



Traffic Bulletin

The journal of the international TRAFFIC Network

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Galanthus rizehensis

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Burkina Faso, Poland and United Arab Emirates in CITES

Burkina Faso acceded to CITES on 13 October 1989 (effective 15 January 1990) and became the 104th Party to the Convention. Poland ratified the Convention on 12 December 1989 (effective 12 March 1990) and became the 105th Party.

On 2 February 1990 (effective 9 May 1990), the United Arab Emirates acceded to CITES and becomes the 106th Party to the Convention. The United Arab Emirates originally acceded to the Convention in 1974, but withdrew in January 1988, the only State ever to have done so. Following the withdrawal, the CITES Secretariat re-established contacts with the United Arab Emirates, and all the necessary steps have now been taken to allow effective application of the Convention.

CITES Reservations on African Elephant

Following the decision taken at the seventh meeting of the Conference of the Parties to CITES to list the African Elephant *Loxodonta africana* in Appendix I, Parties had until 18 January 1990 to enter a reservation. On that date, reservations entered into force for the following countries: Botswana, China, Malawi, South Africa, UK, Zambia and Zimbabwe.

These countries are now considered non-Party to the Convention with respect to trade in specimens of African Elephant.

* * *

The UK Government states that its reservation will only be used to allow the re-export of ivory from Hong Kong, and will be withdrawn on 18 July 1990. Re-exports will only be permitted to non-Parties and Parties which hold reservations on the same species.

The announcement was greeted with dismay by campaigners who had been lobbying hard since October to prevent such a step, and revealed a policy split within the UK Government. The Minister for the Environment, Chris Patten, made it known that he was angered by the decision and had personally opposed it. However, although he has responsibility for CITES implementation, he had been overruled by the Prime Minister, who gave responsibility for the decision to the Foreign Secretary, Douglas Hurd. The latter chose the occasion of his visit to Hong Kong to announce the reservation, apparently offering a political sop to those who were beleaguering him over his policy on the immigration of Hong Kong residents to the UK after the Territory is returned to China in 1997.

Although the reservation will only be used to allow the re-export of existing stocks, most of which may have been legally obtained under the terms of CITES, it is feared that it may have wider repercussions on the poaching of elephants.

Richard Luxmoore

Honduras Introduces Trade Bans

With effect from 1 February 1990, the Government of Honduras banned "the killing, capture, internal and external trade, of all species of mammal, bird and reptile..", until scientific studies have been carried out on the status of wildlife populations and captive-breeding operations in Honduras (Resolution No. 0001-90).

All permits issued before 1 February have been rendered void.

Source: Statement of the Secretary of State for Natural Resources, Republic of Honduras, Acuerdo No. 0001-90, 29 January 1990

Kenya Burns Rhino Horn

President Moi of Kenya set ablaze 283 rhinoceros horns, weighing a total of 350 kg, in Nairobi National Park on 25 January 1990. The ceremony was used to unveil a marble monument built to commemorate the 18 July 1989 historic burning of 12 tonnes of ivory.

Included in the pile of rhino horns were some 13 950 game skins. The assorted products, said to be worth KSh.7M (US\$324 000), had been recovered from poachers and had been accumulated since 1976.

Source: African Wildlife Foundation, 5 February 1990

Rhino Horn on Sale in the UK

Continuing illegal trade in African rhinoceros horns was recently revealed in the UK after an investigation carried out by the newspaper *The Times*. For the second time in three years, substantial numbers of rhinoceros horns were offered for sale by London-based dealers in contravention of EEC and UK laws.

The investigation followed-up a number of advertisements placed in UK trade publications offering to purchase rhinoceros horns. The act of offering to buy rhino horn is not an offence in the UK, but offering to sell any CITES Appendix I species is prohibited by EEC Regulation, unless specifically permitted under certain circumstances by the CITES Management Authority. After some negotiation, a London-based dealer offered a reporter from *The Times* 72 allegedly African rhinoceros horns, weighing a total of 160 kg, for £3.5 million (US\$6M); this represents a price of over US\$37 000 a kg. This value seems to be quite unrealistic as it is far higher than the top wholesale prices paid for African rhinoceros horns in the main consumer countries, Yemen Arab Republic and Taiwan, which, according to a report prepared by Esmond Bradley Martin for the recent CITES meeting, have reached US\$1500 a kg. Even the more valuable horn from Asian rhinoceroses was reportedly only reaching a wholesale value of US\$10 000-US\$15 000 a kg in 1988 in Taiwan.

Colour photographs of more than 20 of the horns were made available to the reporter, who posed as an agent for a fictitious buyer. The dealer claimed that he had applied for licences to sell the horns but, according to *The Times*, the UK CITES Management Authority received no such application. The evidence collected during the investigation has reportedly been passed on to the police for further action.

Much of the rhinoceros horn on sale in the UK is thought to be old, allegedly purchased by antique dealers from private individuals. *The Times* reported that a separate police investigation is under way involving the offering for sale of 54 Black Rhinoceros *Diceros bicornis* horns by another UK dealer. The entry of such large quantities of horn into the market, regardless of source, could supplement the amount of horn derived illegally from wild populations and therefore help to fuel continuing demand. This is one of the factors which prompted the adoption of Resolution Conf. 6.10, which urged all Parties to establish a complete prohibition on all trade, internal and international, involving rhinoceros parts and derivatives, including personal effects.

To date, there have been no prosecutions in the UK relating to illegal sale or offering for sale of rhinoceros horns. This most recent case closely followed considerable public criticism of the UK Government's low level of commitment to the control of illegal trade in wildlife, particular concerns being the lack of monitoring of the internal market and poor co-ordination between enforcement bodies.

Steven Broad



CITES Conference in Switzerland

The seventh meeting of the Conference of the Parties to CITES was held in Lausanne, Switzerland, from 9 to 20 October 1989. Credentials were approved for representatives of 92 Party States, more than at any previous CITES meeting. The participants also included observers from four non-Party States, the United Nations Environment Programme (UNEP), the United Nations Development Programme, UNESCO, the Food and Agriculture Organisation of the United Nations, the European Economic Community (EEC) and 135 other organisations and agencies, including many who were attending solely for discussions on the African Elephant *Loxodonta africana*.

The following report of the meeting is a summary containing what the authors judge to be the most significant points. Some details have therefore been omitted and readers seeking a comprehensive account should refer to the official proceedings which will be published by the CITES Secretariat in due course.

Mr William Mansfield, Deputy Executive Director of UNEP, opened the meeting, noting especially the increased public awareness of CITES and the improved state of financial affairs. Further introductory speeches were made by Mr Ralph Morgenweck, Chairman of the CITES Standing Committee and Mr Franz Blanckart, Secretary of State for International Economic Affairs of the Swiss Confederation. The keynote address was given by His Royal Highness Prince Bernhard of the Netherlands who drew especial attention to the African Elephant and stressed the need to ensure its survival. He also urged the Parties: to make decisions on the basis of scientific evidence, rather than politics, commerce or emotion; to fund the CITES Secretariat properly; and to give a higher priority to enforcement at the national level.

Before the meeting started to deal with its substantive issues, the representative of the Netherlands offered, on secondment to the CITES Secretariat, the services of Dr G. van Vliet, currently Scientific Director of Leiden Botanic Gardens, to be Plants Officer for a period of three years.

Between the meetings of the Conference of the Parties, the Standing Committee, which includes a representative of each region, effectively acts on behalf of the Conference. Until now there had been no provision for the attendance at meetings of an 'alternate' if the designated regional representative was unable to participate. A resolution was adopted (Resolution Conf. 7.1) which corrected this and established that only the regional representatives (or their alternates) had voting rights, although the Depositary Government's representative could vote to break a tie. Certain Standing Committee memberships came to an end at the present meeting and following the necessary elections the regional representation is now as follows:

Region	Representative	Alternate
Africa	Malawi	Morocco
Asia	Nepal	Malaysia
Europe	Sweden	Denmark
North America	Canada	USA
Oceania	New Zealand	Papua New Guinea
South and Central America and the Caribbean	Peru	Trinidad & Tobago

In addition, Malawi was elected as Chairman of the Standing Committee.

The thirteenth report of the Secretariat covered the period 1 January 1988 to 30 June 1989, during which the number of Parties (or Parties to be, having acceded/ratified) increased from 96 to 102 states.

By the end of June 1989, the amendment to Article XI, para. 3(a) (financial amendment, Bern, 1979), which entered into force on 13 April 1987, had been approved by 51 Parties and was in force in 58. The amendment to Article XXI (regarding 'regional economic integration organisations', Gaborone, 1983) had been approved by 22 of the states that were Parties at the time of adoption, but will not enter into force until 54 of these have approved it.

A list of specific reservations in force as of 1 April 1989 showed that, although a number of reservations had been withdrawn, overall the number of countries with reservations had increased. Fourteen states held reservations with regard to a total of 33 Appendix-I taxa, six Parties had entered reservations relating to 30 Appendix-II taxa and seven had entered reservations that concerned 49 Appendix-III taxa. The delegation of Japan announced their intention to withdraw their reservation on the Appendix-I listing of Saltwater Crocodile *Crocodylus porosus*.

In the 18 months covered by the report, the Secretariat had registered 104 additional scientific institutions for the exemptions provided by CITES Article VII.6, in a total of ten countries, three-quarters of this number being in Australia.

The Secretariat had also conducted visits to 48 Party States to assist them in various ways and particularly for purposes of training, meetings, analysis of problems, development of projects and fund raising; they had also visited four non-Party countries, with a view to their possible accession. A considerable amount of the Secretariat's time was also taken up with other types of communication, including relations with the press; the official letters, telexes and telefaxes sent by the Secretariat in the first quarter of 1989 alone totalled over 6000 items. The Ivory Unit processed nearly 1300 permits in 1988, representing some 22 000 new tusks in trade, and uncovered several cases of fraudulent transactions.

To help in improving implementation and enforcement of the Convention, the Secretariat organised three seminars at European level in 1989; two for Management Authorities' staff and one for Customs officers. Collaboration was improved with the Customs Co-operation Council and with INTERPOL. Following the publication of a practical guide for Management Authorities on dealing with INTERPOL, the number of CITES-related cases referred to this body rose from two in 1987/88 to 60 in the first half of 1989. The CITES Secretariat was informed of or intervened in over 250 infractions or alleged infractions from May 1988 to June 1989.

Between January 1988 and June 1989 the Secretariat staff increased from 13 to 19 people, the latter total including 10 support staff and one trainee.

Financing and budgeting of the Secretariat and of meetings of the Conference of the Parties attracted a lot of interest because of the financial crisis the Secretariat had faced in 1986 and 1987. The Secretariat's report for the period 1987-1988 indicated that, following the adoption of its special financial plan for 1988-89, the state of affairs had improved considerably and it was operating within budget. It was also expected that the expenditures for 1989 would be well within budget owing especially to: support from external funds for the seventh meeting of the Conference of the Parties; several staff secondments and special monetary contributions; and the substantial increase in the US contribution to the Trust Fund. Especially noteworthy was that the Secretariat had obtained over US\$3 000 000 of external funding (in cash and in kind) for special meetings, projects and programmes.

One recommendation from the Secretariat, intended to improve the financial situation, was that unpaid contributions for 1986 and prior years be forgiven, in the hope that this gesture would stimulate all Parties to pay their full contributions in future. It was noted that UNEP had followed this practice in the past. The Secretariat's documentation showed that this would involve forgiving payments of US\$564 705 out of a total of US\$877 714 still unpaid on 31 August 1989. Ten countries had contributions still outstanding for 1986 and previous years, although three countries (Argentina, German Democratic Republic and USSR) accounted for 99.5% of the amount unpaid. Discussion of this matter was referred to the Standing Committee.

With respect to the proposed budget for 1990-92, a considerable increase was noted and included, in particular, the intention to establish three one-person regional offices, in Africa, Asia/Oceania, and South/Central America and the Caribbean, from external funds. There was some controversy in discussions of external funding in general because funds had been raised for conservation projects from the sale of evidently illegally-obtained lizard skins, and because there were strong feelings that the disposal of these skins should have been handled differently. The resulting resolution reflected the concerns expressed.

A resolution (Resolution Conf. 7.2) was adopted: approving the Secretariat's report and the budget (Trust Fund: 1990-US\$2.11M; 91-US\$2.32M; 92-US\$2.25M/ External Funds: 1990-\$2.09M; 91-\$2.23M; 92-\$2.02); requesting UNEP to extend the Trust Fund until 31 December 1995; urging all Parties to pay their contributions to the Trust Fund in accordance with the revised UN scale of assessment and in advance if possible; urging Parties to deposit their instruments of acceptance of the 1979 and 1983 amendments to the Convention; urging non-Party States and all interested bodies to contribute to the Trust Fund; maintaining the standard participation charge for observers at meetings at US\$150, unless the Secretariat decides otherwise; agreeing that funds from non-governmental sources for special projects not be accepted without the Standing Committee's prior review in consultation with the appropriate Committees; and directing the Secretariat to submit to the Standing Committee, and other appropriate Committees, a list of priorities for funding, representing opportunities to enhance the implementation and enforcement of the Convention and to conduct scientific studies and, for each new project, to submit a proposal for expert review six months before the planned appeal for funds.

