Newton, F. Rakotonasolo.

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ANNEXES:

ANNEX 1. Appendix I and Appendix II Biological Criteria (*Resolution Conf. 9.24 (Rev. CoP15))*

ANNEX 2.1. Summary of the IUCN Red List Categories and Criteria version 2.3 (IUCN, 1994)

ANNEX 2.2. Summary of the IUCN Red List Categories and Criteria version 3.1 (IUCN, 2001).

ANNEX 1. Appendix I and Appendix II Biological Criteria (*Resolution Conf. 9.24 (Rev. CoP15)*)

***Note*: The numbers presented below are meant to serve as guidelines and not as thresholds (see *Res. Conf. 9.24 (Rev. CoP15)* Annex 5)**

CRITERIA FOR INCLUSION OF SPECIES IN APPENDIX I – Use of at least one of the A-C criteria for species that are or may be affected by trade.

A. Small Wild Population

Small number of individuals and at least one of the following occurs:	<5 000
i) decline in number of individuals or area and quality of habitat	20% or more in last 5 years or 2 generations
ii) each subpopulation very small	<500
iii) majority of individuals concentrated geographically during one or more life-history phase	
iv) large short-term fluctuation in population size	
v) high vulnerability to either intrinsic or extrinsic factors	

B. Restricted Distribution

Restricted area of distribution and at least one of the following occurs:

i) fragmentation/occurrence at very few locations
ii) large fluctuation in area or number of subpopulations
iii) high vulnerability to either intrinsic or extrinsic factors
iv) a decrease (observed, inferred or projected) in any one of the following:
- area of distribution
- area of habitat
- number of subpopulations
- number of individuals
- quality of habitat
- recruitment

C. Declining Wild Population

Marked decline in the number of individuals in the wild which has been either:	historic decline to 5%-30% (5% -20% for commercially exploited aquatic species) of the baseline population; recent rate of decline 50% or more in last 10 years or 3 generations

i) observed as ongoing or having occurred in the past (but with a potential to resume); or
ii) inferred or projected on the basis of any one of the following:
- decrease in area of habitat
- decrease in quality of habitat
- levels/patterns of exploitation
- high vulnerability to either intrinsic or extrinsic factors
- decreasing recruitment

CRITERIA FOR THE INCLUSION OF SPECIES IN APPENDIX II
In accordance with Article II, Paragraph 2(a)
Species should be included in Appendix II when at least one of the following criteria is met

A. Regulation of trade in the species is necessary to avoid it becoming eligible for inclusion in Appendix I in the near future
B. Regulation of trade in the species is required to ensure harvesting of specimens from the wild is not reducing wild populations to a level at which its survival might be threatened by continued harvesting or other influences.

In Accordance with Article II, Paragraph 2(b)
Species should be included in Appendix II if it satisfies one of the following criteria

A. The specimens of the species traded resemble specimens of a species included in Appendix II or Appendix I, such that enforcement officers are unlikely to be able to distinguish between them.
B. There are compelling reasons other than those given above in criterion A to ensure that effective control of trade in currently listed species is achieved.

Annex 2.1 Summary of the IUCN Red List Categories and Criteria Version 2.3 (IUCN, 1994)

Use any of the A-E criteria

	Critically Endangered	Endangered	Vulnerable
A. Population Reduction in 10 years or 3 generations at least:	80%	50%	20%
Using either 1 or 2			
(1) Population reduction observed, estimated, inferred, or suspected in the past, based on any of the following:			
a) direct observation			
b) an index of abundance appropriate for the taxon			
c) a decline in area of occupancy, extent of occurrence and/or quality of habitat			
d) actual or potential levels of exploitation			
e) the effects of introduced taxa, hybridisation, pathogens, pollutants, competitors or parasites			
(2) Population decline projected or suspected to be met in the future based on b) to e) under (1)			
B. Geographic range in the form of one of the following:			
Extent of occurrence	<100km^2	<5000km^2	<20 000km^2
Area of occupancy	<10km^2	<500km^2	<2000km^2
And 2 of the following 3:			
(1) Severely fragmented:(isolated subpopulations with a reduced probability of recolonisation, once extinct) OR known to exist at # locations	= 1	< 5	< 10
(2) Continuing decline observed, inferred or projected at any rate in any of the following:			
a) extent of occurrence			
b) area of occupancy			
c) area, extent and/or quality of habitat			
d) number of locations or subpopulations			
e) number of mature individuals			

