

ANALYSES

Summary of IUCN/TRAFFIC Analyses of the Proposals to Amend the CITES Appendices at the 15th Meeting of the Conference of the Parties

Doha, Qatar
13–25 March 2010

Prepared by IUCN Species Programme and
Species Survival Commission and TRAFFIC



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Finland, Ministry of the Environment



European Commission



Germany, Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)



Monaco, Government of Monaco



United States, US Fish & Wildlife Service



SWEDISH ENVIRONMENTAL PROTECTION AGENCY

Sweden, Naturvårdsverket - Swedish Environmental Protection Agency



Belgium, DG Animaux, Végétaux et Alimentation



Denmark, Danish Forest and Nature Agency



Netherlands, Ministry of Agriculture, Nature and Food Quality



Swiss Confederation, Federal Department of Economic Affairs (FDEA), Veterinary Office

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- **Germany** – Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)
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- **Netherlands** – Ministry of Agriculture, Nature and Food Quality
- **Monaco** – Government of Monaco
- **Belgium** – DG Animaux, Végétaux et Alimentation
- **Finland** – Ministry of the Environment
- **Denmark** – Danish Forest and Nature Agency

IUCN, the International Union for Conservation of Nature works to assist societies in conserving the integrity and diversity of nature and ensuring that any use of natural resources is ecologically sustainable and equitable. The Union brings together states, government agencies and a diverse range of non-governmental organizations in a unique global partnership, with more than 1000 members and almost 11 000 volunteer scientists in more than 160 countries. It helps the world find pragmatic solutions to our most pressing environment and development challenges, supporting scientific research, managing field projects and bringing governments, non-government organizations, United Nations agencies, companies and local communities together to develop and implement policy, laws and best practice. IUCN builds on the strengths of its members, networks and partners to

enhance their capacity and to support global alliances to safeguard natural resources at local, regional and global levels.

The IUCN Species Survival Commission (SSC), created in 1949, is the largest of IUCN's six volunteer commissions. With around 8000 scientists, field researchers, government officials and conservation leaders, the SSC membership is an unmatched source of information about biodiversity conservation. SSC members provide technical and scientific advice to conservation activities throughout the world and to governments, international conventions and conservation organizations. Through the Species Programme, they provide the best available information critical to the development of conservation products and tools such as the IUCN Red List of Threatened Species. SSC works primarily through its 120 Specialist Groups, which focus on a wide range of plants and animals, or on issues such as sustainable use and invasive species.

TRAFFIC the wildlife trade monitoring network, works to ensure that wildlife trade is not a threat to the conservation of nature. TRAFFIC is a joint programme of IUCN and WWF, the global conservation organization.

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INTRODUCTION

If CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) is to remain a credible instrument for conserving species affected by trade, the decisions of the Parties must be based on the best available scientific and technical information. Recognizing this, IUCN and TRAFFIC have undertaken to provide technical reviews of the proposals to amend the CITES Appendices. The IUCN Species Programme has collected information on the status and biology of species from its Species Survival Commission Specialist Group network and broader scientific community. 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. CoP14)* 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 paragraph, a specific analysis of whether or not the proposal might be considered to meet the pertinent criteria in *Resolution Conf. 9.24 (Rev. CoP14)*. 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. CoP14)*. Text in the left hand side includes selected information drawn from the supporting statement and pertinent to a particular criterion. Text in the right hand side consists of comments, observations and additional information obtained in the review process.

The approach taken for preparation of the Analyses followed that used successfully in preparation of the Analyses for CoP14. Following the deadline for Parties' submission of amendment proposals (14th October 2009), the review 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 variety of reviewers for comment following which reviewers' responses were compiled into the final document.

To satisfy the needs of the Parties for information well before CoP15, the reviews were completed and made available on the internet on 12th January 2010. The Summary and Analysis sections are being printed and distributed widely to reach as broad a target audience as possible. The full Analyses are available on the internet (http://www.iucn.org/about/work/programmes/species/our_work/species_trade_use/iucn_traffic_analyses_of_the_proposals/ or www.traffic.org/cop15) and will also be distributed on CD.

These analyses aim to highlight relevant information on which the Parties can base their judgements, not to be exhaustive. Clearly there may be omissions and differences of interpretation in a document compiled on a wide range of species in such a short time. We have nevertheless tried to ensure that the document is factual and objective. It can be challenging to reflect reviewers' responses in a balanced manner, particularly when strong views are held and the information presented is of variable quality. As such, it is not always possible to provide a consensus picture and the compilers take full responsibility for any misrepresentation.

A summary of the CITES listing criteria and the IUCN Red List Categories and Criteria are provided as annexes to this document. It should be emphasized that the numerical guidelines in *Resolution Conf 9.24 (Rev. CoP14)*, Annex 5 are not thresholds and may not be appropriate for all species. References to source material are provided wherever possible; in some cases, these sources have been consulted directly; 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. The assessments expressed in this publication do not necessarily reflect those of the reviewers. CITES trade data refer to data from CITES Annual Reports as provided by the Parties and available from the CITES trade database, which is managed by UNEP-WCMC. Where information has been provided from a particular country's official trade statistics, this has been specified.

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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 experts that provided species information, many of them members of the IUCN Species Survival Commission 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.

The staff members of TRAFFIC who assisted in the review of proposals and compiled trade and use accounts, deserve recognition for the contribution they have made to this document. Particular thanks to David Newton who provided input to the analyses of proposals for flora. We would also like to thank the French translators Daniele and Richard Devitre and the Spanish translator Wendy Byrnes.

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Addition of an annotation to the species *Canis lupus* listed in Appendix I and II reading:

“Excludes the domesticated form and the dingo which are referenced as *Canis lupus familiaris* and *Canis lupus dingo*”

Proponent: Switzerland, as Depository Government, at the request of the Animals Committee

Summary: The addition of an annotation to the listing of Grey Wolf *Canis lupus* in the CITES Appendices is necessary to exclude from the provisions of the Convention two subspecies that are domestic forms, i.e. Dingo *Canis lupus dingo* and Domestic Dog *Canis lupus familiaris*, which it is evident were never intended to be covered by the listing. Although pure-bred wild populations of Dingo occur in Australia and Thailand and probably elsewhere in Asia and Australasia, all populations are believed descended from domestic animals. The Dingo is assessed as Vulnerable by IUCN. There are many (>60: see below) synonyms for the names of the subspecies given.

Analysis: The suggested annotation appears to be adequate to exclude domestic forms of *Canis lupus* from the provisions of CITES. If possible, reference should be made in the annotation to the synonyms for the two subspecies proposed for exclusion.

Deletion of Bobcat *Lynx rufus* from Appendix II

Proponent: United States of America

Summary: The Bobcat *Lynx rufus* is a medium-sized, spotted cat and is the most widely distributed native felid in North America, ranging from British Columbia, Canada to Oaxaca, Mexico. Its range is approximately 8.7 million km², of which 71% is in the USA, 20% in Mexico and 9% in Canada. The estimated population in the USA in 2008 was 1.4–2.6 million, a considerable increase since the previous estimate in 1981. In Canada, the status of the Bobcat is considered secure, with stable or increasing population trends in range provinces. Recent studies in Mexico revealed that the Bobcat was widespread with moderate densities varying from 0.05 to 0.53 per km²; however, historical data are not sufficient to assess how Mexico's populations have changed over time. Overall, the Bobcat population appears to be healthy and significantly greater than in the early 1980s. The species is currently classified as Least Concern (assessed in 2008) in *The IUCN Red List of Threatened Species*. The Bobcat is widely harvested for its fur, used domestically and traded internationally. Management programmes in the USA and Canada are considered highly advanced for commercial exploitation of feline fur-bearers and result in sustainable harvests.

All Felidae spp. have been listed in the CITES Appendices since 1977. CITES taxonomy currently recognizes four members of the genus *Lynx*: *L. canadensis*, *L. lynx*, *L. pardinus* and *L. rufus*. *L. pardinus*, considered to be Critically Endangered, occurs in Portugal and Spain and was transferred to Appendix I in 1990. The other *Lynx* species are in Appendix II. *L. canadensis* and *L. lynx* are both currently classified as Least Concern by IUCN. *L. lynx* is widespread in Eurasia, occurring in around 50 range States. *L. canadensis* is widespread and abundant over most of its range in Canada and the USA.

In 1983, the Parties agreed not to remove the Bobcat from Appendix II for reasons of similarity of appearance to other spotted cats that were deemed threatened by trade. A proposal to delete *Lynx rufus* from Appendix II was considered again at CoP14, but was again rejected on the basis of continuing concerns about potential look-alike problems. There was concern about potential confusion of skins in trade with those of other *Lynx* species and also with the skins of other species, including a number of Latin American spotted cats such as the Margay *Leopardus wiedii* and Ocelot *L. pardalis*, both included in Appendix I.

CITES trade data indicate that between 1980 and 2008 reported trade in skins of *Lynx* spp. was dominated by *L. rufus*. For the period 2002–2008, trade data indicate gross exports of just under 350 000 skins of *L. rufus* and around 90 000 skins of *L. canadensis*. Recorded trade in other *Lynx* species was very small by comparison: 515 skins of *L. lynx* and one skin of *L. pardinus*. During the same period, the CITES trade database records just under 1000 confiscated and seized whole skins of *L. rufus* along with 37 skins of *L. lynx*, eight skins of *L. canadensis* and one skin of *L. pardinus*. These low figures suggest the illegal trade in *Lynx* spp. is not a major problem, although it is not possible to determine how representative these data are of total illegal trade. A 2007 TRAFFIC North America survey of the fur industry found that European and Asian markets seemed to prefer *L. rufus* and *L. canadensis* to other *Lynx* species. Recent demand from Asian countries with strong economies, such as China, has pushed up pelt prices of *L. rufus*.

Between 2002 and 2006, 95% of all legal trade in skin-related items of Bobcat was in full pelts, which the proponent states can be identified easily. The TRAFFIC survey found that, in the opinion of fur industry experts, distinguishing *L. rufus* parts, pieces and derivatives from those of *L. canadensis* (which shares part of its range with *L. rufus*) was not difficult, and could be accomplished with limited experience and/or training. However, this opinion is disputed. Views of enforcement authorities are not known.

Recently, a web-based and hard copy *Lynx* identification manual has been prepared by the US Fish and Wildlife Service (USFWS) to aid CITES authorities and other enforcement officials in distinguishing full skins and skins lacking a head and tail of *L. rufus* and *Lynx* spp. At the time of writing, the guide is not generally available; however it has been reviewed by State law enforcement inspectors at USA ports. The USFWS also sent the guide out for review to counterparts in the European Union (EU), Canada and Mexico in December 2009, and will be sending it to a broader audience in January 2010. A preliminary review of the manual by felid specialists indicates that it does not address all aspects of the look-alike issue, as it does not present the coat pattern variation seen in *L. pardinus* and *L. lynx*. In addition, the manual does not cover spotted cats other than *Lynx* species, notably some medium-sized cats from Latin America, Africa and Eurasia.

In 2008, a meeting of Management Authorities and enforcement authorities of *Lynx* range States was held to discuss the degree of illegal trade in *Lynx* spp. and *L. rufus* look-alike concerns. In most cases, range States present reported that illegal poaching of *L. lynx* and *L. pardinus* was related to the protection of livestock and game animals. No documented incidents were reported of *L. lynx* or Appendix-I *L. pardinus* being illegally traded as *L. rufus*. However some *Lynx* range States were unrepresented at the meeting. It was acknowledged that much more information was needed on trade in *Lynx* species between the Russian Federation and China as well as other Asian range States of *Lynx lynx*, including enforcement problems encountered.

The proponent considers that the ready availability of legally acquired *L. rufus* in markets is a safeguard against the illegal take and trade of other *Lynx* species. In addition, the US survey of range countries for the Review of the Appendices by the Animals Committee showed that trade in *L. lynx* was well controlled.

Analysis: The Bobcat is a widespread species with a large global population, currently classified as Least Concern by IUCN. There is considerable trade in Bobcat fur, but management programmes in the two main range States are believed to result in sustainable harvests. It therefore appears unlikely that deletion from Appendix II will result in the species qualifying for inclusion in the Appendices under Annex 2a of *Resolution Conf. 9.24 (Rev. CoP14)* in the near future.

However, although a new *Lynx* identification manual has been produced by the USFWS, the look-alike issue with other spotted cat species included in the Appendices appears still not to have been fully resolved. *L. rufus* therefore still appears to meet Criterion A of Annex 2 b of *Resolution Conf. 9.24 (Rev. CoP14)*, which provides for inclusion in Appendix II for look-alike reasons.

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), the Russian Federation and the USA (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 walrus *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 the return of the sea ice. Mating occurs in March to May, but implantation is delayed 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 five to six years for females. Generation time is approximately 15 years, but may range from around 10 years to around 15 years, depending on conditions.

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 (2009), 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 in populations that are 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 Norway and the then USSR in the 1950s and 1970s, allowed the Polar Bear population to increase slowly, at least in these areas.

The population is now believed to be slowly declining. An assessment by the IUCN/SSC Polar Bear Specialist Group (PBSG) in 2009 concluded that one of the subpopulations was increasing, three were stable and eight were declining. Data were insufficient to provide any assessment of current trend for the remaining seven subpopulations. A similar exercise in 2005 concluded that two populations were increasing, five were stable, and five 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 suspected population reduction of greater than 30% within three generations (taken as 45 years), owing to decline in area of occupancy, extent of occurrence and habitat 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. Observations have shown marked decreases in the extent of summer sea ice coverage in the past 10 years compared to long-term averages. Future changes in sea ice, however, are not expected to be

uniform across the Polar Bear's range nor to follow a straightforward trajectory in time. Moreover, to date a direct relation between such changes and the population size of Polar Bears has been demonstrated for only the Western Hudson Bay subpopulation (though such effects are expected in the near future for other populations). Other factors that may have an impact on recruitment or survival of Polar Bears include toxic contaminants, shipping, recreational viewing, oil and gas exploration, development and over-harvest. None of these other factors is believed to be a major threat to the population as a whole at present and only climate-related loss of sea ice is identified as a population level threat.

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 Conservation of Polar Bears, which came into force in 1976. The members held their second meeting in 2009 (the first was in 1981) and agreed to hold meetings every two years thereafter. 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 the western Russian Federation 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 USA and the Russian Federation on the Conservation and Management of the Alaska-Chukotka Polar Bear Population, which came into force in 2007. However, as of December 2009 no quota had been established and no hunting allowed.

Currently, overall legal annual harvest is between 500 and 700 bears and is generally thought to be sustainable, but harvest levels of two subpopulations shared by Canada and Greenland—one small (Kane Basin) and one large (Baffin Bay)—are believed to be unsustainable, and illegal hunting in the Chukotka region, coupled with habitat reduction, is believed to be leading to a decline in the Chukchi Sea subpopulation. Some 60–70% of the harvest is of males.

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 a number of Polar Bears in trade. However, export of products from Canada (where most Polar Bear products in trade originate) for the period 2004–2008 is believed to represent roughly 300 Polar Bears per year. In the period 1992–2006, an average of just under 200 whole skins a year was recorded as exported by Canada. Greenland introduced a voluntary temporary ban on export of Polar Bear products in 2007.

Analysis: Regarding the biological criteria for inclusion in Appendix I set out in *Resolution Conf. 9.24 (Rev. CoP14)*, the global population of Polar Bears 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 kilometers 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 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 slow, as evinced by the lack of change in overall population estimates in the past decade, and therefore does not appear to meet the definition of a marked ongoing decline as elaborated in Annexes 1 and 5 to *Resolution Conf. 9.24 (Rev. CoP14)*.

Annex 1 of *Resolution Conf. 9.24 (Rev. CoP14)* 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. Any future changes in the Polar Bear population remain conjectural. The current best estimate, and the basis for the current IUCN Red List categorization of the species as Vulnerable, suggests a decline in the next three generations (taken as 45 years) of 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).

The numerical guidelines in Annex 5 to *Resolution Conf. 9.24 (Rev. CoP14)* do not explicitly address projected future declines, but suggest a general guideline for a marked recent rate of decline as 50% or more over 10 years or three generations, whichever is the longer. Assuming this guideline figure can be applied to conjectured future declines, it would appear on current knowledge that the Polar Bear does not meet any of the biological criteria for inclusion in Appendix I.

Remove the following paragraph from the annotation regarding the populations of *Loxodonta africana* of Botswana, Namibia, South Africa and Zimbabwe:

5 h) no further proposals to allow trade in elephant ivory from 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.

Include an annotation regarding all populations of *Loxodonta africana*, as follows:

“No further proposals concerning trade in African elephant ivory, including proposals to downlist elephant populations from Appendix I to Appendix II, shall be submitted to the Conference of the Parties for the period from CoP14 and ending twenty years from the date of the single sale of ivory that took place in November 2008. Following this twenty year resting period, any elephant proposals shall be dealt with in accordance with Decisions 14.77 and 14.78.”

Remove paragraph (f) in the annotation to the CITES Appendices governing the elephant populations of Namibia and Zimbabwe:

trade in individually marked and certified ekipas incorporated in finished jewellery for non-commercial purposes for Namibia and ivory carvings for non-commercial purposes for Zimbabwe.

Proponents: Congo, Ghana, Kenya, Liberia, Mali, Rwanda and Sierra Leone

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 was 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.

Further background to the African Elephant under CITES prior to CoP14 is provided in the following link: http://intranet.iucn.org/webfiles/doc/SSC/CoP14/AnalysesEN/intro_elephant_analyses.pdf

Discussion: The two parts of the proposal will be dealt with separately under **1.** and **2.** below.

1. Replacement of the existing paragraph h) of annotation 5, regarding the one-off sale of ivory with a general statement regarding the future submission of African Elephant proposals

There are two major issues with this part of the proposal. The first concerns whether it is appropriately dealt with as a proposed amendment to the Appendices; the second is whether it would be practical in whatever form it were considered.

Appropriateness as an annotation under *Resolution Conf. 11.21 (Rev. CoP14)*

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. CoP14)*. They recognized 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 recognized, 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.

The proposed paragraph in proposal Prop 6 is a statement about the future submission of proposals to amend the Appendices. It does not specify the inclusion or exclusion of any species or population, nor does it specify types of specimen or export quota. It would appear that, following *Resolution Conf. 11.21 (Rev. CoP14)*, the proposed paragraph cannot constitute an annotation to the Appendices and cannot meaningfully be assessed as such.

The wording proposed is similar in form to the already existing wording of paragraph h) of annotation 5, agreed at CoP14. This paragraph would also appear not to be in conformity with *Resolution Conf 11.21 (Rev. CoP14)*.

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 replace 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.

2. Remove paragraph (f) in the annotation to the CITES Appendices governing the elephant populations of Namibia and Zimbabwe: trade in individually marked and certified ekipas incorporated in finished jewellery for non-commercial purposes for Namibia and ivory carvings for non-commercial purposes for Zimbabwe.

Paragraph (f) of existing annotation 5 governing the African Elephant populations of Botswana, Namibia, South Africa and Zimbabwe in Appendix II allows non-commercial trade in some kinds of worked ivory from Namibia and Zimbabwe. Under the proposal, these kinds of worked ivory would become treated as if they were specimens of species included in Appendix I.

The penultimate paragraph of existing annotation 5 states:

“On a proposal from the Secretariat, the Standing Committee can decide to cause this trade to cease partially or completely in the event of non-compliance by exporting or importing countries, or in the case of proven detrimental impacts of the trade on other elephant populations”.

Namibia

Information in the supporting statement indicates that Namibia suspended all trade in *ekipas* (more correctly *omakipa*) as of 1 September 2008, *“until a new law was passed, regulating domestic trade in ivory, including registration of ivory importers, traders and carvers, and certification of ekipas”.*

The supporting statement does not provide any documentation concerning illegal trade in *ekipas*, nor has the CITES Secretariat raised any issues with respect to ivory trade in Namibia in its documentation on ivory trade to the Standing Committee since CoP14.

Zimbabwe

The Secretariat has yet to make a formal proposal to the Standing Committee concerning non-compliance with provisions of the annotation, but it has raised serious concerns at the 58th meeting of the Standing Committee in June 2009, in document SC58 Doc. 36.2 about the trade in worked ivory in Zimbabwe. In that document, the Secretariat reported that it:

“had reason to question whether the controls are being implemented adequately, as it is aware of at least two incidents where raw ivory has been exported, accompanied by the export permits that traders are authorized to issue for trade in ivory carvings. This demonstrates not only fraud on the part of traders but also that export permits and ivory are not being examined by Customs officers at the time of export, which is a mandatory requirement in Zimbabwe’s control system. The primary concern of the Secretariat is, however, that there seems little or no evidence that the prosecution or judicial authorities in Zimbabwe are responding in a meaningful manner to such cases. The Secretariat is

aware of a major case that has apparently never reached conclusion in court and several others where those responsible for illegal trade have been identified, yet no one appears to have been penalized. The Secretariat suspects that the current lack of penalization of illegal activities offers no deterrent whatsoever to unscrupulous persons”.