A summary was presented of the activities of the Animals Committee, most of which had become the subject of other documents discussed at the meeting, e.g. the Ten Year Review proposals and other species proposals. Some unresolved and ongoing issues included a review of the Berne Criteria; a review by the range states of the status of the African Manatee *Trichechus senegalensis*; a review of subspecies in the CITES Appendices; 'Significant Trade' reviews of the Six-fingered Frog *Rana hexadactyla*, the Indian Bullfrog

R. tigrina, giant clams *Tridacnidae* spp. and stony corals. An operating budget of US\$65 000 was requested in order that the Committee would be able to conduct its business during the next two years and the Trust Fund budget approved did include \$66 000 each for the Animals and Plants Committees for the period 1990-1992.

The Plants Committee drew attention to the need for improved reporting on plant trade. The position of a representative for Oceania on the Committee was now vacant. Funding was being sought for a study of significant trade in plants.

The position of Chairman of the Identification Manual Committee still being vacant following Dr Dollinger's resignation in 1987, the Secretariat reported that, despite financial restraints and other difficulties, some animal sheets for the English version had been completed and published. The total number published by the end of August 1989 was 1336, with a further 25 received but not yet printed and 213 in preparation.

A French edition of the manual was in preparation and the first part was due to be printed and made available before the end of 1989.

A Spanish edition was also in preparation, but a lack of funds had prevented further translation of sheets and publication of those already translated. Although the Secretariat stressed the need for a new Chairman to be appointed at the present meeting, this did not occur.

The Nomenclature Committee presented a summary of the status of various checklists. The mammal list was now out of print but a revised edition was nearly finished. The amphibian list was almost sold out but there were currently no plans for publishing a revised version. A list of turtles and crocodilians was in press and a multi-volume list of snakes was expected to be published in 1991. A list of the family Cactaceae was in preparation but required contributions from Parties for its completion. Initial development of lists of lizards and birds was proposed during the next two years.

Other activities had been largely curtailed due to lack of funds, including a review of subspecies listed in the Appendices and enquiries regarding the nomenclatural status of taxa from the Secretariat and Parties.

The Report on national reports prepared on behalf of the Secretariat by WTMU, examined the effectiveness of the implementation of the Convention as shown by the annual reports of the Parties for the years 1986 and 1987. The WTMU report indicated that, despite the considerable increase in the number of Parties, there had been no increase in the percentage submitting annual reports. Annual reports are consistently submitted late, which hampers the accurate monitoring of trade between Parties. It was recommended that reporting procedures should be improved, that annual reports should include the Appendix-listing of species traded, and that trade reported on should be based on actual trade rather than permits issued.

The delegation of the Netherlands expressed disappointment that the CITES Secretariat's contractual agreement with WCMC for computerization of annual report data had excluded artificially propagated plants in the period 1988/89. The Secretariat explained that this measure had resulted from the financial constraints imposed on the Secretariat. WTMU stated that, because of the importance of computerizing the trade data, they had subsidised the Secretariat's budget by including cultivated plants, although this might not be possible in future. They added that, to date, one million records had been entered into the database, some 45% of which referred to trade in manufactured products. It was suggested by WTMU that information to be included in the CITES database should be reviewed and, if possible, reduced in the future.

The Secretariat did not feel that the adoption of further resolutions on this issue would lead to significant improvements. However, the following recommendations contained in the Secretariat's Report were noted: that the Secretariat should continue to investigate the reasons for problems in submission of annual reports, and that Parties needing technical assistance urgently inform the Secretariat; Parties not yet computerizing their recording of CITES trade statistics should explore this possibility as soon as possible and ensure that any such computerization is compatible with the CITES database at WTMU; greater effort should be made by Parties to ensure that the accuracy and completeness of their reports are improved. In particular, reports should be made on a shipment by shipment basis and should include permit/certificate numbers (to facilitate cross-checking); causes for discrepancies in the comparative tabulations should be determined as quickly as possible and results of such analyses be communicated to the Secretariat and the Parties concerned.

The Secretariat presented its review of alleged infractions, explaining that this exercise, first carried out for the sixth meeting of the Conference of the Parties, had two main aims. Firstly, Parties should be provided with a record of instances where it appears that significant attempts (successful or unsuccessful) have been made to violate or evade the provisions of the Convention. Secondly, the Secretariat wished to stimulate constructive discussion of these problems, identify those of major concern or those requiring special attention and seek mechanisms or solutions to reduce or eliminate them. A draft of the Secretariat's report had been transmitted to the Parties for comment prior to the meeting and 15 Parties had responded. The results of the study were presented under the following headings:

- A. Infractions of obligations imposed by the Convention other than those regarding the trade of species mentioned in the Appendices;
- B. Non-response to the Secretariat under Article XIII;
- C. Irregular issuance of pre-Convention certificates (3 cases);
- D. Irregular issuance of 'bred in captivity' or 'artificially propagated' documents (3 cases);
- E. Irregular trade in Appendix I species (19 cases);
- F. Irregular trade in Appendix II species (23 cases);
- G. Non-application of resolutions of the Conference of the Parties (other than ivory) (6 cases);
- H. Invalid documents (17 cases); and
- I. Large-scale or elaborate frauds (5 cases).

Headings A. and B. did not refer to specific cases. The former included details of countries which had inadequate national legislation to enforce the Convention, countries which had not produced annual reports and countries which had not designated Scientific Authorities, while the latter listed countries which had not replied in a satisfactory manner to requests for information by the Secretariat.

Many of the individual cases identified were followed by a specific recommendation for further action made by the Secretariat; these were the main subjects of discussion during the session devoted to this agenda item. After lengthy debate, it was agreed that, with five exceptions, the Secretariat's recommendations should be adopted. The exceptions all appeared under headings E. and F. in the Secretariat's report.

In addition, four draft resolutions were considered. Two of them were withdrawn after some discussion; these dealt with abuses of diplomatic privilege and notification by the Secretariat of Parties which do not submit annual reports or designate Scientific Authorities. The other two draft resolutions were adopted. The first of these, Resolution Conf. 7.5, on enforcement, called for the adoption of a standard nomenclature for the designation of CITES parts and derivatives, introduced time-limits

within which Parties should respond to requests for information by the Secretariat, and established a procedure which the Secretariat should follow when dealing with major implementation problems in particular Party States. The second Resolution (Conf. 7.4) concerning control of transit shipments, called on Parties to inspect such consignments to the extent possible under their national legislation and to adopt legislation allowing them to seize and confiscate transit shipments that were not covered by valid export documentation.

The Secretariat was asked to take special note of the plea to allow more time for discussion of this agenda item at future meetings of the Conference of the Parties.

Discussions on trade in ivory from African Elephants dominated the debate at the CITES meeting, from Prince Bernhard's opening speech to the concluding remarks on the final day. Colour was added by a 20-m high inflatable elephant tethered outside the conference centre and the crowds of trunk-masked schoolchildren who trooped periodically through the hall.

The formal proceedings centred on seven proposals to transfer Loxodonta africana from Appendix II to Appendix I, submitted by Austria, Ghana, Hungary, Kenya, Somalia, Tanzania and the USA. The biological aspects of these were considered first by Committee I, which was told that the population of the species throughout Africa had declined rapidly from around 1.1 million in 1979 to some 620 000 in 1989. The rate of decline far exceeded the average in some regions, particularly East Africa, but the populations of some countries in other regions were stable or increasing. Several of the latter countries, particularly Botswana, Malawi, South Africa and Zimbabwe, argued that their Elephant populations did not fulfil the Berne Criteria for transfer to Appendix I, and should therefore be left in Appendix II to allow them to continue to generate income from ivory sales. The delegate from Gabon reflected wryly that the chief economic benefit of the Elephant was its ability to generate income for conservationists in developed countries. There was some discussion of whether it was appropriate to consider different populations of Elephants separately, but most of the debate centred on whether continuing legal trade in ivory from some countries would make it impossible to prevent ivory leaving others illegally. Accordingly the subject was passed to Committee II for consideration of trade controls.

The Secretariat described the operation of the ivory trade control system over the previous two years. They refuted the charges that it had failed, pointing out that the volume of ivory recorded in trade had declined from nearly 1000 tonnes in 1983 to less than 400 t in 1987 and possibly less than 200 t in 1988. In support of its request to have Elephants in southern Africa retained in Appendix II, Zimbabwe had prepared a document outlining a new ivory trade control system, by which all ivory would be sold through a single auction room in Botswana. They proposed a 'moratorium' on trade until such a system could be established. It became apparent that further discussion of trade controls was impossible until a decision had been reached concerning the transfer of the African Elephant to Appendix I, and consequently the debate passed back to Committee I.

One alternative to transferring the entire species to Appendix I emerged as a compromise, to retain certain populations in Appendix II. The TRAFFIC Network and IUCN suggested defining objective criteria to judge which populations this should apply to. The southern African countries felt that they already had sufficient information to judge this and proposed the populations of South Africa, Botswana, Zimbabwe, Mozambique, Malawi, Zambia and, on their accession to CITES, Angola and Namibia. A lengthy discussion ensued on possible compromises and on the correct procedure for voting. The Committee rejected the southern African proposal by a 70:20 majority, failed to reach the 2/3 majority to

approve the outright Appendix I listing, and voted by 76:11 to accept a proposal by the delegation of Somalia. The effect of this was to transfer the entire species to Appendix I, and to agree that, at a later date, certain populations could be transferred back to Appendix II on the recommendation of a panel of experts, the composition and terms of reference of which were decided by a working group (Resolution Conf. 7.9). Having no guarantee that the return of certain populations to Appendix II would be achieved, the representatives of Botswana, Burundi, Malawi, Mozambique, Zambia and Zimbabwe announced that they intended to take reservations against this decision (see page 19).

Under the terms of Resolution Conf. 5.11, all stocks of ivory acquired since the first inclusion of *L. africana* in Appendix III (1976) must be considered to be Appendix I material after 18 January 1990, and therefore not eligible for international trade under the pre-Convention exemption. A draft resolution to amend the effect of Resolution Conf. 5.11, to allow the trade in existing stocks of ivory, met with strong opposition and was defeated. Another draft resolution, prepared by the UK, was then approved, urging Parties to enact domestic legislation to prevent commercial trade in ivory with immediate effect, rather than waiting for 90 days until the transfer to Appendix I came into force (Resolution Conf. 7.8). The disposal of confiscated stocks of ivory was a recurring problem, about which several countries were concerned. Burundi urged a solution to its attempts to export its stockpile of about 80 tonnes but, as a result of the recent decisions, no solution could be found other than to enter a reservation. A final twist to the story came when the USA introduced a draft resolution to establish a quota system for the export of tusks from Elephants shot by trophy hunters. This was rejected on the grounds that such trade was already governed under the provisions of the Convention, and also because it proposed setting quotas even for countries whose African Elephant populations had been identified as endangered.

A document on the trade in rhinoceros products was submitted by the Secretariat, containing a report on the continuing trade problems affecting rhino conservation, with a number of recommendations for action. It also recorded the intention of South Africa to propose the transfer of its populations of Rhinocerotidae from Appendix I to Appendix II, subject to an export quota; in fact a proposal had been submitted for consideration by the present meeting but had been received by the Secretariat after the deadline. There was no discussion of this subject.

A new Resolution (Conf. 7.7) was adopted with regard to trade in leopard skins which allows the quota system to continue without the need to review it at each meeting of the Conference of the Parties. Only changes to the adopted quotas or requests to establish a quota in a new country would need approval. The quotas in the new Resolution are the same as those adopted in Resolution Conf. 6.9 except that Botswana's annual quota has been increased to 100, and a new quota of 50 has been established for South Africa.

Trade in plant specimens: The Plants Committee met on most days and covered a number of topics. The first two days were devoted to discussion of the proposals to change the listings of species in the Appendices. In some cases it was necessary to seek additional information from delegates because a few of the proposals were woefully inadequate. After this, discussion centred on identification aids, primarily the format and content of the CITES guide to plants in international trade. This is already in preparation and is expected to be finished during 1990. Unlike the animal identification manuals, it will be a bound book that will attempt to provide the means to identify a selection of

threatened and look-alike plants in trade. All species listed in Appendix I and many in Appendix II will be described but there will be room for only a representative selection of the larger families listed in Appendix II, e.g. Cactaceae and Orchidaceae. Some non-CITES species traded in numbers giving cause for concern will also be included. The problem of distinguishing between artificially propagated and wild-collected specimens was discussed at some length. Measures suggested to help in coping with the problem included the establishment of a system of registration and certification for nurseries that propagate Appendix I specimens. There would be many problems involved in implementing this successfully but it is hoped that a draft resolution will be agreed by the Plants Committee and put to the eighth meeting of the Conference of the Parties. A study of significant trade in plants was an important priority for which funds had not yet been secured. It was hoped to remedy this as soon as possible. The meetings were concluded with reviews of various plant groups not yet covered by CITES, including bulbs, bromeliads, succulents, carnivorous plants, medicinal plants and tropical timbers. The appointment of Dr Ger van Vliet as CITES Plants Officer was welcomed as a very positive step towards proper control of the plant trade.

A proposal by the USA to not annotate any plant species presently in Appendix I, so that the artificially propagated hybrids of these species will be treated as artificially propagated specimens of Appendix II species, in accordance with Resolution Conf. 6.19 a, was adopted.