(B continued)	**Critically Endangered**	**Endangered**	**Vulnerable**
(3) Extreme fluctuations in any of the following: a) extent of occurrence b) area of occupancy c) number of locations or subpopulations d) number of mature individuals	>1order/mag	>1order/mag	>1order/mag
C. Small Population Size and Decline			
Number of mature individuals	< 250	< 2500	< 10 000
AND either C1 or C2:			
(1) A rapid continuing decline of at least	25% in 3 yrs or 1 gene	20% in 5 yrs or 2 gene	10% in 10 yrs or 3 gene
(2) A continuing decline observed, projected, or inferred at any rate in numbers of mature individuals AND (a) or (b): a) population severely fragmented or b) # of mature individuals in each subpopulation	< 50	< 250	< 1000
D. Very Small or Restricted population			
Either: (1) # of mature individuals	< 50	< 250	< 1000
OR (2) population is susceptible	(not applicable)	(not applicable)	area of occupancy <100km^2 or # of locations < 5
E. Quantitative analysis			
Indicating the probability of extinction in the wild to be at least	50% in 10 yrs or 3 gene	20% in 20 yrs or 5 gene	10% in 100 yrs

Annex 2.2 Summary of the IUCN Red List Categories and Criteria version 3.1 (IUCN, 2001)

Use any of the A-E criteria

	Critically Endangered	Endangered	Vulnerable
A. Population Reduction in 10 years or 3 generations at least:			
A1	90%	70%	50%
A2, A3, A4	80%	50%	30%
(1) Population reduction observed, estimated, inferred, or suspected in the past where the causes of the reduction are clearly reversible AND understood AND have ceased, based on and specifying any of the following: a) direct observation b) an index of abundance appropriate for the taxon c) a decline in area of occupancy, extent of occurrence and/or quality of habitat d) actual or potential levels of exploitation e) the effects of introduced taxa, hybridisation, pathogens, pollutants, competitors or parasites			
(2) Population reduction observed, estimated, inferred, or suspected in the past where the causes of the reduction may NOT have ceased OR may not be understood OR may not be reversible, based on (a) and (e) under (1)			
(3) Population reduction projected or suspected to be met in the future (up to a maximum of 100 years) based on (b) to (e)under (1)			
(4) Population reduction observed, estimated, inferred, projected or suspected (up to a maximum of 100 years) where the time period must include both the past and the future, and where the causes of reduction may not have ceased OR may not be understood OR may not be reversible, based on (a) and (e) under (1)			
B. Geographic range in the form of either B1 (extent or occurrence) AND/OR B2 (area or occupancy)			
B1 Extent of occurrence	<100km^2	<5000km^2	<20 000km^2
B2 Area of occupancy	<10km^2	<500km^2	<2000km^2
AND at least 2 of the following:			
(a) Severely fragmented, OR: # of locations	= 1	<5	< 10
(b) Continuing decline in any of the following:			

(B continued)	**Critically Endangered**	**Endangered**	**Vulnerable**
i) extent of occurrence			
ii) area of occupancy			
iii) area, extent and/or quality of habitat			
iv) number of locations or subpopulations			
v) number of mature individuals			
(c) Extreme fluctuations in any of:			
i) extent of occurrence			
ii) area of occupancy			
iii) number of locations or subpopulations			
iv) number of mature individuals			
C. Small Population Size and Decline			
Number of mature individuals	< 250	< 2500	< 10 000
AND either C1 or C2:			
(1) An estimated continuing decline of at least:	25% in 3 yrs	20% in 5 yrs or 1 gene	10% in 10 yrs or 2 gene
(up to a maximum of 100 years) or 3 gene			
(2) A continuing decline AND (a) and/or (b):			
(a) i) # of mature individuals in each subpopulation:	< 50	< 250	< 1000
(a) ii) OR % individuals in one subpopulation at least	90%	95%	100%
(b) extreme fluctuations in the # of mature individuals			
D. Very Small or Restricted population			
Either:			
(1) # of mature individuals	< 50	< 250	< 1000
AND/ OR			
(2) Restricted area of occupancy	(not applicable)	(not applicable)	area of occupancy < 20 km^2 or # of locations < 5
E. Quantitative analysis			
Indicating the probability of extinction in the wild to be at least	50% in 10 yrs or 3 gene (100 yrs max)	20% in 20 yrs or 5 gene (100 yrs max)	10% in 100 yrs

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IUCN/TRAFFIC Analyses of the proposals to amend the CITES Appendices at the 16th meeting of the Conference of the Parties:
http://www.iucn.org/about/work/programmes/species/our_work/species_and_policy/iucn_traffic_analyses_of_proposals_cites_cop16/
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http://www.iucn.org

The Species Survival Commission (SSC) is the largest of IUCN's six volunteer commissions with a global membership of more than 7500 experts. The SSC advises IUCN and its members on the wide range of technical and scientific aspects of species conservation, and is dedicated to securing a future for biodiversity. The SSC has significant input into the international agreements dealing with biodiversity conservation.
http://www.iucn.org/about/work/programmes/species/who_we_are/about_the_species_survival_commission_/

TRAFFIC, the wildlife trade monitoring network, is the leading non-governmental organization working globally on trade in wild animals and plants in the context of both biodiversity conservation and sustainable development. TRAFFIC is a strategic alliance of IUCN, the International Union for Conservation of Nature, and WWF.
http://www.traffic.org

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