The CITES Secretariat is continuing to engage with Zimbabwe on this matter and has indicated that another report will be directed to the Standing Committee (Milliken, 2010).

In document CoP15 Doc. 44.1 Monitoring of Illegal Trade in Ivory and Other Elephant Specimens, the Secretariat further reports that it *“has also engaged on a regular basis with Zimbabwe, which seems to have been plagued by some licensed domestic traders who fraudulently exploited the legal domestic market”*.

Zimbabwe has suspended ivory auctions with all licensed traders, cutting off the only sanctioned supply of ivory to local manufacturers, and is engaged in a process to review its regulatory framework for trade in worked ivory in the country. It is believed that domestic trade in ivory will remain suspended until the CITES Secretariat is satisfied that the situation is under control (Milliken, 2010).

Deletion of Mariana Mallard *Anas oustaleti* from Appendix I

Proponent: Switzerland, as Depositary Government, at the request of the Animals Committee

Summary: The Marianas Mallard "*Anas oustaleti*" is a form of duck once found in the Mariana Islands of Guam (USA), Tinian and Saipan (both part of the Commonwealth of the Northern Mariana Islands). It is now considered to be extinct. Its taxonomic status is a matter of debate. It may have been a form of *Anas platyrhynchos* (Mallard) or (generally regarded as more likely) a hybrid of Mallard and some other species, probably the Pacific Black Duck *Anas superciliosa*. It is not recognised as a species in the current CITES standard reference for birds, nor is it considered a true species by BirdLife International, the Red List Authority for Birds, and is not included in the IUCN Red List of Threatened Species.

The Marianas Mallard was a relatively large duck of variable appearance found in freshwater marshes and swamps on Guam, Tinian and Saipan. Its total population is thought always to have been small, because of very limited habitat availability. It was affected by habitat loss and overhunting and was last seen in the wild in 1979. No birds were sighted during extensive surveys in the 1980s and the last known specimen died in captivity in 1981 after failed attempts at captive breeding. Researchers and managers of Guam and the Commonwealth of the Northern Mariana Islands agree that the Marianas Mallard has gone extinct, as does the US Fish and Wildlife Service (USFWS) who removed "*A. oustaleti*" from their Endangered Species Act (ESA) in 2004 for this reason.

The only records of trade in "*Anas oustaleti*" in the CITES trade database are of one specimen exported from Canada to the USA in 1993, and of 10 feathers exported from the USA to Canada in 2005. These two exports were undoubtedly of dead biological specimens and both post date the last

sightings of the duck in the wild. It is unlikely that the Marianas Mallard would be subject to trade in the highly unlikely event of its rediscovery and no evidence has been found to suggest that it has been illegally traded.

The proponent seeks to delete “*Anas oustaleti*” from Appendix I on the basis that it satisfies the “possibly extinct” criterion set out in Annex 5 of *Resolution Conf. 9.24 (Rev. CoP14)*, which states “a species is ‘possibly extinct’ when exhaustive surveys in known and/or suspected habitats, and at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual”.

Analysis: It appears that “*Anas oustaleti*” meets the criterion for “possibly extinct” as no specimen has been seen in the wild since 1979 and surveys have been carried out over an appropriate time-frame for its life cycle and life form, as required by *Resolution Conf. 9.24 (Rev. CoP14)* Annex 5. Annex 4D specifies that 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”. There is no evidence that the duck would be affected by trade in the highly unlikely event of its rediscovery, so it would appear that this precautionary measure is satisfied.

Under *Resolution Conf. 9.24 (Rev. CoP14)*, for a hybrid to be eligible for inclusion in the Appendices, it must form a distinct and stable population in the wild (paragraph g under “RESOLVES”). Assuming that the Marianas Mallard was in fact a hybrid, its variable appearance would indicate that it did not form a stable population in the wild. It would appear therefore that it has (or had) no place in the Appendices irrespective of its demise.

Transfer of Morelet's Crocodile *Crocodylus moreletii* from Appendix I to Appendix II with a zero quota for wild individuals

Proponents: Mexico and Belize

Summary: Morelet's Crocodile *Crocodylus moreletii* is a small to medium-sized crocodylian that occurs in freshwater lagoons, swamps, streams and backwaters in forested areas or those with dense waterside vegetation in Belize, Guatemala and Mexico. It normally first breeds at between six and eight years of age and at a length of 1.5 m, although younger, smaller individuals may also sometimes breed. Clutch size averages 35. Longevity is thought to be 30 years or more. It has been included in Appendix I since 1975.

The species may form essentially one population, although this remains unproven. Its potential area of distribution covers some 450 000 km², of which around 400 000 km² is in Mexico. Analysis of maps and remote sensing data indicates around 50 000 km of riverbank and shoreline of permanent lakes within the range in Mexico. Around half of the range in Mexico has original vegetation cover, within which there is an estimated 25 000 km of riverbank and lake shore that is believed to constitute optimal habitat for the species. There is less information on the rest of the range but estimates of available habitat are of around 3300 km in Belize and 7000 km in Guatemala. However, in Belize only parts of the country have been adequately surveyed, and in Guatemala surveys have also been inadequate. Habitat degradation is believed to have seriously affected two thirds of suitable habitat in Guatemala.

By the 1970s, the population of Morelet's Crocodile was evidently severely reduced, the decline being chiefly ascribed to hunting for hides and meat. Commercial hunting of the species was banned in Mexico in 1970 and the species has been protected in Belize since 1981, and in Guatemala at least

since 1999. Populations, at least those in Mexico, are now believed to have recovered considerably. The total population is estimated by the proponent to be around 100 000, of which around 20 000 are adults; these estimates being based in part on surveys carried out in Mexico between 2000 and 2004. The IUCN Red List assessment in 2000 estimated the mature population at more than 10 000 individuals at that time. The species continues to be affected by habitat degradation, native predator species, and hybridization with *Crocodylus acutus*, but at least in Mexico these are not believed to constitute major threats at present. The species is currently categorized as Lower Risk/Conservation Dependent by IUCN.

The vast majority of recorded international trade in the past 10 years has originated in Mexico, from where export of around 1200 per year skins of captive origin has been reported between 2001-2007. Currently, commercial exploitation of Morelet's Crocodile in Mexico can legally only involve animals born and raised in captivity (closed-cycle operations, and beyond the second generation) of Wildlife Management Units known as UMAs. Mexico has registered three commercial captive breeding facilities for this species in line with *Resolution Conf. 12.10 (Rev. CoP14)* and uses the universal system for the identification of crocodylian skins under CITES (*Resolution Conf. 11.12*). The farms have a large population of the species, with closed-cycle breeding, which appears to satisfy the market demand nationally and internationally. Since 2000, the national harvest authorized in Mexico amounts to fewer than 2000 skins a year. The total potential production is reported to be around 16 500, which could provide about 10 100 skins per year. There has been limited export from Belize of specimens for scientific purposes. Reported seizures of illegally traded specimens have been at a low level.

Mexico is in the process of developing comprehensive monitoring and management systems for the species; however, the situation in Belize and Guatemala is not as clear.

The species can generally be distinguished in trade from other similar species by morphological features of the skin; however, it is not yet clear whether hybrids with *C. acutus* can be distinguished from pure *C. moreletii*.

The proponent seeks to transfer *Crocodylus moreletii* from Appendix I to Appendix II with a zero quota for wild specimens.

Analysis: *Crocodylus moreletii* has a total population estimate of 10 000–20 000 mature individuals. It has a large potential area of distribution, within which there is at least 25 000 km believed to constitute optimal habitat. There has been no recent marked decline in numbers, nor is any such decline projected; indeed, the population is believed to have increased considerably in the past 30–40 years. The species would therefore appear no longer to meet the biological criteria for inclusion in Appendix I.

Annex 4 of *Resolution Conf. 9.24 (Rev. CoP14)* sets out precautionary measures for the transfer of species from Appendix I to Appendix II. The current proposal is for a zero export quota for wild specimens, so that the measures set out in paragraph A 2 c and attendant paragraphs in Annex 4 apply. Under these, effective enforcement controls must be in place. Mexico has been legally exporting specimens of captive-bred *Crocodylus moreletii* for some years and has a series of controls in place, including the universal tagging system for the export of crocodilian hides under CITES. Controls in Belize and Guatemala are less clear. However, little illegal trade has been recorded from any range State in recent years. Under Annex 4 of *Resolution Conf. 9.24 (Rev. CoP14)* any future change from the zero quota for wild specimens would require a proposal to be submitted to the Conference of the Parties.

Transfer of the Egyptian population of *Crocodylus niloticus* from Appendix I to Appendix II for the purposes of ranching

Proponent: Arab Republic of Egypt

Summary: The Nile Crocodile *Crocodylus niloticus* is the most widely distributed crocodile species in Africa, occurring in almost all sub-Saharan countries. It was included in Appendix I in 1975. Ten countries have made successful proposals to transfer their populations of *C. niloticus* from Appendix I to II for the purposes of ranching: Botswana, Ethiopia, Kenya, Madagascar, Malawi, Mozambique, South Africa, Uganda, Zambia and Zimbabwe. This proposal seeks to transfer the Egyptian population of *C. niloticus* to Appendix II for ranching purposes.

Crocodylus niloticus had virtually disappeared from Egypt by the 1950s, but the construction of the Aswan Dam and the subsequent creation of Lake Nasser led to resurgence of the population. It is now widespread in the lake, where all wild individuals in Egypt are believed to occur. A survey in the period 2008–2009 estimated the crocodile population in the lake as between 6000 and 30 000. Refinement of this estimate is currently a major goal through a newly initiated radio telemetry project. There are no historic survey data available in order to assess population trends; however, anecdotal evidence supports a rising population trend. *C. niloticus* is subject to illegal harvesting for export; this has reportedly been increasing since the start of the 21st century. It is believed that each year over 3000 hatchlings are illegally smuggled out of Egypt and 200–400 subadults and adult crocodiles are killed for their skins. The skins are both exported and used locally in Egypt for leather products. Apart from illegal trade, the only other identified threat to the species may be incidental mortality through drowning in fishing nets, but the impact of this is considered likely to be low.

Under the proposal, ranching will be based on an annual hatchling harvest, with initial quotas set at around 2500. The proponent is requesting an annual export quota of 750 skins from ranched individuals be put into effect, starting 2013. The proponent believes this will allow ample time for approved ranching operations to build a stock. A recently created Crocodile Management Unit (CMU) will oversee *Crocodylus niloticus* management and monitoring. The CMU will also be responsible for outreach activities within local communities and with any parties involved in crocodile use, as well as with local and environmental law enforcement agencies to prevent illegal trade. The supporting statement also includes information on: marking; monitoring; management; reintroduction and trade control procedures; national legislation to protect wild species and habitats and control illegal trade; and ways in which the local crocodile population, other wildlife and human communities will benefit from the ranching programme. Initially no other wild harvest will be approved, although limited trophy hunting will be considered in the future, in conjunction with a nuisance crocodile programme, if this is needed.

Analysis: Because this proposal to transfer a population from Appendix I to Appendix II involves ranching, it should adhere to *Resolution Conf. 11.16 (Rev. CoP14)* as well as *Resolution Conf. 9.24 (Rev. CoP14)*. Under the terms of the first of these, a ranching proposal should be submitted at least 330 days before the meeting at which it is to be considered, to allow the Secretariat to consult with the Animals Committee to ensure that terms in the Resolution are met. This was not done in this case and it is possible therefore that the proposal will not be considered in its present form by the CoP at this meeting. It is possible that the CoP may consider a more restrictive proposal concerning the same population, such as a transfer from Appendix I to Appendix II with a zero export quota for wild specimens, although this is not assured.

Regarding the conditions set out in *Resolution Conf. 11.16 (Rev. CoP14)*, the following observation may be made:

Paragraphs a), b) and c) under “RECOMMENDS”, regarding general provisions for transfer of species from Appendix I to Appendix II for ranching:

a) Biological criteria

Estimates of wild populations are imprecise, but further research is under way. The best available estimates indicate the population is not small under guidelines in Resolution Conf. 9.24 (Rev. CoP14). The population is not believed to be declining and habitat quality is good.

b i) The programme must be primarily beneficial to the conservation of the local population
Under the proposal, fees collected from the sale of hatchling harvest permits and ranching licences will be recycled to support the CMU and other wildlife research and conservation efforts.

b ii) All products must be adequately identified
The proposed marking programme appears robust.

b iii) Appropriate inventories, harvest level controls and mechanisms for monitoring the wild population
The absence of information on the management and monitoring plan and details of the planned use weaken the proposal. For example, it is unclear why hatchlings rather than eggs are to be collected. It is also unclear how increased negative interaction between local fishermen and crocodiles, or how other extractive uses such as trophy hunting, would be handled through a ranching programme. However, it should be noted that management reportedly only started in 2008.

b iv) Sufficient safeguards must be established to ensure that adequate numbers of animals are returned to the wild if necessary and where appropriate
The proposal states that 10% of ranched individuals will be returned to the wild after they have reached a length of one metre. The necessity and appropriateness of this has been questioned, as it is believed that such action would increase the possibility of introducing diseases to the wild

population. A simpler and more appropriate alternative would be to take fewer animals from the wild in the first place.

c i) Details of the marking system must be submitted

The proposed marking programme appears robust (see b ii) although the proponent states the Universal Tagging System will be adopted and used to regulate the trade in line with Resolution Conf. 9.22, but this should now state in line with Resolution Conf. 11.12.

c ii) A list of products must be provided

This is included in the proposal (skins for domestic and international trade and domestic trade of meat).

c iii) Marking methods for products and containers entering trade should be described

A description of marking methods is provided. See c i).

c iv) An inventory of current stocks should be provided

There are not known to be currently any stocks of crocodile specimens in Egypt.

Paragraph d) specifically regarding transfer of the population of one Party or a smaller geographically separate population:

d i) Evidence that taking from the wild will have no detrimental impacts on wild populations

Levels of illegal offtake will need to be addressed. Any agreement of managed harvests for export should be clearly linked to measures aimed at reducing the current illegal trade in the species. As a precaution, measures aimed at reducing the illegal trade should be implemented and found to be effective before the planned harvest for ranching is carried out to ensure that harvesting does not have any detrimental impacts on the wild population. The proposed annual export quota of 750 skins

may be unrealistic given that no ranching has been carried out to date. Harvest of 2500 hatchlings per year seems high for an annual export quota of 750 skins, unless the surplus skins are destined for the domestic market.

d ii) An assessment of the likely biological and economic success of the ranch
Under the proposal, the CMU will report annually to the CITES Secretariat on the status of the crocodile population used in ranching. Methods for assessing the economic success of the ranch are not included in the proposal.

d iii) Assurance that all stages will be humane
The proposal states that a rigorous code of practice is being drafted, although details are not yet available. Good practice in crocodile ranching in general is well documented.

d iv) Evidence to show that the programme is beneficial to the wild population through reintroduction or in other ways
*The proposal states that wildlife research and conservation will benefit, local fishermen will gain direct economic benefits and there is provision for *Crocodylus niloticus* reintroduction.*

d v) Assurance that criteria shall continue to be met
The proponent has established a CMU for this purpose.

Although some conditions set out in *Resolution Conf. 11.16 (Rev. CoP14)* are in place, it appears that others have yet to be met fully, there being, for example, still substantial illegal harvest. Although trade in ranches specimens is not proposed until 2013, by which time all necessary conditions may be met, it may be premature to transfer the population for the purposes of ranching at this time.

Transfer of the Ornate Spiny-tailed Lizard *Uromastyx ornata* from Appendix II to Appendix I

Proponent: Israel

Summary: The Ornate Spiny-tailed Lizard *Uromastyx ornata* is one of 17 currently recognized species of spiny-tailed or dabb lizards in *Uromastyx*, a genus of agamas found in arid and semi-arid regions from north-west India to north Africa. Until 2004, it was regarded as a subspecies of *U. ocellata*, but is now recognized in CITES taxonomy as a full species. It occurs in Egypt (Sinai Peninsula), Israel, Saudi Arabia and Yemen and may have a disjunct distribution, with one population occurring in the Sinai Peninsula, Israel and adjacent north-west Saudi Arabia and the other some distance to the south in mountainous parts of south-west Saudi Arabia and north-west Yemen. Its distribution in Sinai and Israel is limited, the latter covering an estimated 270 km². However, locality data indicate that the southern part of its range extends over several thousand square kilometres.

Uromastyx ornata is a medium-sized and brightly coloured dabb lizard. It is diurnal and primarily herbivorous. Breeding is reportedly seasonal with the eggs produced in May and the young hatching some 60 days later. Reported clutch size in northern populations is seven to 17 eggs; in the southern population four to nine. Individuals are reported to live for approximately 15–20 years in captivity.

There are no overall population estimates available for *Uromastyx ornata*. The only quantitative data in the literature relate to Israel, where estimates of population density are around 15 individuals per km². It has been reported to occur in relatively dense populations in southern Saudi Arabia. *U. ornata* is not currently included in *The IUCN Red List of Threatened Species*, although a preliminary Red List assessment has been conducted, which suggests the species is “moderately abundant in suitable habitat”.

Uromastyx species are harvested for food, use in traditional medicines and for the international pet trade. Other potential threats to the genus may include habitat loss and deterioration as a result of infrastructure and tourist developments, tourist activities and over-grazing, and the impacts of climate change. The significance of these threats is unknown, but it has been suggested that the habitat of this species is not subject to intensive human use, being generally inhospitable.

The entire genus *Uromastyx* has been included in Appendix II since 1977. Determining historical patterns of trade in *U. ornata* is difficult, because prior to 2004 it was not regarded as a full species and as a result there appears to be some taxonomic confusion in the CITES trade database. Egypt banned the export of *U. ornata* and other reptiles in 1992 and has recorded no significant exports since 1995. Prior to this, Egypt was the primary exporter of wild-taken specimens of *Uromastyx* declared as *U. ornata*. In recent years, the only range State for which there are records of exports of *U. ornata* is Yemen, from which just under 900 specimens were declared as imported to the USA, in 1997 and 1999. Since 2003, there has been a significant increase in the number specimens of *U. ornata* reported in trade as captive-bred. Despite this, *U. ornata* is still relatively difficult to obtain and does not appear to be commonly found in trade. It has been alleged that many specimens advertised as captive-bred may in fact be wild-collected.

Analysis: *Uromastyx ornata* is in trade and there is international demand for the species which could affect wild populations.

Information on the status of the species in the wild is relatively limited. However, locality data indicate that its distribution extends over several thousand square kilometres and is neither highly fragmented nor known to be declining in extent. There are no estimates for global population. However, density estimates from Israel of 15 individuals per square kilometre, with a total range of 270 km² in the country, suggest that Israel's population could number approximately 4000 individuals. The range in

Israel comprises only a small proportion of the overall range and, if the species occurs at similar densities elsewhere, then its overall population is likely to be substantial. The population in Israel is regarded as stable at present and there is no evidence of marked decline in the population elsewhere, nor compelling reasons to suspect such a decline. It seems unlikely, therefore, that the species meets the biological criteria for inclusion in Appendix I.

Inclusion of the Honduran spiny-tailed iguanas *Ctenosaura bakeri*, *C. melanosterna* and *C. oedirhina* in Appendix II

Proponent: Honduras

Summary: *Ctenosaua bakeri*, *C. melanosterna* and *C. oedirhina* are three species of spiny-tailed iguana in the family Iguanidae endemic to Honduras. They are closely related to a fourth species, *C. palearis*, which is endemic to Guatemala and also proposed at the present CoP for inclusion in Appendix II (see proposal Prop. 12). Two other species in the genus (*C. similis* and *C. flavidorsalis*), not subject to any listing proposal, also occur in Honduras. There are around 15 currently recognized species of *Ctenosaura*, occurring in Mexico and Central America. Two species (*C. pectinata* and *C. similis*) reportedly exist as introduced populations in the USA.

C. bakeri is a medium-sized (55–83 cm) primarily arboreal iguana found in three areas of mangrove forest on Utila Island. Its total range is estimated at 10 km², although nesting is confined to some 100 ha of beach habitat. Recent mark-and-recapture studies found high population densities (24–103 individuals per hectare) and estimated an overall population of 42 000–68 000 adults, with a balanced sex ratio and large numbers of juveniles. Habitat loss is regarded as the primary threat to the species, it having apparently been affected by wetland drainage leading to loss of mangrove habitat and beach side developments which destroy their breeding grounds. It is also exploited locally for food, with take having apparently increased in recent years. There is reportedly some potential threat from hybridization with *C. similis*.

C. melanosterna is a relatively large (70–90 cm), primarily arboreal, omnivorous iguana, endemic to the thorn scrub of the Aguán valley and tropical dry forest and subtropical dry forests of the Aguán valley and Cayos Cochinos Archipelago. The latter has a total land area of some 2 km²; area of

distribution on the mainland is unknown but likely to be small. The species is said to be affected by habitat loss and hunting for food, although details are lacking. A population size of 2 000–2 500 has been suggested.