A document and draft resolution had been prepared by Australia on the subject of marking of specimens. They sought to establish general principles for a marking and identification system for species subject to ranching, captive-breeding or annual export quotas, whose populations were divided between Appendix I and Appendix II. After some discussion a Resolution (Conf. 7.12) was adopted with the following principal recommendations. With respect to the identification of live specimens: any marking system should be undertaken with due regard for the humane care, well-being and natural behaviour of the specimen involved; the effectiveness and efficiency of microchip technology as an aid to identification should be reviewed by the Parties; and, the use of coded microchip implants should be tested on a sample range of Appendix-I taxa. With respect to parts and derivatives: where requested by individual Parties, the Secretariat should purchase coded tags or stamps for the control of ranches or captive-bred specimens; and, the Animals Committee should address further the issue of marking requirements for the identification of specimens of 'look-alike' species for the purpose of developing practical marking strategies and systems.

It was agreed to continue work on Significant Trade in Appendix II Species and an estimated budget of US\$75 000 for the production of a report covering 100 species was approved. An additional budget was approved to enable IUCN to co-ordinate the screening of species subject to significant levels of trade and to raise funds for and co-ordinate field studies on those species requiring such study as a priority.

TRAFFIC urged the Parties to impose restrictions on trade in species that had been identified as seriously affected by trade until the results of field studies enabled proper non-detriment findings to be made.

The Secretariat had prepared a brief report on sale of confiscated specimens of species included in Appendix II, which proposed a system under which confiscated goods would be donated by Parties to the Secretariat for sale by international auction. The proceeds from such auctions would then be used to establish conservation programmes under the direction of the Secretariat. A large number of Parties expressed their objections to the Secretariat being

involved in such a scheme for a variety of reasons, including lack of personnel and time, negative perception by the public, and lack of expertise. The Parties agreed that the Secretariat should not be involved in the sale of specimens of Appendix II species.

The Secretariat presented a document about export/re-export permits and certificates. The main subjects covered were: verification and printing of permits; use of permits; and cancellation of refused permits. A draft resolution prepared by the Secretariat was discussed at some length and a revised version was adopted. Resolution Conf. 7.3 recommended: the refusal of permits with unauthorised alterations; the use of security stamps with specified additional security measures; the registration with the Secretariat of the names of people authorised by individual Parties to sign permits and certificates (together with sample signatures); and that country-of-origin of re-exports be specified on re-export certificates, together with details of the original export permit and certain other information. Furthermore, the Resolution urged the Parties to indicate on permits or certificates for live animals that the document is only valid if the transport conditions conform to the accepted CITES guidelines or to the IATA regulations, where applicable, and to keep or indelibly cancel original copies of refused permits or certificates. In addition to these measures, the Secretariat was directed to undertake an in-depth study of any necessary changes to the harmonised permit form contained in Resolution Conf. 3.4.

The Secretariat sought the guidance of the Conference of the Parties with regard to treatment of genuine re-export certificates for illegal specimens. Without further advice from the Parties, the Secretariat considered itself to be placed in a difficult position between its willingness to prevent trade in illegal specimens and its desire not to penalise Parties which have not violated the Convention. After some discussion, the Parties recommended that the Secretariat always advocate rejection of a shipment containing specimens which had entered trade illegally, regardless of whether they were covered by genuine re-export documents.

Resolution Conf. 6.24 on the transport of live animals, adopted at the previous meeting of the Conference of the Parties, had proved unacceptable to the IATA Live Animals Board because of specific recommendations and some clauses in the attached checklist which were considered outside of CITES authority. A revised Resolution (Conf. 7.13) was adopted which differed from Conf. 6.24 in its revised checklist of details to be completed for each shipment transported and in the addition of the following new recommendations:

that the dialogue between the CITES Secretariat, through the Standing Committee, and the Live Animals Board of the International Air Transport Association and the Animal Air Transport Association be continued;

that, to the extent possible, live animal shipments be examined and necessary action taken to determine the well-being of the animals by CITES-designated persons or airline personnel during extended holding periods at transfer points;

that Parties not clear for export shipments that either are unaccompanied by a completed shipment checklist or are accompanied by a checklist that contains any "No" answers unless there is a satisfactory explanation; and

that for as long as the CITES Secretariat and the Standing Committee agree, the IATA Live Animals Regulations be deemed to meet the CITES Guidelines in respect of air transport.

The delegation of the Federal Republic of Germany was disappointed that this no longer contained a requirement regarding compliance with IATA regulations on transportation of live animals.

Following recommendations made at the sixth meeting of the Conference of the Parties (Resolution Conf. 6.22), IUCN had been asked to set up a workshop to produce guidelines for evaluating marine turtle ranching proposals. The workshop had taken place in Costa Rica, in 1988, and its report was formally adopted. However, as no consensus had been reached, the draft resolution resulting from it was withdrawn. IUCN announced an initiative to develop a turtle conservation action plan, based on regional management strategies, and convened a working group to discuss this. IUCN will report to the next meeting of the Conference of the Parties on the status of the development of the action plan.

The Secretariat summarised a document it had prepared, following a recommendation at the fifth meeting of the Conference of the Parties that a comprehensive Review of Resolution Conf. 5.21 on Special Criteria for the Transfer of Taxa from Appendix I to Appendix II be carried out at the present meeting.

Whilst recognising that Resolution Conf. 5.21 had enabled Parties to utilize, in a rational way, certain species formerly listed in Appendix I and transferred to Appendix II under the special criteria provided by that Resolution, the report identified some problems with regard to its implementation. A draft resolution to replace Resolution Conf. 5.21 had been prepared to take account of such problems and, after some revision by a working group, the following was agreed (Resolution Conf. 7.14):

a) for those species for which an export quota under Resolution Conf. 5.21 was approved prior to the seventh meeting, such transfer should be for a maximum period of two intervals between regular meetings of the Conference of the Parties or one interval should the usual interval become three years, and for those species transferred at or after the seventh meeting, the transfer should be for a maximum of two intervals between regular meetings, after which the population should be transferred to Appendix I if it is not retained in Appendix II under the provisions of either Resolution Conf. 1.2, where applicable, or Resolution Conf. 3.15;

b) quotas should be established, confirmed, or changed only by the Conference of the Parties, and any Party seeking approval of a quota, or a confirmation or a change in its quota, should submit a proposal with information on the status of the species and its management programme to the Secretariat in accordance with the procedures in Article XV;

c) where crocodilians are involved, quota proposals submitted for the first time and proposals which are amended within the normal maximum period, which include a cropping component (i.e. the regulated hunting of wild animals for skins), should be examined more stringently than those referring solely to specimens reared in captivity from wild eggs or hatchlings;

d) if a Party with a quota approved at a regular meeting of the Conference of the Parties intends to keep its quota unchanged for the interval between the next two regular meetings, this should be agreed to by the Conference of the Parties, but no supporting statement is required if the Party has fulfilled its reporting requirements.

e) the wild harvest normally should not greatly exceed the export quota and the supporting statement should indicate: the proposed total annual wild harvest, including but not limited to the offtake from cropping and for trophy hunting and ranching; the proposed number and

type of wild-collected specimens to be exported (e.g., live animals, skins, other parts, derivatives); the proposed number and type of specimens reared in captivity from wild eggs or hatchlings; and the proposed number and type of captive-born specimens (sic).

f) annual reports should include information on the total annual harvest, including its forms; the number and type of wild-collected specimens which had been exported; the number and type of specimens reared in captivity from wild eggs or hatchlings which had been exported and the number and type of captive-born specimens which had been exported.

Responsibility for developing recommendations for marking and other methods of controlling trade in specimens of species subject to quotas, was given to the Animals Committee.

The delegation of the United Republic of Tanzania requested financial support to help monitor crocodile populations.

Consideration of criteria and application for inclusion of new species in the "Register of operations which breed specimens of species included in Appendix I in captivity for commercial purposes": a draft resolution that aimed to establish a format and criteria for presentation of proposals was adopted after being extensively discussed and revised (Resolution Conf. 7.10). The main criteria agreed for consideration of proposals related to:

- i) the parental breeding stock: this should be obtained without detriment to the wild population if possible and operations involving critically endangered species should normally be non-commercial;
- ii) husbandry and breeding methods: the species must have been bred reliably to the second generation in captivity, and adequate measures to prevent inbreeding must be documented;
- iii) operating strategy: the anticipated future production of offspring and any perceived need for augmentation of breeding stock are factors demanding careful consideration.
- iv) marking and inspection: these must be carried out in such a manner that the unauthorized addition of wild specimens is not likely to occur without detection.

However, there were still concerns regarding the substance of the Resolution and it was therefore agreed to review this issue comprehensively at the eighth meeting of the Conference of the Parties.

The Philippines had applied to register a captive-breeding operation in their country that had stocks of 19 Appendix I species, including 112 Hyacinth Macaws *Anodorhynchus hyacinthinus* and 140 Palm Cockatoos *Probosciger aterrimus* (which had not yet been successfully bred there). Some of the details necessary for registration had not been provided and the delegation of the Philippines agreed to resubmit the proposal.

Denmark had prepared a document and draft resolution that would allow an exemption for blood and tissue samples for DNA studies from the CITES permit requirements (e.g. for genetic fingerprinting of individuals to determine parentage). The proposal was designed to allow the undelayed transport of samples from countries where they are collected to countries where facilities are available to conduct the analyses. The draft resolution recommended that the exchange of 2ml aliquot samples of blood and tissue of CITES species for DNA studies be exempted from the usual CITES permit requirements. The maximum sample size had been chosen to prevent illegal trade in other types of derivatives under the exemption. However there was little support for the

draft resolution and some feeling that it was contrary to the spirit or the letter of the Convention as regards readily recognizable parts and derivatives. The draft resolution was withdrawn by Denmark, but they urged the Parties to make every effort to ensure efficient and timely transportation of scientific samples.

Denmark introduced a document and draft resolution referring to the return of live animals of Appendix II or III species. One of the main problems when dealing with the arrival of live specimens not covered by appropriate documentation was considered to be the transport costs which would be incurred if the specimens were returned to their source. It was felt necessary to establish the principle that the Convention does not exclude immediate return to the exporter as an alternative to confiscation for Appendix II and Appendix III specimens, in order to ensure that the costs of return would be forced upon the exporter rather than the Management Authority of the importing country. A Resolution (Conf. 7.6) was adopted with the following elements: a) live Appendix II and III animals arriving at an importing country without a proper export document should be confiscated, or sent to the Management Authority of the re-exporting country or the country of origin; b) in other cases, except in certain defined circumstances, the Management Authority of the importing country may accept that the specimens be returned immediately and directly to the exporter (at the expense of the transporter and eventually the exporter) if the importer refuses to acknowledge the shipment; and c) the Management Authority of the importing country should inform, as soon as possible, the Management Authority of the exporting country of any shipment being returned to the exporter.

Under the terms of Resolution Conf. 5.16, the trade in ranched specimens between Parties, non-Parties and reserving Parties is prohibited. Australia, having experienced problems with the export of *Crocodylus porosus* skins, had prepared a draft resolution to modify the effect of Conf. 5.16, believing it to be ultra vires. Following some discussion, the draft resolution was withdrawn and a new Resolution (Conf. 7.11) passed, requesting the IUCN Environmental Law Centre to look into the legal implications of Resolution Conf. 5.16 paragraph (j). The Animals Committee was asked to give further consideration to the marking of products of ranching operations.

The delegation of France submitted a draft resolution relating to Amendments to Appendix III, primarily to facilitate implementation of the Convention by specifying that Parties wishing to amend Appendix III should do so at meetings of the Conference of the Parties. It was pointed out that this was contrary to Article XVI.1 of the Convention, which states that Parties may at any time submit to the Secretariat a list of species for inclusion in Appendix III. In view of this and in order to allow for urgently needed Appendix III listings, the wording of the resolution was modified to "encourage" Parties to submit Appendix III listings at the Conference of the Parties, leaving the option to make amendments at other times, in the event of an emergency (Resolution Conf. 7.15).

Trade in crocodilian quota species: when the special criteria (Resolution Conf. 5.21) for transferring populations of Appendix I species to Appendix II under a quota system were adopted, they were originally envisaged as an interim measure, pending the collection of sufficient information to allow other proposals to be developed. Five of the African countries which had previously had export quotas for crocodiles therefore submitted ranching proposals, under the provisions of Resolution Conf. 3.15, to retain their crocodile populations in Appendix II. A report prepared by Dr Jon Hutton, the Secretariat's consultant on Nile Crocodile *Crocodylus niloticus*, concluded that ranching

Export quotas for crocodilians agreed at the seventh meeting of the Conference of the Parties to CITES

	1989	1990	1991	1992
<u>Crocodylus cataphractus</u>				
Congo	600 w	600 w	600 w	600 w
<u>Crocodylus niloticus</u>				
Cameroon	100 w	0	0	0
Congo	150 w	0	0	0
Ethiopia	2800 r	6800 r*	8800 r*	8800 r*
	20 w	20 w	20 w	20 w
	25 t	50 t	50 t	50 t
Kenya	4000 r	5000 r	6000 r	8000 r
	1000 w			
Madagascar	1000 w			
		0	2000 r	4000 r
Somalia		500	500	500
Sudan	5000 w	5040 w	0	0
Tanzania	2000 w	1000 w	1000 w	0
			4000 r	6000 r
		100 t	100 t	100 t
<u>Crocodylus porosus</u>				
Indonesia	4000 w	3000 w	3000 w	2500 w
		2000 r	3000 r	5000 r
<u>Osteolaemus tetraspis</u>				
Congo	500 w	0	0	0

r = ranched specimens; w = wild harvest;

t = hunting trophies; h = live ranched hatchlings;

* = including 2500 live hatchlings

was reduced to 500 when the validity of its population estimates was questioned. It agreed to withdraw its reservation on Crocodylus niloticus. Sudan has banned all crocodile hunting but had some 10 040 skins stockpiled which it asked to be allowed to export over the period 1989 and 1990. Tanzania, which was initially criticised for presenting a poorly prepared supporting statement and for having failed to carry out population surveys, presented a revised document, based on a recent survey, which requested an export quota for a lower level of wild harvest with an increasing quantity of skins from ranches. Congo had previously been allocated quotas for three crocodilian species, but had found that it could not sell the skins of Osteolaemus tetraspis African Dwarf Crocodile. Its quotas for this species and C. niloticus, which is rare in the country, were therefore set at zero, and only the Crocodylus cataphractus Slender-snouted Crocodile quota was continued.

The information presented by Indonesia, in support of its proposal for an increase in its quotas for Crocodylus porosus Saltwater Crocodile, demonstrated that illegal hunting of crocodiles in Irian Jaya was continuing at alarming rates and that most of the skins found their way to Singapore where little control was possible owing to that country's reservations. After prolonged debate, quotas were eventually granted on the assurance by Indonesia that increasing quantities of crocodiles would come from ranch production, that only skins between 10 inches and 18 inches belly-width would be exported, that the dealers involved in illegal skin hunting would have their licences revoked and that no further crocodile skins would be exported to Singapore.

The eighth meeting of the Conference of the Parties to CITES will be held in Tokyo, Japan, early in 1992.

▷ operations involving only the removal of eggs from the wild bore little risk of over-exploitation, but that the hunting of wild adults could rapidly deplete populations unless it were carefully controlled. Accordingly, the two proposals which indicated that few or no skins were to be harvested from the wild, those of Malawi and Zambia, were rapidly approved. Mozambique had originally proposed a wild harvest of 1000 skins a year in parallel to its ranching offtake, but withdrew this request in response to the prevailing mood, and the ranching proposal was then accepted. Botswana's ranching proposal also received approval although criticism was directed at the demonstrably adverse impact on wild populations that removal of adults had had in the past and at the continued retention of a reservation. The ranching proposal from Madagascar attracted so much adverse comment that it was referred to a working group, from which it re-emerged as a request for continuation of an export quota. This was agreed with the specification that only ranched skins were to be exported.

Cameroon requested no further exports, and its quotas were therefore set at zero. Ethiopia, which only recently joined CITES and which therefore had a proposal submitted on its behalf by Zimbabwe, had not had time to prepare a ranching proposal, and was granted export quotas to allow the export of ranched products. Kenya has a confusing assortment of exploitation schemes centred on the Mamba Village Crocodile Farm, which is a registered captive-breeding operation, collects eggs for ranch production, and has captured and exported large numbers of adult crocodiles from the Tana River. The latter activities were severely censured, and Kenya modified the quota request to allow only the export of ranched skins and products. It also agreed to remove the farm from the register of captive-breeding operations, noting that the registration had been made redundant by the transfer of the population to Appendix II. Somalia initially requested quotas of 2000 skins a year, but this

The proposals to amend the CITES Appendices are listed overleaf.

The following three pages summarise the proposals adopted, proposals rejected and proposals withdrawn at the seventh meeting of the Conference of the Parties to CITES. An asterisk (*) placed against the name of a species or higher taxon indicates that one or more geographically separate populations, subspecies or species of that species or taxon are included in Appendix I and are therefore excluded from Appendix II; two asterisks (**) indicate that one or more geographically separate populations, subspecies or species of that taxon are included in Appendix II and are therefore excluded from Appendix I.

PROPOSALS ACCEPTED

FAUNA

MAMMALIA

- | | |
|--------------------------------------------------------------------------------------------|-------------------------------------|
| <u>Acerodon</u> spp. | Flying-foxes |
| Inclusion in App. II. | |
| <u>Pteropus insularis</u> | Truk Flying-fox ¹ |
| <u>Pteropus mariannus</u> | Mariana Flying-fox ¹ |
| <u>Pteropus molossinus</u> | Pohnpei Flying-fox ¹ |
| <u>Pteropus phaeocephalus</u> | Mortlock Flying-fox ¹ |
| <u>Pteropus pilosus</u> | Large Palau Flying-fox ¹ |
| <u>Pteropus samoensis</u> | Samoan Flying-fox ¹ |
| <u>Pteropus tonganus</u> | Insular Flying-fox ¹ |
| Transfer from App. II to I. | |
| <u>Pteropus</u> spp.* | Flying-foxes |
| Inclusion in App. II. | |
| <u>Melursus ursinus</u> | Sloth Bear |
| Inclusion in App. I. | |
| <u>Ursus arctos</u> * | Brown Bear |
| Inclusion in App. II, excluding the population of the Union of Soviet Socialist Republics. | |
| <u>Ursus arctos</u> ** | Brown Bear |
| Inclusion in App. I of Mexican population, in lieu of <u>Ursus arctos nelsoni</u> . | |
| <u>Felis pardalis</u> | Ocelot |
| <u>Felis pardina</u> | Iberian Lynx |
| <u>Felis tigrina</u> | Little Spotted Cat |
| <u>Felis wiedii</u> | Margay |
| Transfer from App. II to I. | |
| <u>Loxodonta africana</u> | African Elephant |
| Transfer from App. II to I. | |
| <u>Cephalophus jentinki</u> | Jentink's Duiker |
| Transfer from App. II to I. | |
| AVES | |
| <u>Francolinus ochropectus</u> ² | Djibouti Francolin |
| <u>Francolinus swierstrai</u> ² | Swierstra's Francolin |
| Deletion from App. II. | |
| <u>Amazona tucumana</u> | Tucuman Amazon |
| <u>Ara maracana</u> | Illiger's Macaw |
| <u>Cacatua moluccensis</u> | Salmon-crested Cockatoo |
| Transfer from App. II to I. | |
| <u>Buceros rhinoceros</u> | Rhinoceros Hornbill |
| Inclusion in App. II. | |
| <u>Pitta guajana</u> | Banded Pitta |
| Inclusion in App. II. | |
| <u>Pitta gurneyi</u> | Gurney's Pitta |
| Inclusion in App. I. | |
| <u>Pseudochelidon sirintarae</u> | White-eyed River Martin |
| Transfer from App. II to I. | |

REPTILIA

Crocodylus niloticus Nile Crocodile
Transfer from App. I to II of populations of Ethiopia and Somalia, subject to quotas (see page 26).

Dracaena paraguayensis Caiman Lizard
Inclusion in App. II - amended to read 'spp.'.

Shinisaurus crocodilurus Chinese Crocodile Lizard
Inclusion in App. II.

Ptyas mucosus Oriental Rat Snake
Naja naja Asiatic Cobra
Ophiophagus hannah King Cobra
Inclusion in App. II.

PISCES

Latimeria chalumnae Coelacanth
Transfer from App. II to I.

Scleropages formosus Asian Bonytongue
Transfer from App. I to II of population of Indonesia, subject to quotas: 1250 (1990); 1500 (1991); 2500 with 50% from ranched specimens (1992).

CNIDARIA

SCLERACTINIA spp.
Milleporidae spp.
Stylasteridae spp.
COENOTHECALIA spp.
Tubiporidae spp.
Inclusion in App. II, excluding fossils.

FLORA

AMARYLLIDACEAE

Galanthus spp. Snowdrops
Inclusion in App. II, including natural hybrids.

Sternbergia spp.
Inclusion in App. II.

APOCYNACEAE

Pachypodium baronii
Pachypodium breviceale
Pachypodium decaryi
Transfer from App. II to I, including natural hybrids.

Rauvolfia serpentina Rauvolfia
Inclusion in App. II, excluding chemical derivatives.

ARACEAE

Alocasia zebrina²
Deletion from App. I.

CARYOCARACEAE

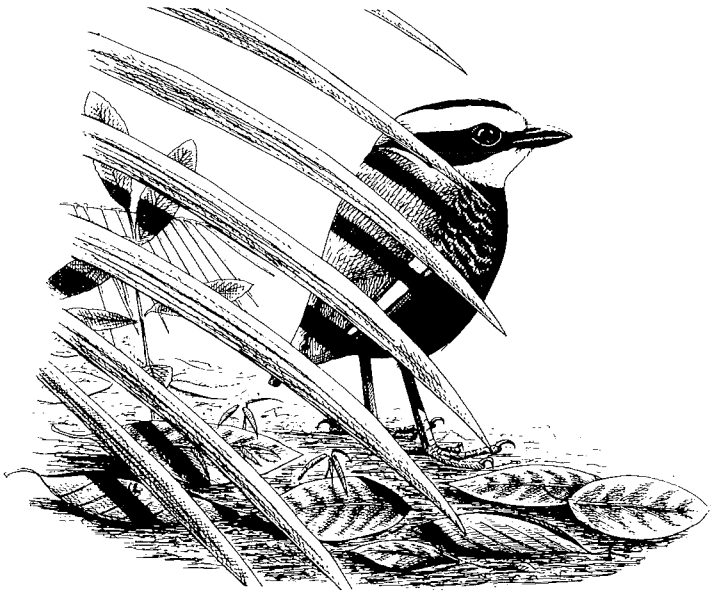
Caryocar costaricense²
Transfer from App. I to II.

EUPHORBIACEAE

Euphorbia ambovombensis
Euphorbia cylindrifolia
Euphorbia decaryi
Euphorbia francoisii
Euphorbia moratii
Euphorbia parvicyathopora
Euphorbia primulifolia
Euphorbia quartziticola
Euphorbia tulearensis
Transfer from App. II to I, including natural hybrids.

GENTIANACEAE

Prepusa hookeriana²
Deletion from App. I.

Banded Pitta *Pitta guajana*

Drawing by Craig Robson

F L O R A ctd.

HUMIRIACEAE

Vantanea barbourii²
Transfer from App. I to II.

LEGUMINOSAE

Cynometra hemitomophylla²
Transfer from App. I to II.

Platymiscium pleiostachyum²
Transfer from App. I to II.

Tachigalia versicolor²
Transfer from App. I to II.

MELASTOMATACEAE

Lavoisiera itambana²
Deletion from App. I.

MELIACEAE

Guarea longipetiolata²
Deletion from App. I.

MORACEAE

Batocarpus costaricensis²
Transfer from App. I to II.

ORCHIDACEAE

Paphiopedilum spp. Lady's slipper orchids
Transfer from App. II to I.

Phragmipedium spp. Slipper orchids
Transfer from App. II to I.

PALMAE

Phoenix hanceana
var. philippinensis²
Deletion from App. II.

Salacca clemensiana²
Deletion from App. II.

PODOCARPACEAE

Podocarpus costalis²
Deletion from App. I.

PODOPHYLLACEAE

Podophyllum hexandrum Himalayan Mayapple
Inclusion in App. II, excluding chemical derivatives.

F L O R A ctd.

STERCULIACEAE

Pterygota excelsa²
Deletion from App. II.

WELWITSCHIACEAE

Welwitschia mirabilis² Welwitschia
Transfer from App. I to II.

ZAMIACEAE

Zamiaceae spp. Cycads
Deletion of seeds, from Appendix II.

Chigua spp.

Transfer from App. II to I. Cycads

P R O P O S A L S R E J E C T E D

F A U N A

MAMMALIA

Aonyx cinerea Asian Small-clawed Otter
Lutra perspicillata Smooth-coated Otter
Transfer from App. II to I.

AVES

Ciconia ciconia White Stork
Inclusion in App. II.

REPTILIA

Varanus grayi Gray's Monitor
Transfer from App. II to I.

F L O R A

PALMAE

Chamaedorea amabilis
Chamaedorea ferruginea
Chamaedorea glaucifolia
Chamaedorea klotzschiana
Chamaedorea montana
Chamaedorea oreophila
Chamaedorea pulchra
Chamaedorea stolonifera
Chamaedorea tenella
Chamaedorea tuerkheimii
Inclusion in App. I.

Chamaedorea cataractarum
Chamaedorea ernesti-augusti
Chamaedorea metallica
Chamaedorea radicalis
Chamaedorea rojasiana
Chamaedorea simplex
Inclusion in App. II.

P R O P O S A L S W I T H D R A W N

F A U N A

MAMMALIA

Pteropus tokudae Little Mariana
Transfer from App. II to I. Flying-fox

Ursus americanus
Inclusion in App. II.

American Black Bear

Ursus arctos

Brown Bear

Inclusion in App. I, (in lieu of U.a. isabellinus) of
populations of Afghanistan, India, Nepal and Pakistan.

F A U N A ctd

Ursus arctos isabellinus Brown Bear
Transfer from App. I to II of populations of the People's Republic of China and the Union of Soviet Socialist Republics.

Ursus arctos pruinosus Brown Bear
Transfer from Appendix I to II.

Callorhinus ursinus Northern Pacific Fur Seal
Inclusion in App. II.