C. oedirhina is a relatively small (40–60 cm) iguana found on Roatán Island (13 000 ha) off the Caribbean coast of Honduras. The species is reported to be found in a wide range of habitat types on the island. The species is thought to be affected by habitat destruction and hunting for food, although the importance of these is not clear. According to some accounts these constitute important threats. Other accounts suggest that the species is adaptable and widespread enough, and occurs in enough protected areas, to be secure at present. A population size of 5000 has been suggested.

Additional threats for these species may include pollution, motor traffic, and collection for medicinal purposes although the significance of these threats is currently unknown.

C. bakeri and *C. melanosterna* are protected by Honduran law, although enforcement is apparently poor. *C. oedirhina* is not currently protected under national law but all three species are offered some protection through protected land and/or research and breeding programmes.

All three species have been classified by IUCN as Critically Endangered, on the basis of their small ranges, presumed limited and fragmented populations and ongoing threat from habitat loss. In at least one case (*C. bakeri*) the population estimate used in the Red List Assessment appears to be a considerable underestimate.

Ctenosaura species have featured in the exotic pet trade in Europe and North America. However, their popularity as pets has reportedly decreased in recent years and there appears to be little demand for or availability of these species in international trade, although some evidence was found

to suggest that *C. melanosterna* is in circulation in the pet trade and is being successfully captive-bred. The US Fish & Wildlife Service's trade database (LEMIS) for 2000–2007 showed that 858 *Ctenosaura* had been exported from Honduras to the USA during this period, the majority recorded as wild-taken and 60% for scientific purposes. The specimens were not identified to species level and therefore could be any of the five species (the three under discussion, plus *C. similis* and *C. flavidorsalis*) of *Ctenosaura* which occur in Honduras. In 2004 and 2008, 17 and 11 *C. melanosterna* respectively were imported to the USA (according to the SS) but it is not known if they were imported for commercial trade or other purposes. In 2008 a further 49 wild-taken *C. melanosterna* were imported to the USA for scientific purposes.

Although these three species are similar, they are reportedly easy to distinguish based on morphological characteristics as adults. However, hatchlings are thought to be more difficult to tell apart. *C. melanosterna* and *C. palearis* are said to be more similar in appearance and can be particularly difficult to distinguish, especially as hatchlings or young. A proposal to include *C. palearis* in Appendix II has also been submitted for consideration at this CoP (see proposal Prop. 12); therefore look-alike issues should also be considered.

Analysis: All three species of *Ctenosaura* have restricted ranges. One (*C. bakeri*) has a very small range but is evidently numerous within it; another (*C. oedirhina*) is reportedly adaptable and occurs within a wide range of habitats in its 13 000-ha range. Little information is available on the third (*C. melanosterna*), which has a disjunct and possibly very limited distribution. All are reportedly affected by habitat loss and degradation, and by hunting for food, although the severity of these threats in each case is not clear. Iguanas, including *Ctenosaura* species, feature in the exotic pet trade. However, international trade in these particular species appears to be very limited. Although unidentified *Ctenosaura* species have been exported from Honduras in recent years, there is no evidence to suggest that *C. bakeri* and *C. oedirhina* are in international trade at present. It would

appear therefore that these species do not meet the criteria for inclusion in Appendix II in that regulation of international trade is not needed to ensure that they do not become eligible for inclusion in Appendix I in the near future, nor is it required to ensure that harvesting for trade is not reducing the wild population to a level at which its survival might be threatened by continued harvesting or other influences.

There has been a small amount of reported trade in *C. melanosterna* in recent years. Available evidence suggests that there are adequate numbers of captive-bred specimens to supply the limited demand for this species in the pet trade but there are unconfirmed reports of limited export from Honduras. The species may have a small wild population and conceivably any harvest for export may reduce the population to a level at which its survival might become threatened. However there is no evidence to support this, and so it is not possible to state with confidence whether the species meets the criteria for inclusion in Appendix II set out in *Resolution Conf. 9.24 (Rev. CoP14)* or not.

Hatchlings or young specimens of these species may be difficult to distinguish from those of *C. palearis*, proposed by Guatemala for inclusion in Appendix II (proposal Prop. 12). In theory the look-alike criteria of Annex 2b of *Resolution Conf. 9.24 (Rev. CoP14)* could apply were that proposal to be accepted. However, as there is little evidence that these species are in trade, and they have a different country of origin, it is unlikely that their inclusion would be necessary to assist in regulation of trade in the former, particularly in view of the fact that all other *Ctenosaura* species would remain unlisted.

Inclusion of the Guatemalan Spiny-tailed Iguana *Ctenosaura palearis* in Appendix II

Proponent: Republic of Guatemala

Summary: The Guatemalan Spiny-tailed Iguana *Ctenosaura palearis* is a medium-sized omnivorous arboreal iguana, endemic to the semi-arid dry forests and spiny thickets of the Rio Motagua Valley in Guatemala. It is one of around 15 species of *Ctenosaura*, a genus in the family Iguanidae native to Mexico and Central America. Two or possibly four other species of *Ctenosaura* occur in Guatemala, including *C. flavodorsalis* and *C. similis* and, debatably, *C. alfredschmidti* and *C. acanthura*.

Female *C. palearis* reproduce once a year; clutches of six to twelve eggs are deposited in holes or tunnels between March and April and the eggs hatch in May, coinciding with the start of the rainy season.

Recent field work has established that the species occurs fairly widely in the Rio Motagua Valley ecoregion, in which around 100 000 ha of potentially suitable habitat remains. However, much of this is reported to be degraded, with degradation ongoing, in particular through felling of the tree cactus *Stenocereus pruinosus*, an important component of the habitat for the iguana. A 2008 study based on sample plots estimated an overall average density of one individual per 1.7 ha (0.6 individuals per ha) in a 3000 ha area that included some of what was considered to be the best quality habitat for the species. Overall, some 20 sub-populations of the species have been identified to date. An unpublished mark-recapture study indicated that the overall population might comprise around 5000 individuals, with perhaps fewer than 2000 mature individuals. Only a very small proportion of the habitat is included within protected areas.

The species is (legally) harvested for subsistence purposes for food and in traditional medicines. In two areas where it is harvested (Los Morales and Morazán) the species is also reported to have been collected for (illegal) export in the live animal trade. Local people in these areas stated that those collecting *C. palearis* for subsistence took an average of around six specimens per month, whilst those collecting live animals for export took 50–60 per month. They also reported that populations of the iguana had declined dramatically in the past 20 years and researchers visiting these areas recently failed to find the species.

C. palearis is in international trade as a live animal, although seemingly on a relatively small scale. The US Fish and Wildlife Service data reporting system (LEMIS) shows the importation of 240 wild-taken *C. palearis* individuals from Guatemala in 2008 for commercial purposes; this trade was allegedly unknown to Guatemalan authorities. LEMIS data also show the importation into the USA from Guatemala of 210 wild-taken specimens of the genus *Ctenosaura* in the period 2000–2007. It is not known how many of these, if any, were *C. palearis*. There are conflicting reports on the level of international demand for the species. Advertised prices are said to be relatively low, between USD25 and EUR25, although some websites are offering specimens at considerably higher prices (up to USD149).

C. palearis is included in Category No. 2 of the Endangered Species List in Guatemala (CONAP, 2009) and can only be used for scientific, research and breeding purposes aimed at the conservation of the species. Individuals can only be traded if they are captive-bred to F2 generation, are bred by authorized persons and the trade has no commercial value. It appears that no captive-breeding operations have been established in Guatemala.

Three other similar species of *Ctenosaura*—*C. bakeri*, *C. melanosterna* and *C. oedirhina*, all endemic to Honduras—have also been proposed for inclusion in Appendix II at CoP15 (see CoP15 Prop. 11).

Analysis: *Ctenosaura palearis* is reasonably widespread, with 20 identified subpopulations (of which two may be extinct) occurring in around 100 000 ha of habitat. However, much of the habitat is fragmented and degraded, with conversion and further degradation continuing. The most recent information indicates that the overall population may be small, perhaps around 5000 individuals. The species is taken for subsistence use and in two areas has apparently been collected for export in the live animal trade; in these areas it is now reportedly either very rare or extinct. The number of individuals reported in international trade is small and, although reports conflict somewhat, demand for the species appears generally low.

The most recent information suggests that the population of *Ctenosaura palearis* may be around the guideline figure for a small population given in Annex 5 of *Resolution Conf. 9.24 (Rev. CoP14)* and the fact that collection for export has been implicated in the decline or extirpation of two subpopulations, *Ctenosaura palearis* may meet the criteria for inclusion in Appendix II in that regulation of trade may be necessary to prevent the species becoming eligible for inclusion in Appendix I in the near future.

Inclusion of the genus *Agalychnis* in Appendix II

Proponent: Honduras and Mexico

Summary: *Agalychnis* is a genus of tree frogs occurring in Mexico, Central and South America. Five species are currently recognized by the CITES standard reference for Amphibians; a sixth (*Agalychnis litodryas*), generally considered synonymous with *A. spurrelli*, is sometimes recognized as a separate species. An additional species, *Cruziohyla calcarifer*, was previously included in *Agalychnis* but was moved to the genus *Cruziohyla* in 2005.

Agalychnis callidryas is the most widespread species. It occurs in Belize, Colombia, Costa Rica, Guatemala, Honduras, Mexico, Nicaragua and Panama. Although the population is said to be decreasing, it is considered to be abundant and fairly tolerant of habitat modification and is classified as Least Concern in the *IUCN Red List of Threatened Species*. A recent study in Belize found this species present at densities of between 0.05 and 0.21 frogs per m² in mating ponds at seasonal breeding aggregations. Estimated population size for Belize was thought to be under 2000; the population in Panama is possibly up to 10 000. Population estimates are unavailable for other range States.

Agalychnis moreletii occurs in Belize, El Salvador, Guatemala, Honduras and Mexico. It was reportedly locally abundant in some locations in Chiapas State, Mexico, El Salvador and Guatemala. However, recent surveys in Guerrero, Oaxaca and Chiapas, Mexico, indicate that it has disappeared from all the sites surveyed. In Guatemala and Honduras, the population is reported to be declining due to habitat destruction. It is uncommon, but occasionally found in breeding aggregations in Honduras. A recent study in Belize found the species present at mating ponds with similar densities to *A. callidryas* (0.07–0.21 frogs/m²). However, there are far fewer ponds that support populations of

A. moreletii and the overall population was estimated at well under 1000 individuals. The species is currently classified by IUCN as Critically Endangered.

Threats to *Agalychnis* species include deforestation and draining of areas for agricultural development, logging, human settlement, water pollution, introduction of invasive fish species, pest control, harvesting for international trade and climate change. The fungal disease, chytridiomycosis, in particular, is known to have seriously affected subpopulations of all *Agalychnis* species.

Of the other species, *Agalychnis annae*, endemic to Costa Rica, is classified by IUCN as Endangered, although is reportedly tolerant of modified habitats such as plantations and gardens, *A. spurrelli* (Colombia, Costa Rica, Ecuador and Panama) and *A. saltator* (Costa Rica, Honduras and Nicaragua) are classified as Least Concern. *Agalychnis litodryas* (Ecuador, Panama, presence uncertain in Colombia) is recognized as a separate species in the *IUCN Red List of Threatened Species* and is classified as Vulnerable.

Of the species within the genus, the Red-eyed Tree Frog, *A. callidryas*, is the most common in international trade. Nearly 19 000 individuals per year (between 2000 and 2007) have been imported into the USA according to their records, mainly from range States. Although the majority of trade is recorded as from captive sources, wild specimens (just over 20 000 in total between 2000 and 2008) have also been recorded in the USA's LEMIS trade database. This designation may not be reliable as there is no requirement to indicate source in the database for non-CITES species, and where no source is specified, wild origin is assumed. The majority of trade in *A. callidryas* originates from Nicaragua; wild export is prohibited from that country and, in theory at least, all exports should be of captive-bred specimens. The USA also reports significant imports from Panama and Guatemala.

A small number of wild *Agalychnis moreletii* has been recorded as imported by the USA from Guatemala recently (168 in 2007, 3 in 2008), and there are reports of *A. annae* available in small

quantities as wild-collected individuals. Both species are also apparently available in limited numbers as captive-bred specimens. There is no direct evidence of recent commercial trade in *A. saltator* or *A. spurrelli*, although there is a small amount of recorded trade from Ecuador of *Agalychnis* spp.. *A. spurrelli* is the only member of the genus present in Ecuador, although *Cruziohyla calcarifer*, considered at that time to be an *Agalychnis*, is also present.

The genus *Agalychnis* is proposed for inclusion in Appendix II, with *Agalychnis callidryas* and *Agalychnis moreletii* proposed in accordance with Article II paragraph 2a and the other three species of the genus proposed for look-alike reasons.

Analysis: *Agalychnis moreletii* is subject to a range of identified threats and appears to have undergone dramatic population declines that would already qualify it for listing in Appendix I. The species has been recorded in trade in limited numbers, it is offered for sale on the internet, often as captive-bred, but the total level of trade is unknown. However, it is possible that any uncontrolled collection of wild specimens will increase pressure on an already highly threatened species, so 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 (Criterion in Annex 2 (a) B in *Resolution Conf. 9.24 (Rev. CoP 14)*).

The Red-eyed Tree Frog *Agalychnis callidryas* is by far the most abundant species of *Agalychnis* in international trade. Around 20 000 per year are imported to the USA and it is apparently popular as a pet in Europe and Asia. The majority of trade into the USA has been from Nicaragua, although it is unclear whether this is met through captive-breeding or wild harvest. Trade from other range States has also been recorded into the USA for both wild and captive-bred specimens, although the level of trade and its impact on this widespread and apparently locally abundant species is unclear. It is not evident, in this case, that regulation of trade is required to ensure that the species does not qualify for inclusion in Appendix I in the near future (Criterion in Annex 2 (a) A in *Resolution Conf. 9.24 (Rev.*

CoP 14)), or that it is 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 (Criterion in Annex 2 (a) B in *Resolution Conf. 9.24 (Rev. CoP 14)*).

Agalychnis annae appears to be in trade as wild specimens in very limited numbers, if at all, and it seems unlikely that regulation of trade is required to ensure that it does not become eligible for inclusion in Appendix I, or to ensure that harvest is not reducing the wild population to a level at which its survival might become threatened.

Agalychnis species are generally similar in appearance to each other. It is possible to distinguish between them on the basis of a combination of iris and flank colour, although there is intraspecific variation in the latter. Of the three species currently known to be in trade (two, *A. annae* and *A. moreletii*, apparently only in small quantities), each has a different iris colour and could be relatively easy for a non-specialist to distinguish. *A. callidryas*, *A. saltator* and *A. spurrelli* all have red irises, although there are differences between them in flank colour. Of these only *A. callidryas* is known to be in trade at present. Young frogs may be more difficult to distinguish, but there is agreement that these are rarely in trade as wild-collected animals.

Inclusion of Kaiser Spotted Newt *Neurergus kaiseri* in Appendix I

Proponent: Islamic Republic of Iran

Summary: The Kaiser Spotted or Lurestan Newt *Neurergus kaiseri* is a rare amphibian endemic to Iran, where it is known from only four highland streams in the southern Zagros Mountains. It is the smallest of the four *Neurergus* species, with an adult length of 10–14 cm. Longevity in the wild is unknown, although in captivity the species regularly lives beyond six to eight years. *N. kaiseri* reach breeding size at two to three years of age. Females lay around 45–60 eggs, which are deposited singly or in clutches. Its unique colouring, a mosaic of black and white patches and orange-red dorsal stripe, legs and belly, has made it a popular species with hobbyists.

The species was assessed in 2008 by IUCN as Critically Endangered on the basis that there appear to have been drastic population declines, estimated to be more than 80% within ten years; its area of occupancy is less than 10 km²; its populations are severely fragmented; and there is a continuing decline in the extent and quality of its habitat. There is little concrete information on population size and/or trends, although it is estimated that there may be fewer than 1000 mature individuals.

Over-collection for the pet and hobbyist trade is believed to have been a major cause of decline. Other threats include habitat loss as a result of firewood collection for small-scale subsistence use, coupled with the effects of recent severe droughts, and the introduction of non-native fishes that are spreading into the streams from lower elevations and which may feed on the larvae and eggs of *Neurergus kaiseri*. Concerns have also been raised that climate change may affect survival of *N. kaiseri*, causing fluctuations of water levels of streams and probably by contraction of optimum habitat as a result of increasing water temperature.

Collection of this species is prohibited under Iranian law. However, it has been observed for sale in markets in Tehran and wild specimens are apparently exported illegally. The species is offered for sale on the Internet, frequently said to be bred in captivity, but wild specimens are reportedly also available. Owing to the illegal nature of trade in wild specimens, the level of trade is difficult to determine. However, the purported levels of availability of wild specimens from one known dealer are in the order of 15–25% of the estimated mature population.

Analysis: The Kaiser Spotted Newt *Neurergus kaiseri* has a restricted range; the population is said to be small and it occurs in fewer than five severely fragmented locations. The population is said to have declined by more than 80% within recent years because of collection for trade, habitat destruction and the introduction of non-native fish. There is known to be trade in wild-collected specimens, despite export from Iran being illegal. *Neurergus kaiseri* would therefore appear to meet the criteria for inclusion in Appendix I.

Inclusion of Scalloped Hammerhead Shark *Sphyrna lewini*, Great Hammerhead Shark *Sphyrna mokarran*, Smooth Hammerhead Shark *Sphyrna zygaena*, Sandbar Shark *Carcharhinus plumbeus*, and Dusky Shark *Carcharhinus obscurus* in Appendix II

Proponent: Palau and the USA

Summary: The Scalloped Hammerhead Shark *Sphyrna lewini* is a large circumglobal species found in distinct ocean basin populations in coastal warm temperate and tropical seas. It has low productivity due to several life history characteristics including: long life span (up to at least 30 years), large size at maturity (108–200 cm or more depending on sex and population), late age at maturity (6–17 years), long generation time (20 years), long gestation time (8–12 months), relatively low litter size (12–41 pups per litter) and low population growth rate (8–10% per year). In much of their range, Scalloped Hammerheads are caught both in targeted shark fisheries, where they make up a large proportion of total catches, and as by-catch by longline, gillnet, coastal trawlers and purse-seine fleets. In some countries these sharks are also caught in recreational fisheries. Juveniles and neonates are heavily targeted in many locations. Where data are available on abundance and catch rates of Scalloped Hammerheads or a hammerhead complex including two other sphyrnid species (*S. zygaena* and *S. mokarran*), marked historic declines to below 15–20% of baseline as well as recent declines are evident. These include: a stock assessment of Scalloped Hammerheads in the North West Atlantic reporting an 83% decline in 24 years; decline in catch per unit effort of Scalloped Hammerheads by 98% in 32 years off North Carolina (United States of America); stocks in the Eastern Pacific (Cocos Island National Park) and South West Indian Ocean (South Africa) have also undergone declines of around 60–70% over the course of between eight and 25 years. Data aggregated for the hammerhead shark complex (*S. lewini*, *S. mokarran* and *S. zygaena*) follow similar declines including up to 99.9% in the Mediterranean since the early 19th century, by more than 85%

over 44 years off the Queensland coast in Australia, and by 93% in industrial landings of sphyrnids in southern Brazil between 1994 and 2008. Scalloped Hammerheads are heavily exploited in several data-poor areas, including large parts of the Western Indian Ocean and the Western Pacific, where similar declines are suspected.

Scalloped Hammerhead fins are among the most highly valued in the international fin trade due to their large size and high needle count (meaning these fins are particularly desirable as the needles are the consumable part of the fin). Patterns and trends in international trade are largely unknown due to lack of species-specific trade records. However, commercial trade records and genetic analysis of the Hong Kong fin market provided a combined estimate of 1.3–2.7 million Scalloped Hammerheads and Smooth Hammerheads harvested for the fin trade annually. Genetic analysis of a sample of fins in the Hong Kong market indicated that Scalloped Hammerheads are exploited for the fin trade from populations in the Indo-Pacific, East and West Atlantic. Growing demand for fins is driving increased retention and targeting of hammerheads, including Scalloped Hammerheads. Hammerhead shark meat is often considered unpalatable because of a high concentration of urea; nonetheless, there are some records of international trade. In some regions, such as Brazil, Scalloped Hammerhead neonates and juveniles are targeted by coastal gillnet fisheries and traded in domestic markets. Scalloped Hammerheads are listed on various international conventions, but species-specific management measures have yet to be introduced. As of January 2010, capture of Scalloped Hammerheads will be prohibited in Spanish fishing fleets wherever they operate. Scalloped Hammerheads should be gaining some protection from various regional shark finning bans, wherever they are effectively enforced, as well as shark fishing bans throughout the Exclusive Economic Zones of French Polynesia, Palau and the Maldives. Scalloped Hammerheads are listed globally as Endangered on the *IUCN Red List of Endangered Species*, with regional populations assigned individual listings of Vulnerable and Endangered.

The Food and Agriculture Organization of the United Nations (FAO) Committee on Fisheries (COFI) recognized the need to improve management of shark fisheries with the adoption in 1999 of the International Plan of Action for the Conservation and Management of Sharks (IPOA–Sharks), endorsed by the FAO Council in 2000. In 2009, FAO reported that out of 68 members responding to a questionnaire, 50% had conducted assessment as to whether a National Plan of Action (NPOA) was needed; 90% of those have gone on to develop and implement an NPOA. To date there has been no assessment of the effectiveness of NPOAs.

The Scalloped Hammerhead is proposed for inclusion in Appendix II under *Resolution Conf. (Rev. CoP14) Annex 2a* because of significant and continuing population declines driven by the international fin trade and caught as by-catch in other fisheries. 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. The Great Hammerhead Shark *Sphyrna mokarran*, the Smooth Hammerhead Shark *Sphyrna zygaena*, the Sandbar Shark *Carcharhinus plumbeus*, and the Dusky Shark *Carcharhinus obscurus* are also proposed for listing in Appendix II under *Resolution Conf. (Rev. CoP14) Annex 2b criterion A* for look-alike reasons. All are caught in targeted and by-catch fisheries and their fins are traded internationally. Fins from all these species are thin and falcate with the dorsal fin height longer than its base. As fins in trade, hammerhead fins, along with fins from *C. plumbeus* and *C. obscurus*, are morphologically similar to *S. lewini*. Hammerhead catches are often amalgamated as *Sphyrna* spp., and *S. lewini* is often confused with *S. zygaena*. Because of the difficulty in identification of these larger hammerhead species, catches of *S. lewini* are often amalgamated with *S. mokarran* and *S. zygaena*. Because of the higher value associated with the larger triangular fins of hammerheads and *Carcharhinus plumbeus* and *Carcharhinus obscurus*, traders sort them separately from other carcharhinid fins, which are often lumped together. Sorting fins to species is done by professional fin processors but this does not occur until late in the trade chain and certainly occurs after Customs would be officially required to identify fins to species.

The four other species proposed share many life history characteristics with Scalloped Hammerheads, making them vulnerable to exploitation and slow to recover. A series of stock assessments in the North West Atlantic have shown the following declines: Great Hammerheads declined by 96% between 1981 and 2005, Smooth Hammerheads declined by 91% between 1981 and 2005, Sandbar Sharks declined by 64–71% from unexploited levels, and Dusky Sharks declined by at least 80% from unexploited levels.

Analysis: The Scalloped Hammerhead is the target of fisheries that are driven by the international fin trade and is also caught as by-catch in other fisheries, with the products entering international trade. The species is intrinsically vulnerable to overexploitation. Harvest has led to major declines in some areas such that some stocks would appear already to meet the criteria for inclusion in Appendix I. Similar declines are suspected in other areas where the species is known to be harvested, but quantitative data are lacking. All subpopulations of the species have been assessed as either Vulnerable or Endangered by IUCN and there are not known to be any major unexploited populations. It would appear therefore that the species meets the criteria for inclusion in Appendix II, in that regulation of the trade is required to ensure that the species does not become eligible for inclusion in Appendix I, assuming that it does not already do so.

Scalloped Hammerheads are primarily in trade as fins. These fins are traded with those of the other four species proposed here for look-alike reasons. While fin traders with expert knowledge are able to sort shark fins reliably to species—except notably for Scalloped and Smooth Hammerheads which are often grouped together at all stages in the supply chain—such sorting typically does not occur until after Customs would be officially required to identify fins to species. DNA tests are available to confirm species identification for sharks but are not suitable for routine Customs checks. Hence it would seem that these other species do meet criterion A in Annex 2b of *Resolution Conf. 9.24 (Rev. CoP14)* based on the difficulty of distinguishing their fins from those of Scalloped Hammerheads.

Inclusion of Oceanic Whitetip Shark *Carcharhinus longimanus* in Appendix II

Proponents: Palau and the United States of America

Summary: The Oceanic Whitetip Shark *Carcharhinus longimanus* is one of the most widespread shark species, ranging across tropical and subtropical waters (30⁰N–30⁰S). This highly migratory species has a large body size (largest specimens in recent studies 250–300 cm), late age at maturity (four to seven years), moderately long life span (up to 22 years), long gestation time (9–12 months), small mean litter size (five–six pups), and long generation time (10 years). These factors mean that the species has low productivity, making it vulnerable to over-exploitation and slow to recover following depletion.

Oceanic Whitetip Sharks were formerly among the most abundant pelagic sharks within their range and have been caught as by-catch in many pelagic fisheries around the world. A few significant small-scale fisheries target them and this species continues to make up a substantial proportion of total shark by-catch in many pelagic fisheries, mostly longline and purse seine fleets targeting tuna and Swordfish. Between 1993 and 2004, Oceanic Whitetip Sharks made up over 20% of the total shark by-catch by the purse seine fishery in the East Pacific. They are also present in 16% of French and Spanish tuna purse seine sets in the western Indian Ocean. The estimated annual by-catch of Oceanic Whitetip Sharks in longline fisheries is over 7000 individuals in the North Pacific and just under 540 000 in the Central and South Pacific. Lack of reporting and recording mean that Oceanic Whitetip Shark catches may be higher than documented in some areas. No stock assessments are available to determine population sizes, but available catch datasets indicate that this species has undergone severe historic and recent declines. In the North West Atlantic and Central Pacific, declines of 90–99% in catch per unit effort and biomass have been observed since the 1950s. Catch per unit effort of Oceanic Whitetip Sharks underwent a declining trend in the East Pacific of 90% in 10

years. Catches reported to the West and Central Pacific Fisheries Commission (WCPFC) declined by around 85% in eight years up to 2006. There is relatively little information on the status of the species in the Indian and South Atlantic Oceans, but it is known to be taken as by-catch in these areas (and in a directed fishery in the Gulf of Aden) and may be expected to have been subject to similar declines to those documented elsewhere. Catches in longline fisheries in the equatorial Atlantic are reported to have declined steeply. A large proportion of Oceanic Whitetip Shark by-catch in pelagic longlines is alive when brought onto the vessel (>75% in the USA longline fishery, 76–88% in Fijian longline fishery) and most individuals would be likely to survive if released unharmed.

Strong demand for Oceanic Whitetip Shark fins drives international trade and encourages the removal and retention of fins from sharks taken as by-catch throughout their range. Patterns and trends in the international fin trade are largely unknown as a result of a lack of species-specific trade records. However, analysis of commercial trade data from the Hong Kong fin market provided an estimate of 200 000 to one million Oceanic Whitetip Sharks harvested for the fin trade in 2000. It is estimated that Oceanic Whitetip Shark fins made up 2% by weight of the total global fin trade between 2002 and 2004.

Oceanic Whitetip Sharks are listed in Annex I of the United Nations (UN) Convention on the Law of the Sea, although no species-specific management has yet been put in place. They are subject to a joint quota in the USA and should benefit from shark finning bans which are in place in various countries and shark fishing bans in Palau, French Polynesia and the Maldives. Oceanic Whitetip Sharks are listed globally as Vulnerable on *The IUCN Red List of Threatened Species*, while the North West Atlantic and Central Atlantic populations are listed as Critically Endangered.

The FAO Committee on Fisheries (COFI) recognized the need to improve management of shark fisheries with the adoption in 1999 of the International Plan of Action for the Conservation and Management of Sharks (IPOA–Sharks), endorsed by the FAO Council in 2000. In 2009, FAO reported

that out of 68 members responding to a questionnaire, 50% had conducted assessment as to whether a National Plan of Action (NPOA) was needed; 90% of those have gone on to develop and implement an NPOA. Several current NPOAs encompass regions where Oceanic Whitetip Sharks are caught as by-catch, including Japan, USA, and Fiji (Pacific Islands Regional Plan of Action). To date there has been no assessment of the effectiveness of NPOAs.

The proposed listing would include an annotation to delay entry into effect of the inclusion of *C. longimanus* in Appendix II by 18 months to enable Parties to resolve related technical and administrative issues.

Analysis: Oceanic Whitetip Shark fins are heavily exploited as by-catch in fisheries that occur throughout their range, where removal and retention of fins is encouraged by the high value of their fins in international trade. A large proportion of the Oceanic Whitetip Shark catch is alive when brought onto the vessel and it is believed that most individuals would survive if released unharmed, rather than retained for fin removal. The species is inherently vulnerable to over-exploitation and there is evidence demonstrating declines in most cases where exploited populations are monitored. Several stocks of Oceanic Whitetip Shark appear already to meet the criteria for inclusion in Appendix I, with historical declines to <10% of baseline, which for this low productivity species is within the decline guidelines for commercially exploited aquatic species in *Resolution Conf. 9.24 (Rev. CoP14)*. Other stocks are of unknown status, but in many areas are known to be subject to heavy fishing pressure; these may be expected to show similar changes to monitored populations. There is no indication of substantial unexploited stocks.

It would appear, therefore, that the species meets the criteria for inclusion in Appendix II, in that regulation of international trade is required to ensure that the species does not become eligible for inclusion in Appendix I.

Inclusion of Porbeagle *Lamna nasus* in Appendix II

Proponent: Sweden, on behalf of the European Community's Member States acting in the interest of the European Community.

Summary: The Porbeagle *Lamna nasus* is a large warm-blooded shark occurring in temperate waters of the North Atlantic and in a circumglobal band in the Southern Hemisphere (30–60°S). While it grows faster than many cold-blooded sharks, the Porbeagle has several life history characteristics that make stocks highly vulnerable to over-exploitation and slow to recover subsequently. These include: relatively slow growth rate, late maturation (8–18 years), long life span (29–65 years), large body size (up to 357 cm), small numbers of young (average is four pups per litter), long gestation (8–9 months) and long generation time (18–26 years) leading to a low intrinsic rate of population increase (5–7% annually in the North Atlantic, 2.6% in the South West Pacific) and low productivity.

The Porbeagle is one of relatively few shark species directly exploited for its meat and there is a well documented history of Porbeagle fisheries that have over-exploited stocks, as well as declines in the amount of reported by-catch of other fisheries. Following the collapse of the North East Atlantic Porbeagle fishery in 1960 (with 85–99% declines in landings in 69 years), Norwegian, Faroese and Danish fleets moved into the North West Atlantic where the fishery collapsed after six years. Stock assessments by the International Commission for the Conservation of Atlantic Tunas (ICCAT) and the International Council for the Exploration of the Sea (ICES) in 2009 identified historical declines to 6% of baseline in the North East Atlantic in 82 years (1926 to 2008), to 22–27% in the North West Atlantic in 44 years (1961 to 2005), and in the South West Atlantic to 18% in 47 years (1961 to 2008) and also a 60% decline from 1982 to 2008. Catch per unit effort (CPUE) of Porbeagle by pelagic longliners in

the South West Pacific may also have declined by 50–80% in 10 years (1992 to 2002) and 80–95% in 17 years (1983 to 2000). Porbeagles have virtually disappeared from the areas of the Mediterranean where they were previously abundant, with catches in tuna traps declining by over 99.99% in some areas. Porbeagles continue to be targeted in the North Atlantic, including by five French vessels, Canadian vessels (185-t quota) and vessels from the USA (11-t quota). Fleets from Spain, Japan, Taiwan (Province of China) and South Korea take unquantified by-catch of Porbeagles in the South East Pacific. Assessments of the North West Atlantic stock indicate that numbers remain at a low but relatively stable level with a slight continuous decline in the number of reproductively mature females, a likely contributing factor to the limited recovery of stocks to date despite catch restrictions. Future projections suggest a recovery to Maximum Sustainable Yield (MSY) in the North West Atlantic would take place between 2030 and 2060, if the fishery were to be closed. Total reported catch in New Zealand has declined steadily from 300 t in the period 1988–89 to 50 t in the period 2005–06, despite increased catch effort.

Porbeagle meat is of high quality and high value and is traded internationally, but patterns and trends in international trade are largely unknown owing to lack of species-level trade records. Porbeagle fins are of questionable value for the fin trade but are traded internationally, largely as a by-product of the meat industry. A large proportion of Porbeagles caught in New Zealand waters are landed as fins and all fins are exported for the fin trade. Porbeagle fisheries are managed in only a small portion of their global range, with catch quotas in Canada, the USA and New Zealand, and a zero catch quota set for 2010 in the European Union (EU). The total allowable catch (TAC) in New Zealand is not based on a stock assessment and only around 20% has been reported as landed in recent years. The amount of unreported and unregulated fishing on the high seas is unknown but believed to be substantial, and a threat to stock recovery. The species is listed globally as Vulnerable in *The IUCN Red List of Threatened Species*, and regional populations have been assigned individual listings ranging from Near Threatened (Southern Ocean) to Critically Endangered (North East Atlantic and Mediterranean).

The Food and Agricultural Organization (FAO) Committee on Fisheries (COFI) recognized the need to improve management of shark fisheries with the adoption in 1999 of the International Plan of Action for the Conservation and Management of Sharks (IPOA–Sharks), endorsed by the FAO Council in 2000. In 2009, FAO reported that, out of 68 members responding to a questionnaire, 50% had conducted assessments as to whether a National Plan of Action (NPOA) was needed; 90% of those have gone on to develop and implement an NPOA. To date there have been no assessment of the effectiveness of NPOAs.

The proposed listing would include an annotation to delay entry into effect by 18 months to enable Parties to resolve related technical and administrative issues.

Analysis: Porbeagles are inherently vulnerable to over-exploitation owing to their life history characteristics. They have a long history of being caught in unsustainable target and non-target fisheries. In all areas for which they are available, landing and CPUE statistics and stock assessments indicate marked recent declines or historic collapses, ascribed in all cases to the impact of fishing. There is undoubtedly high demand for Porbeagle meat, which has high economic value; fins are apparently in less demand. Both products are traded internationally, but a lack of species-specific data means it is not possible to gauge the exact scale of international trade. The relative overall importance of trade on observed and predicted declines compared to other factors, chiefly by-catch and harvest for domestic use, is also unknown. However, at least one fishery (New Zealand) appears to be driven very largely by international demand and it seems likely that such demand is an important contributing factor in other fisheries.

Several stocks, notably those in the North Atlantic and Mediterranean, already appear to meet the biological criteria for inclusion in Appendix I with recorded historical extents of decline in abundance and landings to <10% of baseline. In addition, available trend data for South West Atlantic and Pacific populations have shown declines of at least 50%, some displaying declines to near the quantitative

guidelines for Appendix I. No information is available on one stock (South East Atlantic/South West Indian Ocean) but this stock occupies a relatively small proportion of the range of the species and its status is unlikely to affect an assessment of the overall status of the species as a whole. There is also no reason to assume that it would not respond in the same way as all other stocks if harvesting is occurring or were to occur.

Given the observed declines, and the known role of trade in at least one fishery and its likely role in others, it would appear that the Porbeagle meets the criteria for inclusion in Appendix II in that regulation of trade is required to prevent its becoming eligible for inclusion in Appendix I in the near future.

Inclusion of Spiny Dogfish *Squalus acanthias* in Appendix II

Proponent: Sweden, on behalf of the European Community's Member States acting in the interest of the European Community

Summary: The Spiny Dogfish *Squalus acanthias* is a temperate water, largely migratory shark of the shelf seas in the Northern and Southern Hemispheres. This species is widely acknowledged as the slowest-growing, latest maturing (10–32 years) and longest lived (35–100 years) of the sharks with the lowest known intrinsic rate of population increase for any marine fish (2.3–7%, depending on the stock) and extremely long gestation time (18–22 months). As a consequence, Spiny Dogfish have very low productivity and are exceptionally vulnerable to over-exploitation.

The Spiny Dogfish is one of the few shark species for which some species-specific trade data exist. Strong, persistent demand for highly valued Spiny Dogfish meat, primarily from Europe, is the key driver of international trade and targeted fisheries worldwide. Spiny Dogfish fins and other products are also traded internationally. Many Spiny Dogfish populations have been severely depleted by directed fisheries (which usually target mature females) and the species has been characterized by serial depletion around the globe. As the Spiny Dogfish is migratory and usually strongly aggregated by age and sex, fishers can maintain catches despite stock depletion and they can target the most valuable specimens in the stock (i.e. large females). Spiny Dogfish have undergone marked historic declines in stock abundance and landings in the North Atlantic and North Pacific to <20% of baseline and have also shown high recent rates of decline. Particular concerns for the North West Atlantic stock include a male-biased sex ratio (4–7:1), a decade of poor recruitment, a lack of small and large females (over 100 cm) in the population and declining brood size and mean pup length. Some North East Pacific (Canada) stocks appear relatively stable, some have declined, some are variable. Spiny Dogfish have declined greatly in the West Mediterranean and are now very rare. Data for other stocks

are lacking; they are taken as by-catch in the South West Pacific but may be protected in a large part of the Argentinean shelf by management measures for other species; stocks in Alaska and New Zealand are considered to be stable or increasing; little is known about the stocks in South Africa and Australia.

Recent closure of the European Union (EU) and Norwegian Spiny Dogfish target fisheries in the North East Atlantic mean that the majority of future demand for Spiny Dogfish meat in Europe will have to be supplied by imports. The North East Atlantic Fisheries Commission (NEAFC) prohibited high seas fisheries for Spiny Dogfish in the North East Atlantic in 2008 (and 2009). Elsewhere, there has been little improvement in Spiny Dogfish management since 2007 when the Food and Agriculture Organization (FAO) noted that the management record for this species was “poor to extremely poor throughout the world”. Off the east coast of the USA, Spiny Dogfish fishing quotas have notably increased in recent years. There is no management in the North West Pacific despite reported declines in catch per unit effort.

The FAO Committee on Fisheries (COFI) recognized the pressing need to improve management of shark fisheries with the adoption in 1999 of the International Plan of Action for the Conservation and Management of Sharks (IPOA–Sharks), endorsed by the FAO Council in 2000. Ten years later, FAO reported that out of 68 members responding to a questionnaire, 50% had conducted assessment as to whether a National Plan of Action (NPOA) was needed; 90% of those have gone on to develop and implement an NPOA. To date, there have been no assessments of the effectiveness of NPOAs. The Spiny Dogfish is listed globally as Vulnerable in *The IUCN Red List of Threatened Species*, and regional populations have been assigned individual listings ranging from Vulnerable to Critically Endangered except for South African and Australasian populations, which are considered to be of Least Concern.

The proposed listing in Appendix II would include an annotation to delay entry into effect of the inclusion by 18 months to enable Parties to resolve the related technical and administrative issues.

Analysis: The Spiny Dogfish is a widely distributed and numerically abundant fish. As a species it is inherently highly vulnerable to exploitation, the consequence of a suite of life history characteristics including extremely low productivity and a very long generation time (25–40 years). Demand for its high-priced meat, chiefly in Europe, has driven the exploitation of many stocks and it is believed that a high proportion of Spiny Dogfish meat enters international trade.

The state of stocks, and indeed the state of knowledge of stocks, is highly variable across the range of the species. Some stocks, notably in the Southern Hemisphere, are not known to be heavily exploited at present and appear to be stable. Virtually all Northern Hemisphere stocks have been heavily exploited in the past and many continue to be exploited. In almost all cases where data are available exploited stocks have demonstrated marked or very marked historical declines. Some historically or currently exploited stocks are believed to be stable or increasing although none is believed to be near the historical baseline and in at least one case (North West Atlantic–US) it is predicted that the decline will resume within less than 10 years because of recent poor recruitment.

An indication of trends in the species as a whole can be obtained by summing the best available current estimates for mature females, using relatively conservative figures for historical declines where these are known to have taken place, and assuming no change where these are not known (e.g. South West Atlantic, South West Pacific). On this basis, a very rough estimate would be that the current total population of mature females is around one third (33%) of historical population, historical in this case being more than 10 years ago, but well within three Spiny Dogfish generations.

The guidelines for commercially exploited aquatic species note that there should “rarely be a need for concern for populations that have undergone an historic extent of decline of less than 50%”. Current

information indicates that the Spiny Dogfish (in terms of number of mature females) has undergone a decline considerably in excess of this. The guidelines also note that a species may be considered for listing in Appendix II if it is near the extent-of-decline guidelines recommended for inclusion in Appendix I. In the case of a low productivity species, the latter decline is to 15–20% of baseline, while “near” is defined as between 5% and 10%, taking into due account the productivity of the species. Given the extremely low productivity of the Spiny Dogfish, it may be taken that this species is at the top of these ranges, that is, that an extent-of-decline to 30% of baseline could make the species eligible for inclusion in Appendix II. This is close to the (very rough) figure derived above, indicating that the species may meet the criteria for inclusion in Appendix II in *Resolution Conf. 9.24 (Rev. CoP14)*.