AVES
Rhea americana Greater Rhea
Inclusion in App. II of all unlisted subspecies.

Rhynchotus rufescens² spp. Rufous Tinamou
Deletion from App. II.

Agapornis cana Grey-headed Lovebird
Deletion from App. II.

Buceros spp. Hornbills
Inclusion in App. II.

Buceros bicornis homrai Northern Great Hornbill
Transfer from App. I to II.

REPTILIA
Chelonia mydas Green Turtle
Eretmochelys imbricata Hawksbill Turtle
Transfer from App. I to II of population of Indonesia, with export quota of 3000.

Varanus bengalensis Bengal Monitor
Varanus griseus Desert Monitor
Transfer from App. I to II.

PISCES
Cynolebias constanciae² Pearlfishes
C. marmoratus^{2,3}
C. minimus²
C. opalescens^{2,3}
C. splendens²
Deletion from App. II.

F L O R A

ARISTOLOCHIACEAE
Aristolochia indica Indian Birthwort
Inclusion in App. II.

DROSERACEAE
Drosera burmanni² Sundews
Drosera indica²
Drosera peltata²
Inclusion in App. II.

FAGACEAE
Quercus copeyensis²
Deletion from App. II.

GENTIANACEAE
Gentiana kurroo Indian Gentian
Inclusion in App. II.

JUGLANDACEAE
Engelhardtia pterocarpa²
Deletion from App. I.

LILIACEAE
Gloriosa superba Malabar Glory Lily
Inclusion in App. II.

F L O R A ctd

ORCHIDACEAE
Eriopsis biloba
Transfer of the population of Guatemala from App. II to I.

Lemboglossum majale
Lemboglossum uroskinneri
Rossioglossum williamsianum
Transfer from App. II to I.

PALMAE
Chamaedorea elegans
Inclusion in App. II.

Chamaedorea seifrizii
Inclusion in App. II.

RANUNCULACEAE
Aconitum deinorrhizum Aconite
Inclusion in App. II.

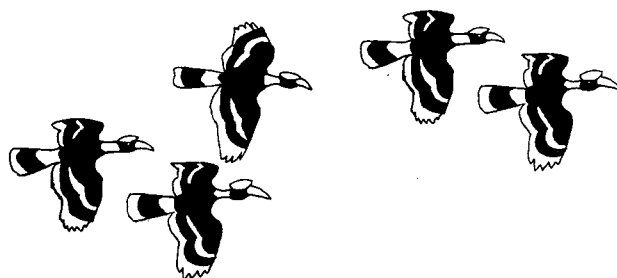
VALERIANACEAE
Nardostachys grandiflora Himalayan Spikenard
Inclusion in App. II.

Notes

- 1 deletion of the annotation 'dead specimens only'.
- 2 proposals submitted in the context of ten-year review of the Appendices.
- 3 to be annotated 'p.e.' (possibly extinct).

Great Hornbills *Buceros bicornis*

Drawing by Richard Grimmett



With thanks to Richard Grimmett and Craig Robson for permission to reproduce their illustrations.

Report compiled by Jonathan Barzdo, Steven Broad, Tim Inskipp, Kim Lochen and Richard Luxmoore.

Seizures and Prosecutions

AUSTRALIA

Federal:

On 22 December 1989, in Perth Magistrates Court, Panagiotis Demertzis, a Greek citizen, was convicted on two charges, under the Wildlife Protection (Regulation of Exports and Imports) Act 1982, of illegally attempting to export shells of native molluscs. Demertzis was apprehended by Customs at Perth airport on 18 December 1989 with a suitcase full of shells. Later, a further 12 cases of shells were found awaiting airfreight to Greece. Demertzis was fined a total of A\$3500 (US\$2760) and the shells were forfeited.

External Territories: - Cocos (Keeling) Islands

On 6 June 1989, the Magistrates Court in the Cocos (Keeling) Islands convicted Iku Bin Razan on a charge of possession of 26 Red-footed Boobies Sula sula contrary to the Migratory Birds Ordinance 1980. Razan was given 56 days to pay a fine of A\$750 (US\$590) (the maximum penalty is A\$1000). This was the first prosecution for an offence under the Cocos' Migratory Birds Ordinance.

The potential impact of hunting on seabird populations in Cocos (Keeling) Islands has been a major concern in recent years and, in 1986, a temporary prohibition on hunting on North Keeling was declared (see Traffic Bulletin 8(3):53). This was later extended to January 1989, and revised hunting controls were introduced which restricted hunting to Red-footed Boobies only, and only on Horsburgh Island (a roosting, rather than breeding site). On 26-27 January 1989, a cyclone caused extensive damage to the prime breeding habitat of the Red-footed Booby on North Keeling. The Australian National Parks and Wildlife Service has recommended that a temporary prohibition be placed on all hunting of Red-footed Boobies until at least February 1990, after breeding survey work has been assessed.

State:

New South Wales

On 18 December 1989, at Broken Hill Magistrates Court, Alois Riediger and his brother, Kurt Riediger, were convicted on charges, under the National Parks and Wildlife Act 1974, of illegal possession of birds and trapping equipment. The two men had been apprehended by State Police and wildlife rangers on 15 December 1989 on a property near Wilcannia. The men had been in possession of trapping equipment, including mist nets and spring traps, and had been using a Red-tailed Black Cockatoo Calyptrorhynchus magnificus as a decoy. They were fined A\$2500 (US\$1970) each, and were required to enter into a bond in the sum of A\$1000 to be of good behaviour for two years.

Queensland

On 12 May 1989, at Holland Park Magistrates Court, Leonard Bright of Queensland was convicted, under the Fauna Conservation Act, on a charge of keeping a pair of Hooded Parrots Psephotus dissimilis without a licence. He was fined a total of A\$471 (US\$370), including costs.

* * * *

On 17 August 1989, at Beaudesert Magistrates Court, Robert Sparks and Robert Maycock of Queensland were convicted, under the Fauna Conservation Act, on charges of taking and keeping protected fauna. Sparks, whose offences involved 14 King Parrots Alisterus scapularis,

Queensland ctd.

was fined a total of A\$1221 (US\$960) including royalties and costs. The fauna involved in Maycock's case were 5 King Parrots, 5 Sulphur-crested Cockatoos Cacatua galerita, 2 Scaly-breasted Lorikeets Trichoglossus chlorolepidotus, 2 Galahs Cacatua roseicapilla and 1 Little Corella Cacatua sanguinea. Maycock was fined a total of A\$1001 including royalties and costs.

* * * *

On 3 October 1989, at Stanthorpe Magistrates Court, Donald Young of Queensland was convicted, under the Fauna Conservation Act, on charges of taking and keeping 2 Rainbow Lorikeets Trichoglossus haematodus and 2 King Parrots. He was fined a total of A\$621 (US\$490) including royalties and costs.

* * * *

On 16 October 1989, at Cooktown Magistrates Court, Stephen Ahlers, from Queensland, was convicted, under the Fauna Conservation Act, on charges of taking and keeping protected fauna without a licence. He was fined A\$2240 (US\$1770) (including double royalties) for taking three Australian Freshwater Crocodiles Crocodylus johnstoni, and A\$980 (including royalties) for keeping two Australian Freshwater Crocodiles.

Compiled by TRAFFIC(Oceania)

BELGIUM

In July 1989, TRAFFIC(Belgium) discovered that oriental drugs containing products from Appendix I-listed species, such as rhino horn, tiger bone and musk, had been imported into the country. Customs officers were made aware of this and, as a result, TRAFFIC was called upon to inspect a shipment of medicines which arrived at Zaventem National airport from Hong Kong in November 1989. More than 1000 boxes of drugs consisting of illegal products were identified and confiscated by the authorities.

Source: TRAFFIC(Belgium)

INDIA

A large number of lizard and cat skins were seized by authorities, in four separate incidents in Calcutta, in 1989.

In the first, 141 Leopard Cat Felis bengalensis skins and 13 Leopard Panthera pardus skins were seized from Bowbazar Post Office on 2 June 1989. The raw, untanned skins had been sent to a consignee in Jammu and Kashmir but were returned for reasons unknown.

On 18 August 1989, 17 000 pieces of monitor lizard Varanus spp. skins, all untanned, were seized from a lorry en route to Bombay. Three days later, eight Tiger Panthera tigris skins arriving by train from Madhya Pradesh were found at Howrah Railway Station.

About 90 Leopard Cat skins and one piece of Marbled Cat Felis marmorata skin were seized on 4 September 1989 at Chittaranjan Avenue Post Office.

Source: Dr Kalyan Chakrabarti, CITES Management Authority, India, in litt. to Peter Jackson, IUCN/SSC Cat Specialist Group, September 1989

Seizures and Prosecutions ctd.

INDONESIA

Alert police officers foiled an attempt to smuggle 75 stuffed birds of paradise *Paradisaea* spp. from Merauk, Irian Jaya Province. They had been put into boxes for smuggling by sea to Surabaya, East Java, before being discovered by police. The owner of the birds, Panus Jamal, was detained for questioning.

Source: Jakarta Post (Indonesia), 28 August 1989

ITALY

Information provided by TRAFFIC(Italy) led to the seizure, in October 1989, of a young Chimpanzee *Pan troglodytes* from a photographer in Pistoia, Florence, in the absence of proof that the specimen had been legally obtained. The animal is being cared for at Pistoia Zoo.

An attempt to smuggle a gibbon *Hylobates* spp. into Italy at Pisa airport on 23 November 1989 was foiled, and the animal given in trust to Pistoia Zoo.

* * * *

A dozen parrots were seized by the Forest Guard from a pet shop in Genoa, in October 1989, after a tip-off by TRAFFIC(Italy) to the Italian CITES Management Authority. A Scarlet Macaw *Ara macao*, a Blue-and-Yellow Macaw *Ara ararauna*, 3 sulphur-crested cockatoos *Cacatua* spp., an African Grey Parrot *Psittacus erithacus*, 3 Blue-fronted Amazons *Amazona aestiva*, and 3 Red Lories *Eos bornea*, were being offered for sale without the correct documentation.

In a separate incident, in October, a Blue-and-Yellow Macaw was seized from a pet shop in Naples, and is now at Naples Zoo.

* * * *

Following a protest, by a representative from WWF-Italy's regional office in Calabria, at the offering for sale of Hermann's Tortoises *Testudo hermanni robertmertensi* in Crotone, an assurance was received on 10 November 1989 by WWF from Salvatore Pane, governor of the region, that the illegal trade has been stopped; the Tortoises have been seized and handed to the local WWF section for release into their natural habitat.

Calabria is one of the few regions in Italy where herpetofauna is protected. Hermann's Tortoise is now rare in Italy, and is listed in Annex C1 of EEC Regulation 3626/82 and thus unauthorised sale within the EEC is prohibited.

Compiled by TRAFFIC(Italy)

NAMIBIA

Two men due to appear in the Supreme Court in Windhoek, Namibia, on 1 December 1989, for illegal possession of 975 elephant tusks, have jumped bail and apparently fled the country.

Paolo Antonio and Victor Darocha and four others were arrested in November 1989 in Osona. The refrigerated truck in which they were travelling was stopped by police and found to contain tusks from about 500 elephants, hidden behind crates of fruit.

The two men, who may be Angolans, were reportedly employed to deliver the contraband cargo to middlemen in Namibia for transport elsewhere.

Warrants have been issued for their arrest.

Source: Johannesburg Sunday Star (South Africa), 19 November 1989



Hyacinth Macaws *Anodorhynchus hyacinthinus* © R.A. Luxmoore

NETHERLANDS

Following their conviction for illegal possession of Hyacinth Macaws *Anodorhynchus hyacinthinus* (CITES Appendix I), the owners of The Breeding Centre Interbird in the Netherlands have had their sentences reduced in the Court of Appeal.

Jan van der Gulik and Peter Kooy, licensed to keep six Hyacinth Macaws, applied for a licence to keep three additional juvenile birds which they claimed had been bred from the older birds. Investigations, involving the use of genetic fingerprinting tests, revealed that the young birds were not related to the adult birds. The juveniles, and two of the adult birds whose tattoos did not match the numbers on the possession licence, were confiscated. The owners were convicted on 14 October 1988 (see *Traffic Bulletin* 10(1/2)).

On 21 November 1989, in the Court of Appeal, the two defendants admitted that the three young (there were originally four eggs) were not bred from their own birds, but from another pair of Hyacinth Macaws, illegally kept somewhere in the Netherlands.

In addition, despite the fact that the tattoos on two of the adult birds had not corresponded with those on the possession licence, the expert witness for the defence, Mr Kaal, a veterinarian who had tattooed the birds himself, stated that it was possible for tattoos to wear away. No expert witness for the prosecution was called.

On 5 December 1989, the defendants had their total fines of dfl.100 000 (US\$47 000) reduced to dfl.20 000, and the two older birds which had been confiscated, were returned to the Centre.

Source: TRAFFIC(Netherlands)

Seizures and Prosecutions ctd.

UK

On 30 October 1989, in Dartford Magistrates Court, John Hemmings was convicted on 12 charges, under the UK Wildlife and Countryside Act 1981, including possession, possession for sale and the taking of eggs of protected bird species.

Officers from the Royal Society for the Protection of Birds (RSPB) seized a total of 26 871 eggs from Hemmings' home, including those of Merlin Falco columbarius, Jackdaw Corvus monedula, Kestrel Falco tinnunculus, Buzzard Buteo buteo, Hooded Crow Corvus corone cornix, Hen Harrier Circus cyaneus, Nightingale Erithacus megarrhynchos, Little Grebe Tachybaptus ruficollis and Mute Swan Cygnus olor. Clutches of Osprey Pandion haliaetus, eggs of Imperial Eagle Aquila heliaca and Verreaux's Eagle Aquila verreauxii, Woodlark Lullula arborea, Peregrine Falcon Falco peregrinus and 92 clutches of Red-backed Shrike Lanius collurio, now extinct as a breeding species in the UK, were also found.

Some of the eggs had been collected in Kent and Scotland. Hemmings had also travelled to Belgium, where he had collected eggs with two Belgian collectors; these were illegally imported into the UK. Additionally, on Hemmings' behalf, a collector had smuggled eggs into the UK from Africa.

Hemmings was fined a total of £3753 (US\$6190) and ordered to pay £6000 costs to RSPB, which had brought the case against him. He was also charged with the possession of egg cabinets, egg-collecting equipment, data cards, books and ordnance survey maps for the purposes of committing offences of taking and possession of birds' eggs, and all these items were ordered to be forfeit.

A trip by RSPB investigators to Zambia to conduct inquiries into the case was made possible by a grant of £500 (US\$820) from WWF.

Source: The Royal Society for the Protection of Birds

VANUATU

In October 1989, Clarence Marae, Vanuatu's Trade and Industry Secretary, was fined US\$8300 in the Supreme Court at Port Vila after pleading guilty to charges of bribery. Marae admitted receiving US\$14 000 from a Taiwanese logging company which had applied for a licence to log rainforest on the island of Malekula. A two-year suspended sentence was also imposed and Marae was ordered to pay court costs. The Vanuatu Government has rigid controls on logging; licences for logging are restricted in number to protect the future of the small local processing industry.

Source: Pacific Islands Monthly, November 1989

Suriname Raises Iguana Quota

The Suriname Forest Service has informed the CITES Secretariat that it increased its 1989 export quota for Green Iguana Iguana iguana, from 20 000 to 30 000. This decision arises from complaints of damage to crops. The skins were allowed out of the country during the period 18 to 31 December 1989.

Source: Stanley Malone, Suriname Forest Service, in litt. to CITES Secretariat, 2 January 1990.

Argentina Revises Parrot Export Quotas

The following quotas for export of psittacines from Argentina have been established for 1990, according to Argentine Resolution N°6 of the Dirección Nacional de Fauna.

Blue-fronted Amazon	23 000
<u>Amazona aestiva</u>	
Tucuman Amazon	0
<u>Amazona tucumana</u>	
Yellow-collared Macaw	0
<u>Ara auricollis</u>	
Illiger's Macaw	0
<u>Ara maracana</u>	
Blue-crowned Conure	15 000
<u>Aratinga acuticaudata</u>	
Peach-fronted Conure	500
<u>Aratinga aurea</u>	
White-eyed Conure	2 500
<u>Aratinga leucophthalmus</u>	
Mitred Conure	5 000
<u>Aratinga mitrata</u>	
Golden-fronted Parakeet	0
<u>Bolborhynchus aurifrons</u>	
Sierra Parakeet	1 500
<u>Bolborhynchus aymara</u>	
Canary-winged Parakeet	1 000
<u>Brotogeris versicolorus</u>	
Patagonian Conure	unlimited
<u>Cyanoliseus patagonus</u>	
Blue-winged Parrotlet	0
<u>Forpus xanthopterygius</u>	
Monk Parakeet	unlimited
<u>Myiopsitta monachus</u>	
Nanday Conure	10 000
<u>Nandayus nenday</u>	
Scaly-headed Parrot	5 000
<u>Pionus maximiliani</u>	
Maroon-bellied Conure	4 000
<u>Pyrhura frontalis</u>	
Green-cheeked Conure	1 000
<u>Pyrhura molinae</u>	

Source: TRAFFIC(South America)

Commercial Extinction for Bluefin Tuna?

An Australian Government report shows that the Southern Bluefin Tuna Thunnus maccoyii, one of Australia's most important commercial fish, is close to commercial extinction, mainly because of overfishing by Australian and Japanese trawlers.

The Southern Bluefin is a slow-growing, slow-breeding fish which lives for about 20 years. Its flesh is high in oil and prized on the sashimi market, fetching A\$20 (US\$30) a kg wholesale. The total catch of the Southern Bluefin Tuna has been declining since 1961, with an annual yield of 81 000 tonnes falling to 20 000 t by 1988. The report states that if the current low catches continue to decline, there appears little prospect of any recovery in the fishery in the short or long term.

While Australia has tried to negotiate a total fishing ban, Japan has resisted, blaming the decline on Australia's haul of immature fish off South Australia. According to Dr Caton, senior author of the report, Japanese long-line fishing has contributed about twice as much to the decline as has Australian surface fishing.

Source: Caton, A., McLoughlin, K. and Williams, M.J. (1990). Southern Bluefin Tuna: Scientific Background to the Debate. Department of Primary Industries and Energy Bureau of Rural Resources, Australia.

Solomon Islands Crocodiles Need Protection

A survey of Crocodile populations in the Solomon Islands has led to the recommendation that an immediate ban be placed on the export of Crocodile skins for at least five years.

The census of Saltwater Crocodile *Crocodylus porosus* populations was carried out by Professors Harry Messel and Wayne King during the period 29 July to 8 September 1989. Because Crocodiles in the Solomons have been, and still are, generally looked upon as vermin, and not as a valuable resource, the species has almost been wiped out by hunting. The survey found a total of only 177 animals.

The draft report states that, unless urgent and strict measures are taken to protect the species, the Saltwater Crocodile may soon become extinct in the Solomon Islands. In addition to an export ban, the authors recommend a permanent ban on taking from the wild crocodiles whose belly width is greater than 45 cm, so that the breeding stock is protected.

Source: Draft Report on the CITES and Solomon Islands Government National Survey of the Crocodile Populations of the Solomon Islands, by Messel and King, 9 September 1989.

Japanese Sea Turtle Quota Reduced

Since November 1980, Japan has had a reservation on the listing in CITES Appendix I of Hawksbill Turtle *Eretmochelys imbricata*. With effect from the next quota import period, which starts in April 1990, the Japan Sea Turtle Shell Merchant Union Federation (Japanese Bekko Association) has agreed to reduce the annual quota for Hawksbill Turtle shell from 30 tonnes to 20 tonnes.

Prohibitions on trade with CITES Parties which do not have a corresponding reservation will remain in effect. Additionally, all tortoiseshell trade with Jamaica, a non-Party, will cease, as it has been officially confirmed that domestic legislation in Jamaica prohibits the export of marine turtle products.

The legal status of the species in Haiti and the Maldives is currently subject to enquiries. If it is confirmed that domestic legislation prohibits the export of Hawksbill Turtle shell in those countries, future imports into Japan will be banned.

Source: TRAFFIC(Japan)

Publication Available

International Wildlife Trade: Whose Business Is It? by Sarah Fitzgerald.

1989. 459 pp. Price: US\$25 (soft cover)/US\$40 (hard cover). Published by World Wildlife Fund. Available from WWF, PO Box 4866, Hampden Post Office, Baltimore, Maryland 21211, USA.

This publication explores the many issues surrounding international trade in wildlife and wildlife products. It covers international and national laws governing such trade, problems with poaching and smuggling of endangered species of animals and plants, the environmental and economic consequences of inadequate trade controls, and innovative ventures to develop methods that manage the trade in ways that enhance the environment and help ensure individual species' long-term survival.

Crocodile Farm Directory Update

The Wildlife Trade Monitoring Unit of WCMC is in the process of preparing a second edition of the Directory of Crocodile Farming Operations. The first edition was published in 1985 and is now out of date. Since then, a very large number of new farms have opened all around the world, and the scale of production of skins from farms has increased substantially. The first directory has proved very useful to farmers wishing to make contact with others in the same line of business; to government authorities concerned with controlling the international trade in crocodilian skins; to scientists carrying out research on captive breeding of crocodilians; and to traders wanting to locate sources of legally produced skins.

In order to collect new information about the farms, we shall be writing to all those listed in the previous directory, but we are particularly keen to contact new farms which were not listed. Consequently, we appeal to all such crocodile farmers to contact us. The new directory will contain information in the following form:

Location of farm; business address, name of director or manager; parent company;

Date of establishment; historical development of the farm;

Species of crocodilian kept and current stock inventory, broken down by size or age class;

Breeding success in each of the past three years; numbers of nests produced, eggs laid and hatching percentage; date of first successful breeding;

Husbandry details; numbers and size of ponds; nesting facilities and incubation procedure; source and type of food;

Source of stock; source and number of crocodiles obtained from the wild in each of the past three years; age at collection (eggs, hatchlings, sub-adults, etc.); year in which crocodilians were last taken from the wild; numbers of crocodiles purchased from other farms;

Production and trade; amounts of skins, meat and other products sold in each of the last three years; whether skins are sold within country or for export; date of first production of skins;

Visitor facilities; average number of paying visitors admitted per year; shops, restaurants, educational facilities available; species of crocodile skin products on sale;

Research carried out at the farm; collaborating organisations;

Other comments.

It would be very helpful if those knowing of the existence of any new crocodile farms could send us contact addresses so that we can approach them. All information should be sent to:

Richard Luxmoore, Wildlife Trade Monitoring Unit,
World Conservation Monitoring Centre,
219c Huntingdon Road,
Cambridge CB3 0DL, UK.



The International Trade in Bulbs

by Sara Oldfield

INTRODUCTION

Bulbs have been cultivated as ornamental garden plants for centuries and remain amongst the most popular plants in horticulture. The majority of flower bulbs which are of ornamental value belong to three families, Amaryllidaceae, Iridaceae, and Liliaceae. Popular garden bulbs such as varieties of daffodil *Narcissus*, tulip *Tulipa* and hyacinth *Hyacinthus* are grown as field crops in a range of countries and are traded on a huge scale. Many other bulbs are also produced commercially but, for certain species, collection from the wild is the main source of the bulbs in international trade.

There has been growing concern about the international trade in wild-collected flower bulbs. The collection and export of bulbs from the wild in Turkey has been relatively well documented but the situation for other countries has been unclear. The Netherlands is the main centre of trade for the bulb industry. Whilst a wide range of bulbs is grown there, the Netherlands imports wild bulbs from Turkey and other countries for re-export.

In 1987 WWF-US commissioned a study of the international bulb trade. The study has been carried out in two phases by the Wildlife Trade Monitoring Unit (WTMU) of the World Conservation Monitoring Centre. The findings of the first phase of the research, carried out from May to August 1987, formed the basis for a more comprehensive study of the trade carried out between May 1988 and January 1989.

The aims of the bulb study have been:

- i) to identify the bulb species involved in the international horticultural trade;
- ii) to identify the species which are collected from the wild for international trade;
- iii) to develop a data bank of bulb species information as a basis for monitoring international trade;
- iv) to review the propagation techniques used in the commercial production of bulbous plants;
- v) to assess the impact of collection from the wild, identify resulting conservation problems and make recommendations for conservation action.

The results of the study were compiled in a report for WWF-US, published in July 1989, which is available from TRAFFIC(USA) (address back page) for US\$15.00. The main findings for selected genera in trade are summarised in this article. The study report also describes the significance of the bulb trade in the principal trading countries, but this information has been omitted from the present article.

METHODS

Information for the study was collected from a literature survey, published statistical information, nursery catalogues, site visits, and correspondence and interviews with bulb experts. Studies of the Japanese and Dutch bulb trade were sub-contracted to TRAFFIC(Japan) and TRAFFIC(Netherlands) respectively.

Statistical information on bulb production and trade generally relates to the major bulbs in trade (*Narcissus*, *Tulipa*, *Iris*, *Gladiolus*) and there are very limited data on minor bulbs. Data are rarely available to species level and statistical information specifically on wild bulbs is particularly scarce.

The most detailed information on bulb production and trade is available from the Netherlands. The main Dutch sources of data used in the survey were:

- i) Data on Dutch bulb production compiled by the Produktschap voor Siergewassen (PVS). A report by the Internationaal Bloembollen Centrum (Anon., 1988) gives information on the levels of production of minor bulbs in the Netherlands and indicates those genera which are imported only;
- ii) Data on bulb exports from the Netherlands compiled by PVS (PVS, 1987). Information is published on the quantities of bulbs, by genera, exported to 12 countries and total bulb exports to a range of other countries;
- iii) Data on bulb imports to the Netherlands published by PVS. Statistical data are also compiled by the Central Bureau of Statistics (CBS) from Customs data. In addition, information on imports is available from Plantenziektenkundige Dienst (PD), the Government plant health service.

Information on international trade in *Cyclamen* reported in annual reports of CITES Parties was used for the study.

Nursery catalogues were collected from retail and wholesale bulb firms in a number of countries. In addition, 'The Plantfinder', a compilation of UK firms offering hardy plants, including bulbs, was consulted.

Information on bulbs offered in the USA is based on a survey carried out by Faith Campbell of the Natural Resources Defense Council (NRDC).