Inclusion of Atlantic Bluefin Tuna *Thunnus thynnus* in Appendix I

Proponent: Principality of Monaco

Summary: Atlantic (or Northern) Bluefin Tuna *Thunnus thynnus* is the largest member of the family Scombridae, capable of reaching a weight of over 650 kg. It is found throughout the North Atlantic and its adjacent seas, particularly the Mediterranean. The species is generally regarded as comprising two stocks, one spawning in the Gulf of Mexico and the Straits of Florida (the West stock), the other in the Mediterranean (the East stock), with adults showing high rates of natal homing and spawning site fidelity. However, there is evidence of significant trans-Atlantic movement, and members of the western population foraging in the eastern Atlantic. Individuals spawning in the Mediterranean mature at around four years of age, younger than those in the Gulf of Mexico, which mature at around 8–12 years. Life span is 30 years or more. Egg production appears to be age (or size)-dependent: a five-year-old female produces an average of five million eggs, while a female of 15–20 years can carry up to 45 million eggs. There is some disagreement over productivity of the species. Some consider that it is a species of low productivity, while others suggest that the East stock has a higher productivity than the West stock and should be regarded as having medium productivity. The West stock is currently estimated to have a population of more than 170 000 individuals over one year old and the East stock to number more than three million individuals aged one and over.

Atlantic Bluefin Tuna has been fished for many centuries, traditionally consumed fresh in Mediterranean countries (particularly Spain, France and Italy). However, exploitation in the Mediterranean is now mainly driven by the international market for sushi and sashimi, largely in Japan, and nearly all declared fishery production is exported. Traps were the main gear to catch bluefin tuna in the Mediterranean and near Atlantic for centuries, but nowadays most commercial harvest is by longline and more recently by purse seine. In the Mediterranean, around 70% of the

catch is now taken by purse seine vessels and then transported live to tuna farms where the fish are fattened for six to eight months before export mainly to Japan; weight is estimated to increase by around 13% in this period. Fish fetch high prices on the international market. In the past, the highest value attached to a bluefin tuna was about USD900 per kg at the Tsukiji market auction in Tokyo, Japan; recent prices are mainly in the range USD200–300 per kg.

The International Commission for the Conservation of Atlantic Tunas (ICCAT), which came into force in 1969, is responsible for the management of the Atlantic Bluefin Tuna. All bluefin tuna fishing and farming nations in the Mediterranean are Contracting Parties as are the USA, Canada and Japan. The species has been managed by ICCAT as two separate stocks since 1980; various management measures have been put in place, including Total Allowable Catches (TAC) for the two stocks.

TAC for the East stock was set at 22 000 t in 2008 and 19 950 t for 2009. These quotas exceeded the levels suggested by the Standing Committee of Research and Statistics (SCRS) of ICCAT, which had recommended that a maximum annual catch of between 8500 t and 15 000 t would be needed to prevent stock collapse and enable rebuilding to begin. In 2009, the TAC for 2010 was reduced to 13 500 t with a reduced fishing season and other management measures. For the West stock, TAC inclusive of dead discards was set at 1900 t for 2009 and 1800 t for 2010. The 2010 quota was not adjusted at the 2009 ICCAT Annual meeting. ICCAT have committed to setting science-based catch levels for 2011 to 2013 with a 60% probability of rebuilding the stock to healthy levels by 2023.

It is believed that there is considerable catch above the level set by ICCAT; for the period 1998–2007, ICCAT's SCRS reported that East Atlantic annual catches were likely to be in the region of 50 000 t, despite TACs of around 30 000 t. The committee considered that this apparent lack of compliance with the TAC and underreporting of the catch would undermine conservation of the stock. Although

the TAC for the East stock has now been reduced to within the limits recommended by the SCRS, it is thought likely that actual catch will remain higher than TAC.

ICCAT's SCRS have estimated the extent of decline of the two stocks. Decline was estimated for current population size compared to estimates of unexploited population size (SSB_0) as well as for the maximum population size estimated between 1970 and 2007 in the stock assessment (SSB_{max}). The committee also examined decline compared with projected population size estimates under various harvest regimes, again in comparison to the estimated unexploited population size and maximum population size in the period 1970 to 2007. The committee concluded there was a greater than 90% probability that both East and West stocks had declined to less than 15% of their unexploited population sizes (SSB_0). When declines were calculated from SSB_{max} , (i.e. maximum stock estimated in the period 1970–2007), the committee concluded that there was a 30% probability that the West stock was below 15% of this and a 21% probability that the East stock was below 20% of this. In both cases there is believed to have been significant depletion of stocks before this period.

The proposal is accompanied by a draft Resolution that “Appendix I listing would be accompanied by a Conference resolution that would mandate the Animals Committee of the Convention to review the status of the East Atlantic and Mediterranean stock and the West Atlantic stock of *Thunnus thynnus* in light of any intervening actions at ICCAT and, if warranted, ask the Depositary Government (Switzerland) to submit a proposal to a subsequent CoP to downlist the species to Appendix II or remove it from the Appendices”. The proponent notes that “a ruling to this effect by the Animals Committee only requires a simple majority of the Committee members and CoPs have a high rate of acceptance of proposals submitted by the depositary Government at the request of a relevant CITES Committee”.

Analysis: According to the footnote on the “Application of decline for commercially exploited aquatic species”, the historical extent of decline should be the primary criterion of consideration in Appendix I, it should extend as far back into the past as possible and can be estimated or inferred using indirect or direct methods. Guidelines in the footnote suggest that historical declines for species with low productivity should be to within 15–20% of the historical baseline and for species with medium productivity declines to within 10-15% of historical baseline are appropriate for listing in Appendix I. The species is considered of low to medium productivity. On the basis of estimated historical extent of decline from un-fished stock, ICCAT’s SCRS considered that there was a greater than 90% probability that both East and West stocks have declined to less than 15% of their unexploited population sizes and therefore it appears that *Thunnus thynnus* meets the biological criteria for Appendix I. The species is clearly affected by trade.

TAC for the East stock, which was decreased at ICCAT in 2009 (13 500 t for 2010), is predicted to lead to some stock recovery, if perfectly implemented. However, SCRS recognize substantial unreported catch (likely to be around 60% or 20 000 t per year above the quota for 1998–2007). Its 2009 summary report for Atlantic Bluefin Tuna states: “Based on the Committee’s analysis it is apparent that the TAC was overshot during a decade and was largely ineffective in controlling overall catch” [p 75]. There is no reason to assume that this situation will change in the immediate future. Despite low quotas imposed for the West stock, recovery has not yet been evident.

The resolution proposed to accompany the listing would appear not to be in accordance with *Resolution Conf. 9.24 (Rev. CoP14) Annex 4 A.1* which directs 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”.

Inclusion of Satanas Beetle *Dynastes satanas* in Appendix II

Proponent: The Plurinational State of Bolivia

Summary: Satanas Beetle *Dynastes satanas* is a large black beetle found only in the districts of La Paz and Cochabamba in Bolivia, in an overall area indicated to be around 1000 km². It is one of a number of rhinoceros beetles in the subfamily Dynastinae, part of the family Scarabeidae. Males have a large pronotal “horn” and can reach 115 mm in length. Little is known about the biology of the species. Females lay between 25 and 40 eggs which go through three larval stages followed by a pupal stage; this process takes approximately two years, before adulthood is finally reached. Longevity of adulthood in the wild is unknown but in captivity individuals are thought to live for approximately nine months.

There are no published population estimates for *Dynastes satanas* and the area of distribution is unknown. However, the species is thought to have suffered from loss of habitat owing to settlement, deforestation and agricultural development.

Dynastes satanas is evidently sought after in Europe, the USA and parts of Asia (particularly Japan) for the pet trade, as fighting animals and for display. Individuals are offered for sale on the Internet as larvae and adults, in dried and live form, and can reach high prices (up to USD220 for a live adult male). Local communities in La Paz are reported to collect this species and the closely related *Dynastes hercules* in order to export specimens for the international pet trade. In recent years, a number of seizures have been made of *D. satanas* and requests documented for the supply of wild *D. satanas* from Bolivia. Further trade data are limited, although the US Fish and Wildlife trade database (LEMIS) reported a small amount of trade in dead *Dynastes* specimens originating in Bolivia in the period 2000–2007, some of which are likely to have been *D. satanas*.

Impacts of collection for trade are unclear; although communities involved in collection report declining yields of *Dynastes satanas* over the past five to six years, despite increased collection effort.

The species is protected in Bolivia and trade is therefore illegal. There are pilot projects under way aimed at the sustainable use of *Dynastes satanas*.

Analysis: There is insufficient information to determine whether *Dynastes satanas* meets the criteria for inclusion in Appendix II. The species has a relatively limited range in which it is likely to be affected by ongoing habitat loss, but information on population densities and overall population trends is lacking. There is anecdotal information of declines in capture rates in areas where the species is (illegally) harvested for trade, but it is unclear how extensive or marked any such declines might be, or whether harvest for trade has any significant impact on the population.

Inclusion of Coralliidae spp. in Appendix II, with the following annotation: "the entry into effect of the inclusion of species in the family Coralliidae in Appendix II of CITES will be delayed by 18 months to enable parties to resolve the related technical and administrative issues"

Proponents: Sweden, on behalf of the Member States of the European Community, and the United States of America

Summary: Coralliidae spp. are a group of about 31 species of octocorals that occur throughout the world. They are benthic suspension feeders, occurring at depths ranging from seven to 1500 m. They are part of a valuable group known as precious corals, but many species have populations that are too small or scattered to be useful for commercial fisheries. The species that are used commercially include *Corallium rubrum* in the Mediterranean and North-east Atlantic and several species in the North-west Pacific. The axis colour of the various species ranges from white, through various shades of pink and orange, to deep red, and the products are used extensively in jewellery and art objects. Many species, especially those in deeper waters, are slow-growing and long-lived and particularly vulnerable to over-exploitation. *C. rubrum*, which occupies depths from seven to 300 m, reaches maturity relatively quickly and has had sustained extensive exploitation in several areas of the western Mediterranean for many years; however, populations have shown a dramatic decrease in their size, age and reproductive output in recent years and some populations are no longer commercially viable. Genetic studies of *C. rubrum* and some Pacific species have demonstrated significant isolation between some populations and considerable heterozygote deficiencies in some species, but not others.

Trade data show the most important producers of *Corallium rubrum* for the period 1967–2006 have been Italy, Spain and Tunisia, with smaller quantities from Albania, Algeria, Croatia, France, Greece

and Morocco. Dredging the seabed in the past to collect *C. rubrum* and other species destroyed large areas of habitat, but these crude methods have largely been replaced by more selective, less damaging ones. The commercial species in the Pacific occur mainly in Japan, Taiwan (Province of China), the USA, and seamounts in international waters. Based on trade data, the most important species are *Corallium secundum*, *C. elatius*, and *Paracorallium japonicum*, with very small quantities of *C. konojoi*. There have also been large quantities of an undescribed species, referred to as “Midway deep coral” but, without taxonomic documentation, this cannot be definitely ascribed to this family. The Pacific species have been subject to rapid exploitation following discovery of commercially viable beds, leading to exhaustion of the resource. After harvesting has been discontinued, the populations have shown signs of recovery but, even after a number of years, have not fully recovered. Much of the trade is in the form of processed beads, traditionally processed and exported by Italy but, more recently, several Asian countries have been involved. The USA is the main importer of Coralliidae products, involving millions of unworked and worked items. Illegal harvesting was a problem in US territorial waters in the past and has been reported with increasing frequency in Spanish waters. The main threat to Coralliidae is over-harvesting, but secondary human impacts include pollution, sedimentation in the Mediterranean and incidental take and habitat degradation, associated with longline fishing and bottom trawling in the Pacific. Climate change may also provide an additional threat; it has been asserted that dense, short-lived populations with a high turnover are likely to be more susceptible to mass mortalities when fishing pressure is combined with global climate change (especially temperature anomalies). Mass mortalities have also been linked to disease.

Harvesting of *Corallium rubrum* is regulated in most countries. The Pacific species are regulated in the Hawaiian Islands, other areas under US jurisdiction, Japan and Taiwan (Province of China). Coralliidae are not managed by any existing fisheries management organizations. *C. elatius*, *C.* (= *Paracorallium*) *japonicum*, *C. konojoi* [sic] and *C. secundum* were listed in Appendix III by China,

effective from 1 July 2008. There are currently no captive-breeding or propagation programmes for Coralliidae.

Analysis: Coral derived from Coralliidae species is a valuable commodity that is traded in large amounts. Populations of various Coralliidae species, chiefly in the Mediterranean, North-east Atlantic and North-west Pacific, have been exploited for their coral, much of it destined for international trade. This exploitation has often been intensive and, in recent years, some populations have shown very marked decreases in size, age and reproductive output.

There remain, however, significant uncertainties regarding the impact of harvest for international trade on Coralliidae species, particularly in regard to the Pacific species. These uncertainties include: the proportion of each species that remains inaccessible to harvest and how changing technologies may in future alter that proportion; the proportion of accessible populations that is not harvested (because it is not economic to do so or because of enforced controls on harvest); rates of recovery of harvested populations and the degree to which species can recolonize areas; the age of reproduction of colonies relative to the age at which they are harvested; the impact of other factors, such as sedimentation, pollution and incidental take, on Coralliidae populations; in some cases the identity of the species involved. Given these uncertainties, it is not possible to say with certainty whether or not most Coralliidae species meet the criteria for inclusion in Appendix II set out in *Resolution Conf. 9.24 (Rev. CoP14)*.

Considerably more is known about *Corallium rubrum* than about other Coralliidae species, but even in this case it is difficult to apply the criteria in *Resolution Conf. 9.24 (Rev. CoP14)* for inclusion in Appendix II in a straightforward way, largely because they were clearly not established with widely distributed, colonial marine organisms in mind. In attempting to assess this species against the criteria, it may be argued that the “application of decline to commercially exploited aquatic species” set out in the footnote to Annex 5 should apply. In fact, the language in the footnote is derived from

conventional fisheries biology and management practice, which itself can only meaningfully be applied to conventional fisheries stocks. It is, arguably, even less relevant to the case of Coralliidae than the general criteria and guidelines in the Resolution. Taking these as set out in Annex 2a of *Resolution Conf. 9.24 (Rev. CoP14)*, two cases apply: is regulation (i.e. inclusion in Appendix II) required to ensure that the species does not become eligible for inclusion in Appendix I in the near future (Annex 2a A.); or is regulation required to ensure that harvest is not reducing the wild population to a level at which its survival might be threatened by continued harvest or other influences (Annex 2a B.)?

The first case requires assessment using the Appendix-I criteria. The species evidently does not have a small population, nor a restricted area of distribution, nor is it predicted to have so in the near future. Regarding any observed or inferred decline in population, if population size is taken to mean number of colonies, then it is unlikely that the species has undergone a recent marked decline or will do so in the near future: most current harvest is agreed to have the effect of reducing the average size of colonies (sometimes drastically) rather than their absolute number. However, were it to be argued that the total number of individual polyps was more indicative of population size, then the overall mass or weight of the population might be a more relevant measure. In this case, because the average size of colonies in exploited areas has decreased, then it is possible that the species has undergone an overall marked decline in these areas (it has certainly done so locally). Exploitation is increasingly targeting deeper waters, where colonies are generally larger but more sparsely distributed, so that such a decline might be expected to continue. However, considerable uncertainties remain because, as with other species of Coralliidae, there is a lack of knowledge of the overall biomass of deeper water colonies and of their current rate of exploitation. Because of these uncertainties, it is not possible to say whether the overall rate of decline of the species (as measured by biomass) is near to being “marked” or not. Interpretation is further hampered by the fact that there is no settled definition of generation time for this species, nor is one likely to be agreed on, although it can assumed to be longer than the earliest reported age at maturity (seven years). The high unit value of the species in

international trade would indicate that there is an incentive to target (and deplete) any accessible stocks.

Regarding the second criterion, it has been argued that reduction in average colony size as a result of harvest for trade reduces reproductive potential and makes colonies more liable to destruction from other sources. The evidence that harvest for trade is likely to lead to the survival of the species becoming threatened in either of these ways is weak. No definite link has been established between recruitment rates (as opposed to recruitment potential) and colony size or absolute production of larvae, nor has it been clearly demonstrated that small colonies or those at lower densities are inherently more vulnerable to extinction. The species has a wide distribution and at least some populations are extremely likely to remain inaccessible to exploitation or economically unviable to exploit, and otherwise remote from other direct human influences. This means that the species as a whole is inherently unlikely to become extinct, unless there are wholesale and catastrophic environmental changes throughout its range.

In conclusion, it is conceivable, but by no means certain, that *Corallium rubrum* meets the criteria for inclusion in Appendix II by virtue of regulation of trade being necessary to prevent the species becoming eligible for inclusion in Appendix I in the near future, applying the decline criterion for Appendix-I listing to overall mass of the species rather than colony number, assuming an extended generation time for the species and assuming that deeper water, inaccessible colonies do not represent a significant proportion of the recent overall mass of the species as a whole. The species does not appear to meet any other criterion for inclusion in Appendix II.

Species of Coralliidae in trade resemble each other and it probably will not be possible to identify all specimens in trade to the species level; therefore, inclusion of some but not all species in the Appendices might create implementation problems.

Inclusion of *Operculicarya decaryi* in Appendix II

Proponent: Madagascar

Summary: *Operculicarya decaryi*, sometimes known as jabily, 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 altitudes in southern Madagascar, with an extent of occurrence variously estimated at 50 000 or 70 000 km² and an area of occupancy of 3000 km² (300 000 ha) or 8500 km² (850 000 ha). Around 30 subpopulations are known. It can be locally abundant, with an estimate of over 30 000 individuals in one subpopulation, and densities of 220–400 individuals per hectare in sample sites. Regeneration, at least in some areas, appears to be good.

The species has a bonsai-like appearance and is in cultivation, mostly grown by hobbyists who specialize in succulent plants. Exports from Madagascar are reportedly mainly of small plants. Recorded exports show a rising trend, from 56 plants in 2003 to just under 2700 in 2006. At least some, possibly all, of these would have been wild-collected plants.

The species is apparently straightforward to propagate from stem or root cuttings, less easy from seed, which may show low viability. Plants are relatively widely available internationally. Most are of moderate price (EUR12–40 in Europe, USD 25–120 in the USA) and are stated to be artificially propagated, although occasionally larger, much more expensive plants (up to USD500) are offered, which are almost certainly of wild origin.

Two other species of *Operculicarya*, *O. hyphaenoides* and *O. pachypus*, have been proposed for inclusion in Appendix II at CoP15 (see proposals Prop. 23 and Prop. 24).

Analysis: *Operculicarya decaryi* is a relatively widespread and common plant in Madagascar. Available information on its extent of occurrence and known population densities indicates that the wild population may well be very large. It is in trade for horticulture, but mainly as small plants and can reportedly be easily propagated. There is no known intensive or extensive harvest for domestic use within Madagascar. It seems very unlikely that harvest for trade is reducing the species to a level at which it might become eligible for inclusion in Appendix I in the near future, or that such regulation is needed to ensure that harvest 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.

The species does resemble other *Operculicarya* and particularly one of the two other species proposed for inclusion in Appendix II at the present meeting of the Conference of the Parties (*O. pachypus*). It is conceivable that, were the latter to be included in Appendix II, inclusion of *O. decaryi* might help regulate trade in it (although several other similar species of *Operculicarya*, at least some of which may be in trade would remain outside the Convention).

Inclusion of *Operculicarya hyphaenoides* in Appendix II

Proponent: Madagascar

Summary: *Operculicarya hyphaenoides* is a well-branched, deciduous thick-stemmed shrub or small tree, endemic to Madagascar, which can grow up to 1.5m tall. It is one of eight species in the genus *Operculicarya*, seven of which are endemic to Madagascar, with the eighth occurring in Madagascar and the Comoros. It has a restricted range in south-west Madagascar, growing in semi-arid scrub vegetation on limestone notably in and around Tsimanampetsotsa National Park. Estimates of its extent of occurrence are of less than 500 km² and 800 km² with an area of occupancy of 300 km² (30 000 ha) and just under 500 km² (50 000 ha), respectively. The distribution is reportedly fragmented; seven sub-populations, some of them small (five to six hectares), are reported. The species can evidently be reasonably abundant locally; two study sites surveyed in 2005 had estimated densities of 370 and 550 individuals per hectare. Regeneration appeared to be good.

The species has a bonsai-like appearance and has appeal to specialist collectors of succulents. It does not appear at present (late 2009) to be readily available in trade, although has been obtainable in the past. Recorded exports from Madagascar are few (25 in 2004, 161 in 2005, 395 in 2006). These exports are likely to have been mainly or entirely of wild-collected plants. Propagation is reportedly by seed and cuttings.

Two other species of *Operculicarya*, *O. pachypus* and *O. decaryi*, have been proposed for inclusion in Appendix II at the present meeting of the Conference of the Parties (see Prop.23 and Prop. 24); these species are more similar in appearance to one another than to *O. hyphaenoides*.

Analysis: *Operculicarya hyphaenoides* is a localized but apparently locally common plant in Madagascar. Extrapolation from its known area of occupancy and sampled population densities indicates a substantial wild population, although distribution is likely to be patchy within its area of occupancy. There is no known intensive or extensive harvest for domestic use in Madagascar. The species is reported in trade, although apparently at low levels, and can be propagated artificially. It seems unlikely that harvest for trade is reducing the species to a level at which it might become eligible for inclusion in Appendix I in the near future, or that such regulation is needed to ensure that harvest 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.

Inclusion of *Operculicarya pachypus* in Appendix II

Proponent: Madagascar

Summary: *Operculicarya pachypus* is a short, thick-stemmed (pachycaul) deciduous shrub endemic to Madagascar, which grows to around 1.2 m in height. 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 has a very restricted range in south-west Madagascar in the vicinity of Toliara, where it occurs in open, semi-arid thicket on calcareous substrates. Its extent of occurrence is estimated at just under 400 km² and the area of occupancy at around 100 km² (10 000 ha) with three or four sub-populations known. The species can be locally abundant, with around 1000 per hectare recorded in one small (six-hectare) sub-population, and regeneration generally appears to be good.

The species has a bonsai-like appearance and is in cultivation, mostly grown by hobbyists who specialize in succulent plants. Some 1800 specimens have been recorded as exported from Madagascar in the period 2003–2006, most of these (1200) in 2004. At present (late 2009) the species appears to be not widely available outside Madagascar; it can evidently command high prices (USD2540 for a specimen in a 40 cm pot). Recorded exports are likely to have been mainly or entirely of wild-collected plants.

The species is not known to occur in any protected area. Its habitat is reportedly affected by fire and there is some local use, of the bark for the preparation of medicine, but it is not known how intensive this is.

Two other species of *Operculicarya*, *O. decaryi* and *O. hyphaenoides*, have been proposed for inclusion in Appendix II at the present meeting of the Conference of the Parties (see proposals Prop. 22 and Prop. 23).

Analysis: *Operculicarya pachypus* is a very localized but apparently at least locally abundant plant in Madagascar. Extrapolation from its estimated area of occupancy and sampled population densities indicate a reasonably large wild population (although it is likely to be patchily distributed in its area of occupancy). There is no known intensive or extensive harvest for domestic use in Madagascar. The species has been exported as a horticultural plant, although few exports have been reported in recent years and the species does not appear to be widely available at present. On present information, it seems unlikely that harvest for trade is reducing the species to a level at which it might become eligible for inclusion in Appendix I in the near future, or that such regulation is needed to ensure that harvest 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. However, given the apparently highly restricted distribution, this cannot be said with certainty.

The species does resemble other *Operculicarya* and particularly one of the two other species proposed for inclusion in Appendix II at the present meeting (*O. decaryi*). It is conceivable that, were the latter to be included in Appendix II, inclusion of *O. pachypus* might help regulate trade in it (although several other similar species of *Operculicarya*, at least some of which may be in trade, would remain outside the Convention).

Amendment of the annotation to Cactaceae spp. and all taxa with annotation #1

Delete annotations #1 and #4 and replace them both with the following new annotation for plant taxa listed in Appendix II:

All parts and derivatives, except:

- a) seeds (including seedpods of Orchidaceae), spores and pollen (including pollinia) except those seeds from Cactaceae spp. exported from Mexico;**
- b) seedlings or tissue cultures obtained *in vitro*, in solid or liquid media, transported in sterile containers;**
- c) cut flowers of artificially propagated plants;**
- d) fruits and parts and derivatives thereof of naturalized or artificially propagated plants of the genera *Vanilla* (Orchidaceae), *Opuntia* subgenus *Opuntia* (Cactaceae), *Hylocereus* and *Selenicereus* (Cactaceae);**
- e) stems, flowers, and parts and derivatives thereof of naturalized or artificially propagated plants of the genera *Opuntia* subgenus *Opuntia* and *Selenicereus* (Cactaceae); and**
- f) finished products of *Euphorbia antisyphilitica* packaged and ready for retail trade.**

Amend footnote 6 as follows (delete struck-through text):

Artificially propagated specimens of the following hybrids and/or cultivars are not subject to the provisions of the Convention:

- *Hatiora x graeseri***
- *Schlumbergera x buckleyi***
- *Schlumbergera russelliana x Schlumbergera truncata***
- *Schlumbergera orssichiana x Schlumbergera truncata***

- *Schlumbergera opuntioides* x *Schlumbergera truncata*
- *Schlumbergera truncata* (cultivars)
- Cactaceae spp. colour mutants lacking chlorophyll, grafted on the following grafting stocks: *Harrisia 'Jusbertii'*, *Hylocereus trigonus* or *Hylocereus undatus*
- *Opuntia microdasys* (cultivars)

Proponents: Mexico and the United States of America on behalf of the Plants Committee

Significant changes proposed are discussed below.

Cactus seeds

At present, seeds of Appendix-II listed Mexican cacti originating in Mexico are not excluded from the Convention, that is they require CITES certificates when traded, unlike all other Appendix-II cactus seeds, which are excluded from the Convention. Under this wording, both exports of seeds of Mexican cacti from Mexico, and re-exports of such seeds from other countries require certificates. However, exports of seeds of non-Mexican cacti originating in Mexico, from cultivated or naturalised plants, are not subject to the Convention.

The proposed amendment refers only to “seeds of Cactaceae spp. exported from Mexico” as not being excluded from the Convention. This means that all cactus seeds exported from Mexico, including those of non-Mexican cacti, will be subject to the Convention and require CITES certificates when traded, but that re-exports of any Appendix-II cactus seeds, including of Mexican cacti, from countries other than Mexico will not be subject to the Convention.

Analysis: This will simplify implementation both in Mexico and elsewhere and will have no adverse conservation impacts.

Cactus fruits, flowers and stems

At present cut flowers of artificially propagated plants and the fruits and parts and derivatives of fruits of naturalized or artificially propagated plants of all Appendix-II cactus species, as well as the separate stem joints (pads) and parts and derivatives of these joints of naturalized and artificially propagated plants of the genus *Opuntia* subgenus *Opuntia* are excluded from the Convention.

Fruits: The proposed amendment will restrict the exemption for fruits and parts and derivatives of fruits to naturalized or artificially propagated plants of the genera *Opuntia* (subgenus *Opuntia*), *Selenicereus* and *Hylocereus*.

There is an extensive trade in fruits of various cultivated cacti, much of it originating outside the natural range of the species concerned. The most important traded fruits are “dragon fruits” or pitaya, chiefly from *Hylocereus undatus* (Red Pitaya) and *Selenicereus megalanthus* (Yellow Pitaya), and prickly pears or cactus figs of various *Opuntia* species, such as *O. ficus-indica*. There is also some export from Israel of fruits of *Cereus peruvianus*, marketed as koubo (Mizrahi *et al.* 2002). Some other cactus genera, notably *Stenocereus*, are also cultivated for their fruits although apparently only within their natural range and for domestic consumption (Pimienta-Barrios and Nobel, 1994). The current exemption (existing annotation #4) ensures that international trade in any cactus fruits and parts and derivatives from naturalized and artificially propagated plants is exempt. The suggestion made, for example in the supporting statement to proposal CoP14 Prop. 26, that paragraphs d) and e) of existing annotation #4 are somehow linked, so that the reference to genus *Opuntia* (subgenus *Opuntia*) in paragraph e) also applies to paragraph d) is clearly erroneous. If they were linked, then by analogy the exemption in paragraph c) of annotation #1, concerning cut flowers of artificially propagated plants of a wide range of species, most importantly Appendix-II listed orchids, would in fact only apply to plants of the genus *Vanilla* as this is the subject of paragraph d) in that annotation, which it does not.

Flowers: With regard to flowers, “cut flowers of artificially propagated plants” of all Appendix II-listed cacti are already exempt from the Convention under existing para c) of annotation #4, which will remain as para c) of the new annotation. New paragraph e) will, in addition, allow exemption of flowers and flower derivatives of naturalized (as opposed to artificially propagated) plants of the genera *Opuntia* subgenus *Opuntia* and *Selenicereus* (Cactaceae) as well as parts and derivatives of flowers of artificially propagated plants of these genera.

Dried flowers and extracts of flowers of some *Opuntia* and *Selenicereus* species are traded as medicines. The great majority of this trade is believed to originate in naturalized or artificially propagated plants.

Stems: The proposed amendment will widen the exemption for stems to include those of *Selenicereus* and their parts and derivatives. It simplifies the wording for the exemption for stems of *Opuntia* (subgenus *Opuntia*).

Stems (“pads”) of typical *Opuntia* species are grown and traded as a vegetable. The great majority of this trade is derived from artificially propagated and naturalized stock; such trade is already exempt from the Convention. Stems and derivatives from stems of some *Selenicereus* species are traded for medicinal purposes. The great majority of this trade is also believed to originate in naturalized or artificially propagated plants.

Analysis: Exempting trade in cactus fruits, flowers and stems from the provisions of the Convention under the terms of the proposed annotations is extremely unlikely to have any adverse conservation impact. The proposed exemption for fruits will no longer cover fruits of artificially propagated *Cereus peruvianus*, which will then theoretically be subject to regulation under CITES. This will increase the burden of implementation and have no conservation benefit. Reversion to the original wording of annotation #4 would solve this problem.

Grafted cacti

Under the existing annotation, grafted specimens of colour mutants of cacti grafted onto three cactus rootstocks are exempt from the Convention provided they are lacking in chlorophyll. The proposed annotation will apply to all such colour mutants whether they contain chlorophyll or not.

Analysis: There is an extensive trade in grafted colour forms of various cacti, particularly *Gymnocalycium mihanovicii*. This trade has nothing to do with wild plants and has no conservation impact. Although most of the forms do indeed lack chlorophyll, some contain small quantities and are therefore in theory not covered by the existing exemption, although there is no reason for them not to be covered. The proposed amendment rectifies this so that all such forms will now be covered by the exemption.

Euphorbia antisiphilitica

The proposed annotation will exempt finished products of *Euphorbia antisiphilitica* packaged and ready for retail trade from the Convention. At present such products are not exempt.

The genus *Euphorbia* is one of the largest, most widely distributed and most variable genera of plants. There are between 1500 and 2000 species, ranging from small annuals to trees, with most species occurring in the tropics. Around 700 species display some degree of succulence. A wide range of species is of horticultural interest. Some are mass-produced and are widely grown as ornamental garden or house plants. Some of these are traded internationally in large quantities. Others, particularly some dwarf, slow-growing succulent forms, are of interest to specialist collectors. Some of these have been traded as wild collected plants, sometimes in substantial quantities. Some species are also used as medicinal plants. The only product derived from succulent euphorbia species known to be in international trade in any quantity is candelilla wax, extracted from *Euphorbia antisiphilitica*, a species native to Mexico and the USA. Candelilla wax is used in a range of products, including cosmetics, dyes, inks, foodstuffs, pharmaceutical compounds, emulsions, wood-polishes

and adhesives. The main use at present is in cosmetics. Commercial production of candelilla wax only takes place at present in Mexico, with most production apparently exported in the form of raw material (Schneider, 2009 and CITES trade database).

The entire genus was included in Appendix II of CITES in 1975 undoubtedly because of concern regarding the possible impact of collection for the horticultural trade of wild plants of some succulent species especially from South Africa. In 1997 non-succulent forms were excluded as were artificially propagated cultivars of *Euphorbia trigona*, a taxon only known in cultivation. At CoP13, a number of other forms of succulent euphorbias widely propagated for the horticultural trade were also exempted. With these exceptions, the Appendix-II *Euphorbia* species are currently covered by annotation #1. Currently 10 species of succulent *Euphorbia* from Madagascar are included in Appendix I. All are dwarf forms.

According to the CITES trade database, Mexico has reported exports of just over 2400 t of wax in the period 2001–2008, most of this (ca 1500 t) going to Germany, with virtually all the remainder going either to the USA (ca 700 t) or Japan (ca 200 t). According to other Mexican sources, quoted in Schneider (2009), export is somewhat higher than this, having averaged around 1000 t per year in the period 2002–2004, with just under 40% of this going to the USA, a similar amount to the European Union and most of the remainder to Japan (Schneider, 2009).

At present finished products containing candelilla wax are covered by the Convention, creating in theory a considerable implementation burden. The proposed annotation will place the species on the same footing in the Convention as a range of other Appendix-II listed plants that are traded principally in the form of raw or semi-processed extracts or derivatives and as finished products for the retail trade, currently annotated with annotation #2, which exempts “seeds and pollen” and “finished products packaged and ready for retail trade”. These are *Rauvolfia serpentina*, *Podophyllum*

hexandrum, *Adonis vernalis*, *Picrorhiza kurrooa*, various *Taxus* species, *Nardostachys grandiflora* and *Guaiaacum* spp.

Analysis: This amendment is extremely unlikely to have adverse conservation impacts, but should help reduce implementation burdens.

Inclusion of *Zygosicyos pubescens* in Appendix II

Proponent: Madagascar

Summary: *Zygosicyos pubescens*, also known as *Xerosicyos pubescens*, is a succulent plant from Madagascar in the gourd family or Cucurbitaceae. It has a swollen, tuber-like stem or caudex which may exceptionally reach nearly one metre in diameter from which extend vine-like branches. Known occurrences of the species are confined to five localities in an area of some 400 km² in south-east Madagascar, where the species grows in scrub and dry forest in rocky areas with a little shade. The area it occurs in is generally affected by a range of anthropogenic pressures, including fire, overgrazing, fuelwood extraction and charcoal production. It is not known to occur in any protected area. The species is in some demand internationally as a horticultural plant, grown chiefly by specialist collectors of succulents. The CITES Management Authority of Madagascar records the export of some 80 specimens in the period 2003–2006. It may be assumed that most or all of these were wild-collected plants. The species does not appear to be widely available outside Madagascar at present. It can reportedly be propagated by both seeds and cuttings. Specimens were offered for sale by one exporter at EUR95.

Analysis: Available information, which is sparse, indicates that *Zygosicyos pubescens* has a restricted range with a small number of known occurrences. There is no information on its abundance in the wild. The very small number of individuals reported in trade in recent years is unlikely to have an impact on the wild population, but in the absence of any population information this cannot be said with certainty. There is therefore insufficient information to determine whether the species meets the criteria for inclusion in Appendix II or not.

Inclusion of *Zygosicyos tripartus* in Appendix II

Proponent: Madagascar

Summary: *Zygosicyos tripartus* is a succulent plant from Madagascar in the gourd family or Cucurbitaceae. It has a swollen, tuber-like stem or caudex up to 30 cm in diameter from which extend vine-like branches that may reach five metres in length. The plant has a relatively wide distribution in central and southern Madagascar, extending over several thousand square kilometres, and appears to be at least locally numerous, although apparently only occurs in relatively intact forest. The area in which it occurs is affected by a range of factors, including forest clearance for agriculture, overgrazing, fuelwood collection and manufacture of charcoal. It is not known to what extent the species is affected by these. The species is not known to be used locally. It is in some demand internationally as a horticultural plant, grown chiefly by specialist collectors of succulents. The CITES Management Authority of Madagascar records the export of some 5000 specimens in the period 2003–2006. It may be assumed that some or all of these were wild-collected plants. The species has been offered for sale recently in Europe and the USA at moderate prices (EUR30–70, USD150).

Analysis: *Zygosicyos tripartus* is a relatively widespread and at least locally abundant plant in central and southern Madagascar. If local population estimates are at all representative of its range as a whole, the species is likely to have a substantial wild population. The species is in demand in the international horticultural trade and has been recorded as exported in moderate quantities from Madagascar in recent years. Much or all of this export is likely to have been in the form of wild-collected plants. There is no information on the impact of collection for export on wild populations. Collection to meet current levels of export may possibly be leading to local depletion, but it seems unlikely that regulation is required to prevent the species becoming eligible for inclusion in Appendix I in the near future, or to prevent harvest for trade reducing the overall population to a level at which its survival might become threatened by continued harvest or other influences.

Deletion of the Cliff Spurge *Euphorbia misera* from Appendix II

Proponents: Mexico and the United States of America

Summary: Cliff Spurge *Euphorbia misera* is a slow-growing, perennial succulent shrub from north-western Mexico and southern California in the USA. It occurs mainly in coastal scrub habitat at altitudes of 10–500 m but also occurs in central Sonora. The majority of the range lies in Mexico. Detailed information on its status there is lacking although it is described as widespread in some areas of Baja California State and locally common in others. In the USA, 26 known occurrences are reported by the California Department of Fish and Game. In some of these the species is reported as quite numerous (over 1000 plants) while in others it is apparently scarce. The plant is affected by habitat destruction owing to continuing coastal development and in the case of island populations, herbivory from introduced species such as European rabbits *Oryctolagus cuniculus*. Around half of known occurrences in both Mexico and the USA are within protected areas. It is covered by general regulations requiring permits for collection and commercialization of non-woody plants (Mexico) or succulents (California, USA).

The species was included in CITES Appendix II in 1975 in the general listing for the genus *Euphorbia*, amended in 1997 to include succulent species only.

In Mexico, the species is reportedly used locally in traditional medicines, although such use appears to be very limited. It is in cultivation in the USA but is evidently easily grown from both seed and cuttings, and relatively widely available as artificially propagated plants. Minimal trade in the species is reported in CITES trade data (nine specimens in total, the most recent in 1997, all reported as from the USA and as artificially propagated). The species has not been found advertized for sale outside the USA recently, and is unlikely to be in demand.

Euphorbia misera can reportedly be distinguished from other shrubby Appendix-II listed *Euphorbia* species occurring in Mexico and the USA by the characteristic shape of the leaves (heart-shaped at the base). It may be similar to other Appendix-II listed *Euphorbia* species occurring elsewhere. However it is not known to be similar to any Appendix-I listed *Euphorbia* species (all small forms from Madagascar) or to any Appendix-II listed *Euphorbia* that are reported in trade in any quantity as wild-collected plants.

Analysis: Extremely little international trade in *Euphorbia misera* has been recorded since 1975, and none in wild-collected specimens, nor is there expected to be any international demand for wild-collected specimens. There is thus no indication that trade in *Euphorbia misera* needs to be regulated to prevent its becoming eligible for inclusion in Appendix I in the near future, or to ensure that harvest from the wild is not reducing the population to a level at which its survival might be threatened by continued harvesting or other influences.

The species does not resemble any Appendix-I listed *Euphorbia*. It may possibly resemble other Appendix II-listed *Euphorbia* species, but is not known to resemble any whose trade might be a cause of concern and as it itself is not in trade, nor likely to be in trade, there is no reason to retain it in Appendix II for look-alike reasons.

Taking into account the precautionary measure outlined in Annex 4.4 of *Resolution Conf. 9.24. (Rev. CoP 14)*, there is no evidence to suggest that deletion would be likely to result in it qualifying for inclusion in the Appendices in the near future.

Inclusion of Brazilian Rosewood *Aniba rosaeodora* in Appendix II with annotation #11 "Designates logs, sawn wood, veneer sheets, plywood and essential oil"

Proponent: Brazil

Summary: Brazilian Rosewood *Aniba rosaeodora* (also known as Rosewood, Pau-rosa and Palo de Rosa) is a slow-growing hardwood tree reaching a height of up to 30 m and trunk diameter at breast height (DBH) of two metres. It is one of about 40 members of the Neotropical genus *Aniba* and occurs in dense primary wet tropical rainforest at medium and high altitudes in Brazil, Colombia, Ecuador, French Guyana, Guyana, Peru, Suriname and Venezuela. The tree has been extensively felled to harvest its wood which is rich in linalool oil, valued as a fragrance in top-of-the-range perfumes, as a component in a wide range of scents and in aromatherapy. *A. rosaeodora* wood can also be used in furniture and in canoe manufacturing, but is rarely used for these purposes because of the high commercial value of its essential oil.

The species grows at low densities and discontinuously. Little detailed information exists on its current status as there are virtually no known forest inventories. The highest density population is believed to be in the central Amazon predominantly in the state of Amazonas, Brazil. In this area there are reported to be usually fewer than two trees per ha, but locally densities may be higher: in one, unexploited population in a 10 000-ha forest reserve in the Manaus region of Amazonas, there are three to four adult trees per hectare. Accessible stocks are believed to have been largely exhausted through overexploitation in French Guyana, Guyana and Peru, as well as Amapá, Pará and a significant area of Amazonas in Brazil. It is included in lists of threatened tree species of Colombia and Suriname. Remaining stands are reportedly in remote forest areas where access is difficult. Evidence of natural regeneration has been found recently, but it takes place slowly, irregularly and infrequently.