Visits to Spain, Portugal and Greece were conducted by Mike Read of the Fauna and Flora Preservation Society, and investigations in Nepal by Tim Inskip of WTMU.

A survey of the UK firms involved in the bulb trade was carried out by *Gardening from Which?* (a service of the UK Consumers' Association) in association with WTMU. A questionnaire asking about the source of bulbs was circulated to bulb companies, specialist nurseries, supermarket and garden shop groups in the UK and several major suppliers in the Netherlands. The questionnaire was followed-up by a survey of the origins of specified species and genera in trade.

DISCUSSION

Assessment of the Trade

Although there is a continuing trade in horticultural bulbs of wild origin, it is difficult to quantify the volumes of wild bulbs traded around the world. In relation to the total world trade in horticultural bulbs, the wild bulb trade is very small; but for certain genera or individual species it remains significant even where commercial propagation systems exist.

The range of wild bulbs in international trade is indicated by the list in Table 1. This list cannot be considered definitive because the origin of many bulbs in trade remains uncertain. Traders contacted during the survey have generally been reluctant to provide details of the wild species which they supply. In part this is due to commercial confidentiality and an unwillingness to reveal the source of unusual bulbs on offer. Additionally, traders may wish to protect themselves from adverse publicity.

TABLE 1

Bulb species wild-collected for international trade

The following list concentrates mainly on those bulbs which are readily available in trade; where there is significant commercial cultivation this is noted with an asterisk (*) and the letter 'c' denotes species for which cultivars are available. It is possible that small quantities of the other species are propagated commercially by some nurseries. The list of wild bulbs in trade is by no means exhaustive and serves only as a guide.

<u>Genus/Species</u>	<u>Country of Export</u>	<u>Genus/Species</u>	<u>Country of Export</u>
<u>Allium bulgaricum</u>	Turkey	<u>Fritillaria acmopetala</u>	Turkey
<u>A. sicutum</u>	Turkey	<u>F. bucharica</u>	
<u>A. ursinum</u>	Hungary	* <u>F. camschatcensis</u>	Japan
<u>A. victorialis</u>	Japan	<u>F. gibbosa</u>	
* <u>Anemone blanda</u>	Turkey	<u>F. latifolia</u>	
* <u>A. coronaria</u>	Turkey	* <u>F. pontica</u>	
<u>A. ranunculoides</u>	Hungary	<u>Galanthus elwesii</u>	Turkey
* <u>A. ringens</u>	Japan	<u>G. fosteri</u>	Turkey
<u>A. speciosum</u>	uncertain	<u>G. gracilis</u>	Turkey
* <u>A. triphyllum</u>	USA	<u>G. ikariae</u>	Turkey
<u>Arisaema spp.</u>	Japan/India	* <u>G. nivalis</u>	France/Turkey
<u>Arisaema sikokianum</u>	Japan	* <u>Geranium tuberosum</u>	Turkey
<u>A. thunbergii</u>	Japan	<u>Iris acutiloba</u>	
subsp. <u>urashima</u>		<u>I. iberica</u> subsp.	
<u>Arisarum vulgare</u>	Turkey	<u>elegantissima</u>	Turkey
* <u>Arum dioscoridis</u>	Turkey	<u>I. kopetdaghensis</u>	
* <u>A. dracunculus</u>	Turkey	<u>I. paradoxa</u>	Turkey
* <u>A. italicum</u>	Turkey	<u>I. persica</u>	Turkey
* <u>A. orientale</u>	Turkey	* <u>I. reticulata</u>	Turkey
<u>Cardiocrinum giganteum</u>	India/Japan	<u>I. sari</u>	Turkey
* <u>Chionodoxa lucillae</u>	Turkey	* <u>I. tuberosa</u>	Turkey
* <u>C. sardensis</u>	Turkey	<u>Leucojum aestivum</u>	Turkey/India
<u>C. tmoli</u>	Turkey	<u>L. vernum</u>	Hungary
* <u>Colchicum spp.</u>	Hungary	<u>Muscari aucheri</u>	Turkey
* <u>Colchicum cilicium</u>	Turkey	* <u>M. comosum</u>	Turkey
* <u>C. luteum</u>	India	<u>M. longipes</u>	Turkey
* <u>C. speciosum</u>	Turkey	<u>M. neglectum</u>	Turkey
* <u>C. variegatum</u>	Turkey	<u>M. tenuiflorum</u>	Turkey
<u>Corydalis solida</u>	E. Europe	<u>Narcissus asturiensis</u>	Portugal
The following <u>Crocus</u> spp. have been listed as Turkish exports in recent years. Export of this genus is now banned.		* <u>N. bulbocodium</u> subsp.	
* <u>Crocus anycyrensis</u>	Turkey	<u>conspicuus</u>	Portugal
* <u>C. biflorus</u>	Turkey	<u>N.b. subsp. tenuifolius</u>	Portugal
<u>C. cancellatus</u>	Turkey	c <u>N. cyclamineus</u>	Portugal
* <u>C. chrysanthus</u>		<u>N. juncifolius</u>	Portugal
* <u>C. flavus</u>	Turkey	c <u>N. pseudonarcissus</u>	Belgium
* <u>C. fleischeri</u>	Turkey	<u>N. rupicola</u>	Portugal
<u>C. kotschyanus</u>	Turkey	<u>N. scaberulus</u>	Portugal
<u>C. pallasi</u>	Turkey	<u>N. triandrus albus</u>	Portugal
* <u>C. pulchellus</u>	Turkey	<u>N. triandrus concolor</u>	Portugal
* <u>C. sativus</u>	Turkey	* <u>Ornithogalum nutans</u>	Turkey
* <u>C. speciosus</u>	Turkey	<u>Pancratium maritimum</u>	Turkey
<u>Cyclamen cilicium</u>	Turkey	<u>Sanguinaria canadensis</u>	
<u>C. coum</u>	Turkey	* <u>Scilla bifolia</u>	Turkey
<u>C. hederifolium</u>	Turkey	<u>Sternbergia clusiana</u>	Turkey
<u>C. mirabile</u>	Turkey	<u>S. fisheriana</u>	Turkey
<u>C. purpurascens</u>	Hungary	<u>S. lutea</u>	India/Turkey
<u>Dicentra</u>	USA	<u>S. sicula</u>	Turkey
<u>Eranthis cilicia</u>	Turkey	<u>Trillium spp.</u>	USA/Canada
<u>E. hyemalis</u>	Turkey	* <u>Tulipa aitchisonii</u>	
<u>Erythronium album</u>		* <u>T. hageri</u>	Turkey
<u>E. americanum</u>	USA	* <u>T. humilis</u>	Turkey
<u>E. citrinum</u>		* <u>T. kurdica</u>	Iraq
* <u>E. dens-canis</u>	E. Europe	* <u>T. praecox</u>	Turkey
<u>E. japonicum</u>	Japan	<u>T. undulatifolia</u>	Turkey
		<u>Urginea maritima</u>	Portugal
		<u>Uvularia</u>	USA

In general it appears that the Dutch bulb merchants have not concerned themselves with whether or not bulbs are wild-dug, as long as they are able to supply the range of species they require from the cheapest source. In certain instances, the bulbs included in commercial lists are not actually available but are included to maintain consumer interest.

In general, the bulbous plant species traded in bulk from wild sources are widespread species and some of the commonly traded bulbs have been widely naturalised. With appropriate harvesting levels the trade could be sustainable but, during the survey, no examples were found of true management of wild or naturalised bulb populations to supply the international market. Management has started in Turkey with a three-tier system of export controls, quotas for the harvesting of certain genera, and the introduction of cultivation (Table 2). The controls have only recently been introduced, however, and are not yet fully effective.

Until effective management systems are in place, the trade in all wild bulbs should be viewed with concern. Local populations of many species are becoming depleted and uncontrolled trade adds to the pressures of habitat destruction. The sheer volume of trade in wild bulbs from Turkey has led to many economically important species, including those with a wide natural distribution, being considered as 'Vulnerable' (Ekim et al., 1989).

As yet, insufficient information is available on the conservation status of bulbs in the wild to determine what level of trade would be sustainable. The plants database of the World Conservation Monitoring Centre provides the main international source of information on the status of plant species in the wild, but coverage is by no means complete for bulbous plants. Information has not yet been added to the database for Turkish bulbs, and threatened plant lists at a national level have not been compiled for many Asian countries. At a local level, harvesting records for wild bulbs are generally unavailable and are probably not compiled for most species. Harvesting may be from illicit sources, from areas protected for nature conservation (as is the case for some Portuguese *Narcissus* species), or from privately owned land. Wholesale bulb companies generally will not release information on the quantities of wild bulbs dug from particular sources, for commercial reasons and, in some cases, Dutch wholesale traders claim not to know the source of bulbs from exporting countries. Without information on the status of bulb species in the wild and the levels of harvesting, it is difficult to assess the impact of wild collection.

The continuing commercial collection of wild bulbs has been deplored for reasons other than those related to conservation of plants in their natural habitats. The quality of wild bulbs is generally inferior to those from cultivated stock; it is difficult to guarantee that wild bulbs are true-to-name species; and there are problems with the spread of pests and plant diseases. Continued imports from the wild of low-priced bulbs undercut attempts to establish species in commercial cultivation.

In general, the commercial bulb trade concentrates on cultivars from a small selection of species from each genus. Specialist growers offer a wider range of bulbs either propagated from wild-collected or limited cultivated stock, or directly imported from the wild. Specialist nurseries offer bulbs supplied by a network of personal contacts, usually in limited quantities. Wherever collection of rare bulb species exceeds production by propagation, conservation problems will result. Many specialist nurseries are conservation-minded but others are placing a strain on the wild populations of rare species. It is particularly difficult to obtain detailed information on the specialist bulb trade and this can only be successful with the co-operation of the nurseries involved.

GENERA IN TRADE

Allium

Allium is a large genus of around 500 species whose distribution extends throughout the northern hemisphere. Relatively few of the species are of ornamental value.

Most *Allium* spp. can be grown from seed or from small offsets and both methods are used commercially. The majority of *Allium* bulbs offered by traders in the Netherlands are Dutch grown, although some are imported from France, Israel, Japan and South Africa. The area planted with ornamental *Allium* for bulb production in the Netherlands is around 60 ha. *A. giganteum* is the main species grown. The main species imported from Israel is *A. schubertii*. Research to introduce native species to cultivation in Israel includes work on *A. ampeloprasum*.

Limited trade in wild-collected *Allium* spp. is thought to take place. *A. bulgaricum* and *A. siculum*, offered by several Dutch bulb firms, are imported from Turkey. Ekim et al. (1984) recommended that the rare Turkish endemic, *A. roseum*, should not be collected from the wild for trade. Since 1986 the export of this species from Turkey has been banned unless the bulbs are of cultivated origin. Wild-dug *A. ursinum* from Hungary have recently been offered wholesale in the Netherlands and one of the main Dutch trading companies imports this species from the UK, also possibly wild-dug. *A. griffithianum* from Kashmir is in trade in Europe.

In Japan about 30 species of *Allium* are in trade; three are considered 'Vulnerable' due to over-collecting by specialist nurseries, and are currently offered by nurseries within Japan. *A. victorialis* is the only Japanese species currently offered by UK specialist nurseries and is recorded as being 'in short supply'. Some Japanese nurseries are raising *Allium* from wild-collected seed but other forms of propagation are not utilized.

Arisaema

There are about 150 species of *Arisaema*, mainly occurring in Japan, China and the Himalayas. Only a few species are well known in cultivation, the most popular being *A. candissimum*, native to west China.

In the UK, 17 species have been available from specialist nurseries in the past two years and *A. costatum* from Nepal is a recent introduction. There is some small-scale commercial propagation of various *Arisaema* spp. in the UK, but for several species the trade appears to be in imported wild-collected material. One specialist bulb nursery has recently discontinued supplying plants of the genus because the bulbs available were believed to be wild-collected.

Taxa believed to be wild-collected are *A. speciosum* and *A. thunbergii* subsp. *urashima*. Other species, such as *A. ringens* and *A. triphyllum*, are propagated by at least one nursery and imported by others.

Scarcely any *Arisaema* are produced commercially in the Netherlands (Anon., 1988) and small quantities are imported from India. One Dutch company offers *A. sikokianum* and *A. urashima*, from Japan, but apparently does not sell many *Arisaema* bulbs and imports small quantities (about 100 in a recent consignment). Specimens of *A. sikokianum* imported from Japan are available in UK nurseries. Japan appears to be a significant exporter of *Arisaema* but no information has been located on the size of the trade. About ten species are available commercially. Interviews at several Japanese nurseries revealed that *Arisaema* bulbs are collected from the wild and exported.

The level of trade in wild-collected material has caused concern (C. Brickell, in litt. to B. Lear, July 1987). Four species, *A. abei*, *A. cucullatum*, *A. ogatae* and *A. sikokianum*, are considered to be under threat specifically from over-collecting, and 14 taxa are included in the Japanese Red Data list. Some nurseries are attempting to propagate *Arisaema* using tissue culture methods but, as yet, with no success.