Brazil is now apparently the only producer of *A. rosaedora* essential oil, which is derived almost entirely from natural stands. Although all parts of the tree are oil rich, the oil is extracted almost entirely from the wood as this is the most valued for the fragrance industry and in aromatherapy. Current extraction methods require the tree's destruction. Typically trees over 30 cm diameter at breast height and on average 30 to 35 years old are cut down, due to the higher quality aroma allegedly obtained from older trees. Now smaller trees are also being harvested because of the shortage of readily accessible older *A. rosaedora* trees.

It is estimated that between 1937 and 2002, a large number (825 000) of trees were logged, believed to correspond to harvest from more than four million ha of forest. The harvesting and distillation processes are highly inefficient, partly because very old equipment is used. Some illegal mobile distilleries may still be operating, although most or all may have been recently closed by the Brazilian Institute of Environment and Natural Resources (IBAMA).

It is estimated that 15% of oil is used in the perfume industry in Brazil, with the remainder exported. There is some disagreement about recent oil production volumes; figures from the 1990s and early 2000s varied from 38 t per year to 100-130t per year. It appears that since 2000 export has been less than 39 t and has reportedly failed to meet demand, in spite of increasing prices.

A comparison of the volume of logs authorized for extraction (equivalent to between 1000 and 2000 trees annually) and the quantity of oil exported between 2003 and 2008 indicates that a large proportion of the oil exported must have come from unauthorized felling. Over five times more raw material than was legally harvested would be needed for the total level of export reported in the period (although the annual discrepancy between recorded oil export and authorized volume of logs has been much less since 2006). In recent years the USA has been the chief international buyer of oil. In the period 2000–2003, it accounted for just under half of reported exports, with France, Belgium and the UK accounting for almost all the remainder. The oil is expensive, with advertised retail prices of up to ca USD2 per ml in importing countries.

Cheaper, synthetic linalool oil, and Ho wood *Cinnamomum camphora* and Ho leaf oils are substitutes for that obtained from *A. rosaeodora* in low price and mid-range perfumes, but *A. roseaodora* oil is still much in demand for fine perfumes because of its superior aroma. Adulteration or substitution of *A. rosaeodora* oil with oil from other *Aniba* species, synthetic linalool, Ho wood and Ho leaf oils, and linalyl acetate is reported to occur. However, the extent of this, and the extent to which other *Aniba* species (none of which is listed in the CITES Appendices) are harvested for oil extraction, remains the subject of controversy. Adulteration can only be detected by chemical analysis.

The Brazilian Government has many laws and general measures designed to help conserve the species, and while there has been some success, there are difficulties in enforcing the regulations. In 2006 an electronic Document of Forest Origin system was introduced which is necessary for the domestic transport of the oil.

Only a small number of plantations of *A. rosaeodora* exist and it is likely to take a few decades for these to produce oil acceptable to the market. There is high potential for the sustainable production of oil from *A. rosaeodora* leaves and stems. Two drums of oil from this source were exported in 2008, but it will be an estimated six to eight years before substantial quantities are available for export and widespread approval from the fragrance industry of oil from this source is still needed.

A. rosaeodora was assessed by IUCN as Endangered (A1d+2d) in 1998; this assessment is regarded as in need of updating. It was listed as endangered in Brazil in 1992.

The proponent seeks to list *A. rosaeodora* in Appendix II, in accordance with Article II, paragraph 2a) of the Convention and *Resolution Conf. 9.24 Annex 2a, Paragraph A*, with Annotation #11 designating logs, sawn wood, veneer sheets, plywood and essential oil. However the current annotation #11 lists "powder and extracts" and not "essential oil".

Analysis: *Aniba rosaeodora* is a wide-ranging, heavily exploited and slow-growing tree known to be depleted in many parts of its range. Exploitation is very largely driven by export trade, although this trade, as far as is known, is now confined to one country—Brazil—albeit the one where most of the surviving population is found.

The species certainly does not have a restricted range or a small population under the guidelines for inclusion in Appendix I provided in *Resolution Conf. 9.24 (Rev. CoP14)*. There is insufficient information on historical trends to determine whether the overall population has undergone a marked recent decline or not. There is therefore insufficient information to determine whether regulation in trade is needed to ensure that the species does not meet the biological criteria for inclusion in Appendix I in the near future (Criterion Annex 2 a A).

While harvesting for trade has certainly depleted accessible populations, it is not evident that regulation is required to ensure that harvest is not reducing the total wild population to a level at which its survival might be threatened by continued harvesting or other influences (Criterion Annex 2 a B).

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 but fragmented distribution in southern and western Madagascar, growing mainly on calcareous soils in arid and semi-arid areas in deciduous forest and thorny scrub. Its extent of occurrence is likely to exceed 12000 km². It appears to be at least locally common and is reported from at least two protected areas (Tsimanampetsotsa National Park and Cap Sainte Marie Special Reserve). Regeneration from seed is said generally to be good.

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 (late 2009). The plant is reported to be collected particularly from the Table de Toliara mountain near Toliara in south-west Madagascar. Malagasy authorities report the export of some 700 in the period 2003–2006, most of these (just under 400) in 2004. 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.

Analysis: *Senna meridionalis* has a wide but apparently fragmented distribution in southern and western Madagascar. Data on population status are sparse, but the species appears to be at least locally common. It is in international trade as a horticultural plant, with at least some of that trade in wild collected plants. However, reported volumes of trade are low and the plant is reportedly easy to propagate. It seems unlikely that harvest for trade is reducing the species to a level at which it might become eligible for inclusion in Appendix I in the near future, or that such regulation is needed to ensure that harvest 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.

Amend the annotation to the listing of Orchidaceae included in Appendix I, as follows:

Delete the current annotation, which states:

For all of the following Appendix-I species, seedling or tissue cultures obtained in vitro, in solid or liquid media, transported in sterile containers are not subject to the provisions of the Convention.

Replace with the following new annotation:

For all of the following Appendix-I species, seedling or tissue cultures obtained in vitro, in solid or liquid media, and transported in sterile containers are not subject to the provisions of the Convention only if the specimens meet the definition of ‘artificially propagated’ agreed by the Conference of the Parties

Proponent: The United States of America

Summary: Two genera (*Paphiopedilum* and *Phragmipedium*) and six other species in the family Orchidaceae are included in Appendix I. These and hybrids involving them are in considerable demand in horticulture and are traded in large quantities (particularly *Paphiopedilum* and *Phragmipedium*). Much of the trade is in “flasked” specimens. These are defined more formally in the annotations to the Appendices as: seedlings or plantlets raised from tissue culture grown in a sterile medium and transported in flasks, tubes or other small containers.

The Convention allows for the commercial trade in Appendix-I plant species in Article VII, paragraph 4 which states: “Specimens of [...] a plant species included in Appendix I artificially propagated for

commercial purposes, shall be deemed to be specimens of species included in Appendix II.” However, no definition of artificially propagated is provided in the Convention text itself.

On the understanding that flaked specimens of orchids are artificially propagated, the Parties have gone one step further and in 1995 exempted such specimens from the provisions of the Convention, as described in the annotation which currently states:

For all of the following Appendix-I species, seedling or tissue cultures obtained in vitro, in solid or liquid media, transported in sterile containers are not subject to the provisions of the Convention.

In parallel to this, the Parties have established quite a strict set of criteria for the definition of “artificially propagated”, contained in *Resolution Conf. 11.11 (Rev. CoP14)*. Under these criteria, it is not necessarily the case that all flaked orchid specimens would meet the definition of artificially propagated under CITES. In particular, seed or tissue must be obtained from specimens exempt from the provisions of the Convention or cultivated parental stock (itself subject to definition in the Resolution). It recommends that an exemption to this, that is the use of seeds from wild plants, only be granted as long as such collection was legal and the relevant Scientific Authority had determined both that collection was non-detrimental to the wild population and trade in specimens would have a positive effect on conservation of wild specimens (entailing reintroduction and establishment of cultivated sources of propagules for the future).

The Parties have specifically drawn attention to this in *Resolution Conf. 11.11 (Rev. CoP14)* in the following paragraph:

“Regarding flaked seedlings of Appendix-I orchids

RECOMMENDS that flaked seedlings of orchid species included in Appendix I obtained *in vitro*, in solid or liquid media, and transported in sterile containers, be interpreted as being exempt from CITES

control only if they have been artificially propagated in accordance with the definition provided above, taking into account the provisions of Article VII, paragraph 4, and Article I, paragraph (b) (iii), and agreeing to a derogation from *Resolution Conf. 9.6 (Rev.)* for this exemption;”

However, this understanding is not explicit in the relevant annotation text in the Appendices. The current proposal aims to rectify this.

Analysis: This proposal aims to ensure that the annotation in the Convention regarding specimens of Appendix-I listed orchids is in accordance with a Resolution that refers to the same specimens.

Its effect is to underline the fact that Parties should only treat flaked specimens of Appendix-I listed orchids as exempt from the provisions of the Convention if they are satisfied that they are “artificially propagated” as defined in *Resolution Conf 11.11. (Rev. CoP14)*. This provision is theoretically already in force. In practice, it is unlikely to be adhered to and indeed its strict implementation seems likely to cause enforcement problems. A flaked specimen is clearly distinguishable from any other kind of specimen, and is clearly not a wild-collected plant in any conventional sense. It is thus easy to enforce a simple exemption for flaked specimens. However, assessing whether such specimens meet the definition of “artificially propagated” outlined above and set out in detail in *Resolution Conf 11.11. (Rev. CoP14)* (see below) is far from straightforward and cannot be done merely by inspecting a specimen or shipment. This may place a considerable onus on enforcement and implementation agencies.

Exemptions for “flaked” specimens using the same wording apply to Appendix-II listed plants covered by annotations #1 and #4. These are not specifically referred to in *Resolution Conf 11.11 (Rev. CoP14)*, nor are they specifically referred to as “artificially propagated” and so there remains ambiguity about whether these too may be expected to be covered by the definition of “artificially propagated” adopted in that Resolution.

Inclusion of seeds of *Beccariophoenix madagascariensis* in Appendix II

Proponent: Madagascar

Summary: *Beccariophoenix madagascariensis* is a palm from Madagascar that was included in Appendix II in 2002. The listing was unannotated, so that all readily recognizable parts and derivatives were included in the listing. At CoP14 in 2007 a proposal (no 27) was put forward to amend, amongst other things, annotation #1. *B. madagascariensis* was erroneously included in a list of species that already had this annotation. When the proposal was discussed in Committee I at CoP14, the Secretariat sought clarification on the inclusion of this species in the proposal. The only recorded intervention was from Germany, who recommended that it be retained (CoP14 Com. I Rep. 5 (Rev. 1), p. 1). This part of the proposal being approved, *B. madagascariensis* was then included in the Appendices with new annotation #1, namely:

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; and
- d) fruits and parts and derivatives thereof of artificially propagated plants of the genus *Vanilla*.

This change represented a substantive change in the listing for *Beccariophoenix madagascariensis* with no, or at best extremely limited, consultation with the range State, and based on an error in a proposal. The supporting statement for the original proposal to list *B. madagascariensis* (along with a number of other Malagasy palms) submitted at CoP12 makes it clear that seeds (and possibly seedlings) are the only items known to be in trade from wild populations and were as such intended to be covered by the listing.

Beccariophoenix madagascariensis is a very rare palm known from a few sites in eastern Madagascar. The genus is endemic to Madagascar, and includes two other taxa, *B. alfredi* and an unnamed form. Neither is currently included in the CITES Appendices. *B. madagascariensis* is sought after in the international horticultural trade and is propagated by seed. Currently there are not known to be any seed-bearing plants outside Madagascar, nor any in cultivation in Madagascar, although cultivated plants have recently begun to flower abundantly and may be expected to seed soon (Dransfield, 2010). Virtually all trade recorded in the CITES trade database in the period 2003–2007 was in seeds, with Madagascar reporting the export of just over 70 kg, most in 2007 and 2008 (the latter probably based on permits issued in 2007 before the exemption resulting from the CoP14 decision came into force). All this was of wild origin. Importing countries, chiefly the USA, have reported import of a few kilogrammes of seeds and a few thousand seeds, almost all in the period 2003–2006 (presumably having stopped recording seeds from 2007 onwards).

In addition to being used in the horticultural trade, Dransfield and Beentje (1995) report that the species has been used locally in house construction and (destructively) harvested for the extraction of palm hearts, eaten locally. Young leaflets were sought after for the production of “manarano” hats which were formerly exported in quantity, harvest for this being believed to be a major cause of the present rarity. A very small number of leaves has been reported in trade under CITES, all for scientific purposes.

Analysis: This proposal restores what appears to have been the original intent of the listing of *Beccariophoenix madagascariensis*, in that it would now cover what is evidently the main part and derivative in trade. Seeds of *Beccariophoenix* spp. are relatively easy to distinguish from those of other palms, but not from each other. However under the terms of *Resolution Conf. 9.6 (Rev.)* seeds of *B. madagascariensis* would fit the definition of readily recognizable.

Inclusion of seeds of *Dypsis decaryi* in Appendix II

Proponent: Madagascar

Summary: *Dypsis decaryi*, known in CITES standard taxonomy as *Neodypsis decaryi*, is a palm species endemic to Madagascar, where it is found in one small area in the south-east. Part of the population occurs in a protected area covering 500 ha (a parcel of land forming part of the much larger Andohahela National Park complex), the remainder just outside the protected area. The palm grows on slopes in dry forest or bush on stony soil at altitudes of 80–600 m.

Neodypsis decaryi is very widely grown as an ornamental in tropical and subtropical countries around the world, including in Madagascar itself. It is propagated by seed, which has been collected from the wild population and exported in large quantities. Seed from plants cultivated outside Madagascar is also widely available and is almost certainly in international trade. Within its range the leaves are used for thatching and the fruits eaten by children (Dransfield and Beentje, 1995). In the mid-1990s, the population outside the protected area was reported to be declining, chiefly because of fire and grazing by livestock. Inside the protected area, the population appeared secure (Ratsirarson *et al.*, 1996).

The species was included in Appendix II in 1975. The listing did not have an annotation, meaning that under the terms of the Convention, all parts and derivatives were included. In 1985, it was annotated with the general annotation applied to Appendix II-listed plants at that time, which amongst other things excluded seeds. This may have been unwitting, as seeds were, and always have been, the only wild specimens regularly in trade. The listing is currently covered by annotation #1. There is no indication of any large-scale collection of wild plants for international trade.

Despite their being exempted from the provisions of the Convention, some trade in seeds is included in the CITES trade database. Madagascar reported the export of 700 kg of seeds in the period 1989–1990 and 570 kg in the period 2006–2008 (the latter declared as of wild origin, with no source provided for the former), and the USA reported export of 1500 seeds to Colombia in 1989.

Analysis: This proposal is to alter the scope of an Appendix-II listing in terms of the parts and derivatives to which it applies. It does not alter the species listing itself, so that the criteria in *Resolution Conf. 9.24 (Rev. CoP14)* are not relevant.

Seeds are the primary commodity in international trade from the wild population and harvesting of seed could, in theory, have an impact on the population (although is believed not to be detrimental at present). There is trade in seed harvested from artificially propagated plants in non-range States. This trade has no impact on wild populations. To ease enforcement, the proposal could be amended to refer only to Madagascan populations.

Six other species of palm from Madagascar are currently included in Appendix II without an annotation, so that all their parts and derivatives (including seeds) are covered by the provisions of the Convention. A seventh, *Beccariophoenix madagascariensis*, is currently covered by annotation #1, which exempts various parts and derivatives, including seeds. It is the subject of proposal Prop. 32, to remove the annotation, at CoP15. Annotation #1 is also the subject of a proposal (Prop. 25) to be considered at the present CoP.

Seeds of *Neodypsis decaryi* are similar to those of several other *Neodypsis* (or *Dypsis*) species, but under the terms of *Resolution Conf 9.6 (Rev.)* would be classified as readily recongizable.

Inclusion of *Adenia firingalavensis* in Appendix II

Proponent: Madagascar

Summary: *Adenia firingalavensis* is a succulent plant from Madagascar. It is one of 100 or so members of *Adenia*, a genus widespread in Madagascar and Africa, and is reportedly widespread in the western part of Madagascar from the far north to the south, growing in shade in dry forest, scrub and rocky areas at altitudes of 0–500 m. It produces a bottle-shaped trunk up to two metres tall and 30 cm in diameter, from which grow vine-like branches up to 3.5 m in length. It is reportedly slow-growing and at least locally shows poor regeneration rates. It can be locally common and occurs in a number of protected areas. It is in some demand internationally as a horticultural plant, grown chiefly by specialist collectors of succulents. The CITES Management Authority of Madagascar records the export of some 550 specimens in the period 2003–2006, most of these (around 360) in 2004. Only 10 were recorded in trade in 2006. It may be assumed that most or all of these were wild-collected plants. The species can be propagated by both seeds and cuttings.

The species resembles *A. olaboensis*, which is proposed for inclusion in Appendix II (see Prop. 35), and a number of other Malagasy *Adenia* species, which are not proposed for inclusion in the Appendices, some of which are very rare and some of which may be exported under its name.

Analysis: *Adenia firingalavensis* is a widespread and apparently at least locally common species in Madagascar. The species is in apparently limited trade for horticulture. There is no evidence of extensive or intensive harvest for domestic use. Given its widespread distribution, its presence in a number of protected areas and the limited recorded amount of export trade, it seems very unlikely that harvest for trade is reducing the species to a level at which it might become eligible for inclusion in Appendix I in the near future, or that such regulation is needed to ensure that harvest 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.

Inclusion of *Adenia olaboensis* in Appendix II

Proponent: Madagascar

Summary: *Adenia olaboensis* is a large, trunk-forming vine from Madagascar. It is one of around 100 species in *Adenia*, a genus that is widespread in Africa and Madagascar, of which around 18 species are endemic to Madagascar. It has a generally trailing main stem, which may reach a length of around four metres and diameter of 40 cm, from which grow secondary trunks and lianas that may reach lengths of several metres. The species is reported to be widely distributed in central and western Madagascar, with records from the provinces of Mahajanga in the north-west, Toliara in the south-west and Fianarantsoa in the south-east. It apparently grows on a wide range of substrates, including both calcareous soils and sandstones, in dry forests, scrub and secondary forest, and grassy savanna. The species is regarded as a fetish plant by the Sakalava people and is cultivated around houses and tombs. It is in some demand internationally as a horticultural plant, grown chiefly by specialist collectors of succulents. The Malagasy CITES Management Authority has recorded limited export in the period 2003–2006 (approximately 100 in 2003, 400 in 2004, 200 in 2005 and none in 2006). A significant proportion and possibly all of these are very likely to have been wild-collected. It is currently available internationally, though not widely, at moderate prices (EUR50, USD 50–175). The species resembles *A. firingalavensis*, which is proposed for inclusion in Appendix II (see Prop. 34), and a number of other Malagasy *Adenia* species, which are not proposed for inclusion in the Appendices, some of which are very rare and some of which may be exported under its name.

Analysis: *Adenia olaboensis* is a widespread and locally common plant, known to occur in at least one protected area and probably others. It is cultivated locally and is recorded as exported in relatively small numbers, almost certainly as wild plants, for the international horticultural trade. It reaches a considerable size, and large mature specimens are highly unlikely to be collected for

export. It seems unlikely that regulation of international trade is needed to ensure that the species does not become eligible for inclusion in Appendix I, or to ensure that harvest for trade does not reduce the population to a level at which its survival might be threatened by continued harvesting or other influences.

Inclusion of *Adenia subsessifolia* in Appendix II

Proponent: Madagascar

Summary: *Adenia subsessilifolia* (the name *subsessifolia* in the proposal is evidently a typographic error) is a succulent found in Madagascar, one of around 100 species of *Adenia*, a genus widespread in Madagascar and Africa, of which around 18 species are endemic to Madagascar. It produces stems up to 1.5 m long from a tuberous rootstock up to 30 cm in diameter. It grows on rocky substrates in open scrub and is reasonably widespread in south and south-west Madagascar at altitudes of up to 300 m. At least one population is known in a protected area (Cap Ste Marie). The number of mature individuals recorded at three sites in field work in 2006 was low (100 at one site, fewer than 50 at each of the other two), although the species has also been reported as at least locally common. The species is in international trade as a horticultural plant, chiefly grown by specialist collectors of succulents. The CITES Management Authority of Madagascar has recorded a small number of specimens (126) exported in the period 2003–2006, virtually all (115) in 2004. Collection of wild specimens reportedly takes place on the Table de Toliara Mountain where there are apparently indications of local depletion. Propagation is by seed. The species is available as artificially propagated plants at relatively low prices in both the USA (USD8) and Europe (EUR12).

Analysis: *Adenia subsessilifolia* is a reasonably widespread plant in south and south-west Madagascar. There are conflicting reports regarding its abundance. The species is in trade, although reported volumes of trade are small, and artificially propagated plants are available at relatively low prices in market countries. Although there are reports of local depletion at one locality, it seems unlikely that harvest for trade is reducing the species to a level at which it might become eligible for inclusion in Appendix I in the near future, or that such regulation is needed to ensure that harvest 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.

Deletion of Marsh Rose *Orothamnus zeyheri* from Appendix II

Proponent: The Republic of South Africa

Summary: Marsh Rose *Orothamnus zeyheri* is a rare and localized plant that occupies around 23 km² in two small areas in the southwestern Cape, South Africa. It is an erect shrub, up to five metres tall, and has attractive pink flowers that last well when cut. During the first half of the 20th century, large-scale and indiscriminate cutting of flowers for the domestic market killed off most of the plants. Harvesting was prohibited in 1938 but, evidently because of inappropriate fire management, the population did not recover and, by 1967, the species was thought to be on the brink of extinction. Protection and improved management measures have subsequently been put in place which appear to have been successful. Currently, *O. zeyheri* is protected by the *Cape Nature and Environmental Conservation Ordinance 19* of 1974. Public access to the Kogelberg, where the main population occurs, is strictly controlled to ensure that no wild-harvesting for the cut-flower market or other human disturbance takes place. Fire frequency is restricted to a 15–20 year period, favoured by the species, and any invasive plants are removed. Currently a fungal root pathogen *Phytophthora cinnamomi* is the most serious known threat to the species. Cape Nature monitors the population annually and has found no evidence of decline in known populations. The geographic range has not changed in the last 150 years. The taxon is listed in the African Proteaceae Red Data List (in prep.) as “vulnerable”, assessed according to the IUCN Categories and Criteria. This assessment will be submitted for inclusion in *The IUCN Red List of Threatened Species*. It is not listed in the Threatened and Protected Species List of South Africa’s *National Environment Management: Biodiversity Act* and is not specifically protected under this legislation.

Orothamnus zeyheri was listed in Appendix I in 1975 because of an initial misunderstanding by the South African Management Authorities regarding the purpose of CITES. The transfer to Appendix II in

1997 was a precautionary measure as specified in Annex 4 (A. 1.) of *Resolution Conf. 9.24 (Rev. CoP 14)*. According to the CITES trade database there has been only one record of international trade since 1975 (in 1981). There are domestic protection measures in place to control any trade that might occur as a result of removal from the Appendices. Illegal trade is considered very unlikely to occur. Grafting has been found to be a successful propagation method and it would be feasible to set up a commercial propagation programme to meet any future demands for flowers and plants.

Analysis: *Orothamnus zeyheri* has a restricted range. At one time considered to be on the brink of extinction, the population has increased through strict control. There has been almost no recorded trade since the species was listed in Appendix I in 1975. In 1997 the species was moved to Appendix II in accordance with the precautionary measures in *Resolution Conf 9. 24 (Rev. CoP14)* that specify that, in order to remove a species from Appendix I, it shall first be transferred to Appendix II. Since that time no international trade in wild specimens of this species has been reported. It is unlikely that removal from the CITES Appendices will stimulate trade. Effective domestic protection measures are in place: access to the natural populations is strictly controlled and harvesting from the wild continues to be prohibited. The species therefore no longer appears to meet the criteria for inclusion in Appendix II.

Deletion of Swartland Sugarbush *Protea odorata* from Appendix II

Proponent: The Republic of South Africa

Summary: Swartland Sugarbush *Protea odorata* is an extremely rare shrub that occurs only in the Western Cape Province, South Africa. Currently the only known population, estimated in 2002 at 27 plants, is restricted to a single location. Historically it was known from five populations between the towns of Paarl and Malmesbury in the west coast lowlands. The species has specific habitat requirements, being found only in West Coast Renosterveld, a vegetation type, which has been severely reduced and highly fragmented by agricultural activities. The few remaining fragments are all either heavily over-grazed or densely invaded by the Australian tree *Acacia saligna*. The single location where the species now occurs is privately owned and there is very little likelihood that this land will be purchased for conservation. The taxon is difficult to propagate and artificially propagated material is scarce. Recent attempts to establish the species at nature reserves have failed. Seed is stored in the Millennium Seed Bank at the Royal Botanic Gardens, Kew and is available for reintroduction programmes. The South African National Biodiversity Institute and Custodians for the Rescue of Endangered Wildflowers are actively involved in monitoring *P. odorata*, and are liaising closely with South African conservation authorities to implement an action plan to conserve the species.

As it is fairly nondescript, without any scent and with very small flowers, *Protea odorata* has attracted very little attention from horticulturalists or cut-flower growers. One very limited attempt to commercialize the species in South Africa in the early 1980s failed because there was no demand for it. There has been no recorded legal or illegal international trade. The species was listed in Appendix I in 1975 because of an initial misunderstanding by the South African Management Authorities regarding the purpose of CITES. It was transferred to Appendix II in 1997 under the precautionary

measures specified in Annex 4 (A. 1.) of *Resolution Conf. 9.24 (Rev. CoP14)*. National legislation is regarded as sufficient to protect the species from any collection or trade pressure that may occur in the future. If removed from the Appendices, the species would remain in the “Protected Species” category of the Threatened and Protected Species list of the *National Environment Management Biodiversity Act*. It would also still be protected by the Cape Nature and Environmental Conservation Ordinance 19 of 1974, and so be subject to strict controls, including the need for permits in order to pick or sell specimens. The Department of Agriculture has agreed not to issue any permit allowing further transformation into agricultural land of remaining natural vegetation in the area where the species occurs. The taxon is listed in the African Proteaceae Red Data List (in prep.) as “Critically Endangered”, assessed according to the IUCN Categories and Criteria and will be submitted for inclusion as such in *The IUCN Red List of Threatened Species*.

Analysis: *Protea odorata* has a highly restricted range and very small population size, occurring in a threatened habitat type on private land that is not formally protected. However, the species itself is legally protected and has never been recorded in trade, either legal or illegal. It is extremely unlikely that there will be any international demand for *P. odorata*, and its continued survival is dependent on the conservation of its habitat, rather than on control of trade. National legislation would appear to be sufficient to protect it from any collection pressure that may arise in the future. No other *Protea* species are listed in the CITES Appendices. More than two intervals between meetings of the Conference of the Parties have now passed since the species was transferred from Appendix I to Appendix II and it is highly unlikely there will be any future trade in this species. It would therefore be unlikely to qualify for inclusion in the Appendices in the near future. The species therefore does not appear to meet the criteria for inclusion in Appendix II.

Inclusion of *Cyphostemma elephantopus* in Appendix II

Proponent: Madagascar

Summary: *Cyphostemma elephantopus* is a succulent plant from Madagascar. It is one of 250 or so species of *Cyphostemma*, a genus in the grapevine family or Vitaceae that is widely distributed in the tropics, of which around 23 species occur in Madagascar. It forms a swollen trunk up to one metre in height and 20 cm in diameter at the base, from which extend vine-like branches up to two metres in length. Underground there is a large flattened tuber that may reach 1.3 m in diameter. It has a relatively restricted distribution in south-west Madagascar, where it is believed to occur over an area of 800 km², with known populations occupying some 20 km² (20 000 ha). It can be locally common, with densities of up to 400 plants per hectare. At one site sampled in 2005, the proportion of young plants in the population was low, indicating poor regeneration there. The habitats in some parts of its range are reported to be under threat from activities such as construction. It may occur in at least one protected area, although this is unconfirmed. No local use for the species is reported.

The species is in trade as an ornamental plant, grown chiefly by specialist collectors of succulents. Recorded exports from Madagascar in the period 2003–2006 amounted to around 750 plants, most of these (563) in 2004. It seems very likely that a large proportion, if not all of these, were wild-collected. Propagation is by seed and the plant is available, though apparently not widely, both as artificially propagated small plants and large, almost certainly, wild-collected specimens outside Madagascar.

Two other species of Malagasy *Cyphostemma* (*C. laza* and *C. montagnacii*) have been proposed for inclusion in Appendix II (see proposals Prop. 40 and Prop. 41). *C. elephantopus* bears some resemblance to *C. montagnacii*.

Analysis: *Cyphostemma elephantopus* has a restricted range in southern Madagascar where at least some populations are under pressure from habitat loss. It is in some demand in the international horticultural trade. Numbers reportedly exported from Madagascar are not large, although a high proportion, if not all of these, are likely to have been wild-collected. Limited data on wild populations indicate that it may be reasonably numerous in the wild – extrapolation from the known area of occupancy and observed population densities indicate there may be a substantial wild population, although it is not known whether the species occurs continuously throughout this area. Collection for export may lead to local depletion, but it seems unlikely that current levels of trade are such that regulation is required to prevent the species becoming eligible for inclusion in Appendix I in the near future, or to prevent harvest for trade reducing the population to a level at which its survival might become threatened by continued harvest or other influences.

Inclusion of *Cyphostemma laza* in Appendix II

Proponent: Madagascar

Summary: *Cyphostemma laza* is a succulent plant from Madagascar. It is one of 250 or so species of *Cyphostemma*, a genus in the grapevine family or Vitaceae that is widely distributed in the tropics, of which around 23 species occur in Madagascar. 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 a wide distribution in Madagascar, being recorded in locations in the south, south-west, west and north. Its extent of occurrence has been estimated at around 35 000 km² within which its area of occupancy is thought to be more than 5 000 km². Population densities, based on surveys at three small sites, varied from 60 to 730 plants per hectare. There were few young plants at these sites. The species is recorded from at least four protected areas and probably occurs in others.

The species is in trade as an ornamental plant, grown chiefly by specialist collectors of succulents. Recorded exports from Madagascar in the period 2003–2006 amounted to around 12 000 plants, with a rising trend. It seems very likely that a large proportion, if not all of these, were wild-collected. Propagation is by seed. The plant is available outside Madagascar, though apparently not widely, both as artificially propagated small plants and large, almost certainly, wild-collected specimens. The species is in some use as a medicinal plant in Madagascar.

Two other species of Malagasy *Cyphostemma* have been proposed for inclusion in Appendix II at CoP15: *C. elephantopus* and *C. montagnacii*, the subjects of proposals Prop. 39 and Prop. 41, respectively.

Analysis: *Cyphostemma laza* has a wide distribution in Madagascar and is evidently not uncommon in areas where it occurs. Taking lower estimates for population densities of 60 plants per hectare and an area of occupancy of over 500 000 ha indicates that the population is likely to be very numerous, even though occurrence within its area of occupancy is probably patchy. Although the population is likely to be declining owing to general pressures on its habitat from fire, over-grazing and conversion to agriculture, it is known to occur in at least four protected areas and probably occurs in others. The species features in the Malagasy pharmacopeia although there is no evidence for intensive or extensive local use in Madagascar. Reasonable numbers of plants have been recorded as exported in recent years, a large proportion, if not all of which, may have been wild-collected. This may well have led to local depletion of populations, but in view of the wide range and almost certainly large or very large wild population, it is unlikely that regulation of trade is necessary to prevent the species becoming eligible for inclusion in Appendix I in the near future, or to prevent harvest for trade reducing the population to a level at which its survival might become threatened by continued harvest or other influences.

Inclusion of *Cyphostemma montagnacii* in Appendix II

Proponent: Madagascar

Summary: *Cyphostemma montagnacii* is a succulent plant from Madagascar. It is one of 250 or so species of *Cyphostemma*, a genus in the grapevine family or Vitaceae that is widely distributed in the tropics, of which around 23 species occur in Madagascar. The species forms a thickened tuber-like stem or caudex with distinctive tubercular bark from which extend vine-like stems up to 1.5 m in length. As far as is known, the species has a restricted distribution in south-west Madagascar, with an extent of occurrence estimated at around 260 km² and an area of occupancy of just under 100 km² (10 000 ha). Survey of one small population estimated a density of 25 plants per hectare. Regeneration, as assessed by the proportion of young plants in the population, was judged to be good. It is not known if the species occurs in any protected areas and at least one population is believed affected by quarrying and fire. As with other *Cyphostemma* the species is in some demand in the international horticultural trade, grown chiefly by hobbyists who specialize in succulent plants. Authorities in Madagascar have reported the export of just over 200 specimens in the period 2003–2006, all except two in 2004. Internet searches did not reveal the species currently for sale, though evidently wild-collected plants have been offered for export from Madagascar in the recent past. Two other species of Malagasy *Cyphostemma* have been proposed for inclusion in Appendix II at CoP15: *C. elephantophus* and *C. laza*, the subjects of proposals Prop. 39 and Prop. 40, respectively. *C. montagnacii* bears some resemblance to *C. elephantopus*.

Analysis: The very limited available information suggests that *Cyphostemma montagnacii* has a small range and may occur at a relatively low density within this. Extrapolation from the estimated area of occupancy and known population densities indicate it may have a reasonably large wild population, although it is not known if the species occurs continuously within this area. At least some populations

are reported to be affected by factors such as fire and quarrying of stones. The species has featured in international trade, with relatively small quantities of plants exported by Madagascar in recent years, but it does not appear to be readily available, if at all, at present outside Madagascar. Collection for export may lead to local depletion, but given the small numbers in trade it seems unlikely that current levels of trade are such that regulation is required to prevent the species becoming eligible for inclusion in Appendix I in the near future, or to prevent harvest for trade reducing the population to a level at which its survival might become threatened by continued harvest or other influences.

**Inclusion of Palo santo *Bulnesia sarmientoi* in Appendix II with annotation #11
Designates logs, sawn wood, veneer sheets, plywood, powder and extracts.**

Proponent: Argentina

Summary: Palo santo *Bulnesia sarmientoi* is a large slow growing tree, reaching 10-20 m in height and 30-80 cm diameter at breast height (DBH). It is confined to the Gran Chaco region in Bolivia, Paraguay, Argentina and a small part of Brazil. Within the region it is found in isolated or continuous stands mainly in the semi-arid Chaco subregion, with scattered individuals in other subregions. It may once have occurred in an area of around 100 000 km² and is the dominant species in some areas. FAO's Forest Resource Assessment estimated the Argentine stock in 2000 at 19.4 million m³. One study in Argentina in 2004–2005 found an average of 58 adult trees per ha (DBH>20 cm) with average number of individuals of 227/ha. Older studies (1979) in Argentina of productivity for this species estimate standing volume of wood at 0.75–0.78³ per ha. Average growth rate was estimated at 0.022–0.025 m³/ha/yr. The species has the ability to re-sprout from cut stumps and can be one of the commonest species in re-growth forest. One study found it to be one of the most frequent species in an area of secondary forest in the Argentine Chaco at a volume of 3.31 m³ per ha.

The Gran Chaco has been subject to land-use changes for agriculture and stock-farming and is intensively logged for timber and charcoal production. It has been estimated that between 1998 and 2006 at least 20 000 km² (2 million ha) of "chaqueño" forest have been deforested in Argentina. Extensive and more recently intensive stockbreeding systems has reportedly resulted in degradation and the loss of restoration ability of approximately 15 million hectares of native forest. Forest destruction has also reduced the species' habitat in Paraguay. In Bolivia, overall rates of deforestation in the Gran Chaco have slowed somewhat from an estimated 260 km² (26 000 ha) per year in

1992–2000 to ca 190 km² (19 000 ha) in 2001–2004, believed to be due in part to a reduction in rates of agricultural conversion because of recurrent drought.

The wood of *Bulnesia sarmientoi* is heavy (density 0.990–1.280 kg/dm³), very strong and decay-resistant, even underground, because of its resin content, which also gives it aromatic properties. It has a wide range of uses including furniture, flooring, lathe work, manufacture of propeller shaft bearings for ships, and (fence) poles. The essential oil derived from *B. sarmientoi* wood, known as “Guayacol”, “Guajol” or “Guayaco” is used in the perfume cosmetics industry and in mosquito repellents. Palo santo resin, derived from the residue of the distillation process can be used to produce dark varnishes and paints. The tree is also used for charcoal production and the leaves have been used for medicinal purposes.

Trade data, especially from Bolivia, are limited for this species. Argentina and Paraguay are known to export *B. sarmientoi* wood with recorded exports increasing rapidly from approximately 100 t in the early 2000s to 40 000 t in total by 2006. The majority of Argentinean exports for 2006–2008, estimated at almost 53 000 t, were of roundwood, cylinders and posts (87%), with 12.6% sawn wood and a very small amount of firewood and charcoal. China was the main importing country, with small amounts destined for Uruguay and other countries. Between 2000 and 2006 most exports from Paraguay were of sawn wood, logs, cylinders and poles with “less than 1% destined for extracts and other items” (although it is not clear whether this is by weight and whether it was already in the form of extract). The destination of exports from Paraguay, based on data for the period 2000–2004, was primarily China (90%). The main destinations for extract are said to be France and Spain. The extent of trade in essential oil or “Guayacol”, for the perfume cosmetics industry, is difficult to estimate although it appears to be met by exports from Paraguay. In the early 1970s an estimated 75 and 100 t of guaiac wood oil were produced each year. Production of extract is said to be from damaged branches and trade from Paraguay is reportedly a by-product of land clearing. There may be some

limited trade in artisanal crafts to Europe and North America, although this apparently only uses dead wood because felled wood tends to crack. There is some local use for furniture.

Significant areas of the Gran Chaco are within protected areas in Bolivia, Argentina and Paraguay and initiatives are under way to prevent further deforestation. Argentina listed the species in App. III in 2008, which has reportedly had a significant effect on trade volume and control.

Bulnesia sarmientoi shares the common names lignum-vitae and guaiac with the *Guaicum* species, which were listed in Appendix II in 2003. *Bulnesia arborea* is also referred to as lignum-vitae and guaiac and can be used for the same purposes. Identification of *Bulnesia* to the genus level through wood anatomy is relatively straightforward; however *B. sarmientoi* and *B. arborea* are almost indistinguishable at the macroscopic and microscopic level.

Analysis: *Bulnesia sarmientoi* has a wide range and evidently a very large global population. Given the reported extent of forest clearance in the Chaco region, it is possible that its overall population has undergone a considerable decline, although given the lack of quantitative historical data, and uncertainty as to what an appropriate generation time for this species is, it is not possible to say whether such a decline is near one that might qualify it for inclusion in Appendix I in the near future. Moreover, historical declines were driven by land-use change, not by harvest for international trade. The species is now harvested for international trade, but it is not clear to what extent this is leading to population declines over and above those brought about by land-use change. If it were doing so to any extent, then it could be argued that regulation of trade was required to prevent the species becoming eligible for inclusion in Appendix I in the near future (Criterion in Annex 2 (a) A in *Resolution Conf. 9.24 (Rev. CoP14)*). The large number of small trees present in surveyed areas, its presence in re-growth forest, and current information on standing stocks and increment rates, at least in Argentina, imply that it is not doing so, although this cannot be said with certainty.

Similarly it is not clear that regulation of trade is necessary 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 (Criterion in Annex 2 (a) B in *Resolution Conf. 9.24 (Rev. CoP14)*).

The annotation suggested appears to cover the main parts and derivatives in trade. However it would not cover handicrafts, which are also apparently in trade but are normally made from dead wood, nor would it cover furniture. It appears that manufacture of furniture takes place within importing countries and therefore the annotation would cover the main parts exported from range States.

ANNEXES:

**ANNEX 1. Appendix I and Appendix II Biological Criteria
(Resolution Conf. 9.24)**

**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. CoP14)*)

Note: The numbers presented below are meant to serve as guidelines and not as thresholds (see *Res Conf 9.24 (Rev. CoP 14) 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:

- | | |
|--|---|
| i) decline in number of individuals or area and quality of habitat | <5 000
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: Using either 1 or 2	80%	50%	20%
(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

	Critically Endangered	Endangered	Vulnerable
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			
(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

	Critically Endangered	Endangered	Vulnerable
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 applic)	(not applic)	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%	20%

(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)

	Critically Endangered	Endangered	Vulnerable
(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:			
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			

	Critically Endangered	Endangered	Vulnerable
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: (up to a maximum of 100 years)	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 AND (a) and/or (b):			
(a) i) # of mature individuals in each subpopulation:	< 50	< 250	< 1000
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 applic)	(not applic)	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 10yrs or 3 gene (< 100 yrs)	20% in 20 yrs or 5 gene (<100 yrs)	10% in 100 yrs

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Summary of the IUCN/TRAFFIC Analyses of the Proposals to Amend the CITES Appendices at the 15th Meeting of the Conference of the Parties: www.iucn.org/about/work/programmes/species/our_work/species_trade_use/iucn_traffic_analyses_of_the_proposals/ or www.traffic.org/cop15

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Website: www.iucn.org

The Species Survival Commission (SSC) is the largest of IUCN's six volunteer commissions with a global membership of 8000 experts. As the world's largest source of species conservation information, SSC advises IUCN and its members on the technical and scientific aspects of species conservation and is dedicated to securing a future for biodiversity.

Website: www.iucn.org/themes/ssc

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