Cyclamen hederifolium

© L.A. Bishop

Cyclamen

There are about 16 species of *Cyclamen* distributed in Europe and the Mediterranean area, extending eastwards to Iran. All species are in cultivation. The popular florists' forms sold as house plants have been raised by selection from *C. persicum*. *Cyclamen* tubers of all species are almost exclusively wild-collected. Trade in *Cyclamen* has been the subject of a report by van der Plas-Haarsma (1987) and has therefore not been looked at in detail during the present study. Changes in the trade and new information on countries of origin are, however, noted.

Turkey has ten native species and remains the main country of origin for wild-collected *Cyclamen* tubers in trade, most of which are traded through the Netherlands. There is no commercial production of *Cyclamen* within the Netherlands except for cultivation of *C. persicum* cultivars for the pot plant trade. According to the Dutch Plant Health Service, 943 000 *Cyclamen* were imported from Turkey in 1985/86, 1 175 000 in 1986/87 and 801 000 in 1987/88. Other countries which import *Cyclamen* directly from Turkey are France, Switzerland, UK and USA. The main species collected for export are *C. hederifolium*, *C. cilicium*, *C. coum*. Since 1983 the export of *C. mirabile*, *C. repandum*, *C. pseudibericum*, *C. trochopteranthum* and *C. parviflorum* has been banned (see Table 2).

The EEC temporarily banned all imports of *Cyclamen* from Turkey in 1985. The ban was later replaced by an import quota, initially of one million (M) *Cyclamen* tubers. The quota was exceeded in 1986 and 1987, with exporters in Turkey claiming that replanted stocks were available for export. In 1988 an EEC delegation visited Turkey to investigate the *Cyclamen* trade and, in particular, the degree to which cultivated stocks supplied the trade. The report of this visit (McGough et al., 1989) provides information on the extent of *Cyclamen* cultivation in Turkey.

Production of *Cyclamen* from wild-collected seed has now started in Turkey and it is likely that some artificially propagated plants of *C. hederifolium* will be available for export in 1990. Despite these advances, most of the cultivation of *Cyclamen* within Turkey consists of growing-on of wild-collected stock and cannot be considered artificial propagation. The species which are being grown-on from wild-collected tubers are *C. cilicium*, *C. coum*, *C. graecum*, *C. hederifolium*, *C. mirabile*, *C. persicum* (McGough et al., 1989).

According to the Turkish Plant Red Data Book (T. Ekim, in litt., January 1989), *C. cilicium*, *C. graecum*, *C. hederifolium* and *C. persicum* are considered to be Vulnerable, *C. mirabile* to be Endangered and *C. repandum* to be Indeterminate. These designations reflect years of extensive collection. Extending the

cultivation within Turkey appears to be the most positive conservation approach, together with enforcement of national and CITES trade controls.

Other sources of *Cyclamen* imported to the Netherlands in the years 1985-1988 are Israel and Italy, according to Plant Health Service figures. The quantities from Israel are small (less than 1000 tubers a year). Israel exports *C. persicum*, produced at the kibbutz Maarit. Italy has three indigenous species of *Cyclamen*: *C. hederifolium*, *C. purpurascens* and *C. repandum*; since 1985 there has been a total ban on exports. There have been recent reports of wild-dug *C. purpurascens* from Hungary being offered in trade in the Netherlands, but this trade is not reflected in the CITES statistics.

The other species of *Cyclamen* which are sold by specialist nurseries are all propagated commercially on a small scale, usually from seed. Species available in trade include some which are very rare in the wild, such as *C. rohlfsianum* which occurs in Libya and is classified by IUCN as 'Vulnerable'.

According to one specialist grower in the UK, *C. graecum*, *C. persicum* and *C. africanum* are not popular in trade and there is very little demand for *C. balearicum*, *C. creticum*, *C. mirabile*, *C. intaminatum* and *C. rohlfsianum*. The Gardening from Which? survey sought information on the source of three *Cyclamen* species offered by bulb firms in the UK: *C. cilicium*, *C. coum* and *C. hederifolium*. At least six specialist nurseries are offering seed-grown plants of these species. Two wholesale firms named the Netherlands as the source of their *C. coum*. One wholesale firm has stopped supplying all species of *Cyclamen* because it was unable to obtain sufficient quantities of propagated material. Clearly seed-production of the genus is not sufficient to supply commercial demand.

TABLE 2
Export controls on Turkish Bulbs

TIER 1: Species and genera banned from export unless cultivated

Allium roseum; *Crocus*; *Cyclamen mirabile*, *C. parviflorum*, *C. pseudibericum*, *C. repandum*, *C. trochopteranthum*; *Fritillaria*; *Hyacinthus orientalis*; *Lilium candidum*, *L. martagon*; *Muscari* (other than those listed in Tier 3); *Orchids*; *Pancratium maritimum*; *Sternbergia*; *Tulipa humilis* (syn. *pulchella*).

TIER 2: Species and genera for which an export quota on wild bulbs is given

Anemone blanda (10 000 000); *Arum* (300 000); *Colchicum speciosum* (50 000); *Cyclamen* (other than those listed in Tier 1) (1 000 000); *Dracunculus* (300 000); *Eranthis* (10 000 000); *Galanthus* (9 000 000); *Gladiolus* (10 000); *Leucojum aestivum* (5 000 000); *Narcissus* (500 000); *Oxalis* (20 000); *Scilla bifolia* (275 000); *Urginea maritima* (20 000).

TIER 3: Species and genera for which trade is unrestricted

Arisarum vulgare; *Geranium tuberosum*; *Muscari aucheri*, *M. comosum*, *M. longipes*, *M. neglectum*, *M. tenuiflorum*; *Ornithogalum nutans*; (being species considered by the Turkish authorities to be exclusively wild-collected).

Calla; *Crocasmia*; *Dahlia*; *Iris tuberosa*; *Nerine bowdenii*; *Pelargonium*; *Polianthes tuberosa*; (being types considered by the Turkish authorities to be exclusively cultivated).

Source: McGough et al., 1989

Erythronium

The genus *Erythronium* has around 25 species, mainly occurring in North America and northern Asia, with a single species *E. dens-canis* found in Europe. A range of species is offered in trade, from both cultivated and wild-collected sources.

The area of production in the Netherlands is around 1.5 ha. Plants are also imported into the Netherlands from Japan (10 000 from April 1987 to April 1988) and the USA. The Japanese species *E. japonicum* (*E. dens-canis* var. *japonicum*) is collected from the wild and is widely available from 'wild plant' nurseries in Japan. It is also grown from seed on a small scale (Sako, pers. comm., 1989), but attempts at tissue culturing have not been a success.

Seven UK specialist bulb nurseries currently offer this species, one of which advertises it as 'Rare and unusual, a new introduction from Japan'. It is also listed by a wholesale bulb company in the UK, and at least one in the Netherlands. About nine species and various *Erythronium* hybrids are available from bulb firms in the UK. Only one specialist nursery is known to be propagating *E. japonicum*, using seed and vegetative division. *E. dens-canis* appears to be more widely propagated, mainly by division.

It is unclear to what extent *Erythronium* spp. are wild-collected in the USA. North American species which have been offered by UK bulb firms in recent years include *E. albidum*, *E. americanum*, *E. citrinum*, *E. hendersonii*, *E. klamathense*, *E. tuolumnense* and *E. umbilicatum*. Several of these, such as *E. klamathense* and *E. citrinum*, are recorded in trade catalogues as rare in cultivation. *E. tuolumnense*, a species endemic to California, is considered to be threatened in the wild. According to Mathew (1973), it is a very easy species in cultivation.

Fritillaria

Fritillaria is a genus with about 85 species, distributed throughout the northern hemisphere. The main species concentration is in Turkey and Iran. According to Mathew (1973), 'practically all of the Near and Middle East species are grown in Britain, although many are still rare, but those in China and the USSR are still very poorly known'. According to M. Hoog (pers. comm., 1989), North American species of *Fritillaria* are not strong-growing and so will remain rare in cultivation.

The three most widely available species in trade are *F. meleagris*, *F. imperialis* and *F. persica*. In the past *F. imperialis* has been wild-collected in bulk for trade. Now artificially propagated bulbs of these species supply the market. In 1987/88 production areas for these three most commonly cultivated *Fritillaria* species in the Netherlands were: *F. imperialis* (25.3 ha); *F. meleagris* (4.0 ha); and *F. persica* (0.3 ha) (PVS, undated). *F. michailovskyi* is also now raised commercially in the country. Between 10 and 20 growers produce this species and there are no imports to the Netherlands. Other *Fritillaria* species grown on a very small scale in the Netherlands include *F. acmopetale*, *F. assyriaca*, *F. camschatcensis*, *F. pallidiflora* and *F. pontica*.

In the UK, at least three specialist nurseries are propagating *F. bucharica* and four propagate *F. camschatcensis*. *F. persica* is imported from the Netherlands or Turkey.

There is some propagation of fritillaries within Turkey, notably for *F. imperialis* and *F. persica*. Ekim et al. (1984) called for a complete restriction on collection from the wild for *F. persica* and *F. imperialis* and Turkey now bans all export of wild-collected *Fritillaria* species.

F. involucreata, from France, is offered by four specialist growers in the UK; two Himalayan species, *F. cirrhosa* and *F. roylei*, are recorded in trade catalogues

as being in 'short supply'. The 'Vulnerable' *F. japonica* is available from one specialist nursery in the UK that imports wild plant material from Japan.

Most of the *Fritillaria* species in trade are only available from specialist nurseries. One Danish firm offers over 100 species and varieties. These plants are all propagated; in many cases this is done from wild material collected by the owner.

About 11 *Fritillaria* spp. are traded from Japan. Some, such as *F. camschatcensis*, are thought to be wild-collected. Some nurseries are raising native *Fritillaria* species from wild-collected seed.

Concern about the effects of collection on wild populations of *Fritillaria* spp. has led to calls for protection of the whole genus (Synge, 1980). Wendelbo (1975) suggested that collection and export regulations might be necessary for Iranian species. In Japan, two species are considered 'Vulnerable' due to over-collecting, and one species 'Endangered'. There are certainly a large number of species under threat, 28 being considered by WCMC to be rare or threatened on a world scale, and a further eight species under threat in certain countries.

Galanthus

There are about 12 species of *Galanthus*, occurring in southern Europe and the Mediterranean region, extending eastwards to Lebanon and Iran. The Common Snowdrop *G. nivalis* is the most widespread species and the extent of its natural range is uncertain. It has been cultivated for many centuries in western Europe and has become widely naturalised. It is locally common, particularly in open woodland. A large number of forms are sold in trade, the majority of which are dug from wild or naturalised populations. A report by the UK Ministry of Agriculture, Fisheries and Food, published in 1984, drew attention to declining stocks (Anon., 1984).



Galanthus elwesii *Galanthus ikariae*

© C. Grey-Wilson

The main source of *G. nivalis* in trade is France, where the species is naturalised. It is thought to be the only 'wild' bulb exported from France in significant quantities (see Table 3). Populations are 'farmed' in the Loire Valley and exported to the Netherlands.

Production of *Galanthus* in the Netherlands is limited to an area of 2-3 ha, in the Texel region where *G. nivalis* is harvested. *G. nivalis* is also harvested from orchards in the UK. It is not known what proportion of the *Galanthus* imports to the Netherlands from the UK is from these populations of naturalised stock. A total of 569 000 bulbs

exported from the Netherlands to Japan in 1987 were possibly wild-collected re-exports. A nurseryman in Japan stated that *G. nivalis* and *G. elwesii* are imported but are not especially popular in trade. Most *Galanthus* bulbs traded by the Netherlands are imported from Turkey which remains the major source of wild-collected bulbs in trade, with *G. elwesii* and *G. ikariae* as the most common exports. As these become more scarce, however, *G. nivalis*, *G. gracilis* and *G. fosteri* are also collected.

TABLE 3
Imports of *Galanthus* to the Netherlands

Exporting country	Quantity x 1000 bulbs		1987/88
	1985/86	1986/87	
Turkey	31019	34839	23801
France	10744	17120	9186
UK	246	301	373
Hungary		8	

Source: Plantenziektenkundige Dienst
(Dutch Plant Health Service)

Galanthus populations have been severely damaged by collecting in Turkey, especially in the Mediterranean region, where collecting is now restricted to steep slopes. Threats of quotas on collecting and export increased the damage by encouraging early harvesting of immature bulbs which decayed in storage. In the Black Sea region, *Galanthus* has been harvested only for the last 10-15 years. There are fewer firms involved there and the population has not yet been damaged.

Galanthus elwesii is widely distributed throughout Western Anatolia and Eastern Aegean Islands but is being harvested in significant numbers. As a result, this once common species has greatly diminished, especially in the Taurus Region of Turkey, and in some cases entire populations have disappeared; others have been depleted by intense collecting (Demiriz & Baytop, 1985). It is imported into the Netherlands in large numbers. Apparently it does not do well there in cultivation, but there is now some Dutch commercial interest in production using bulb division chipping techniques.

Galanthus ikariae is relatively rare in cultivation. It is collected in the Pontis Range, western Turkey, and is now being substituted for *G. elwesii* in trade (M. Hoog, pers. comm.). Research on the cultivation of *G. ikariae* is being carried out in the Netherlands.

Because of the large numbers of wild-collected bulbs in trade and concern about declining populations, the genus was placed in CITES Appendix II at the seventh meeting of the Conference of the Parties, in October 1989.

Iris

There are about 300 species of *Iris* distributed throughout the northern hemisphere. It is one of the most popular bulbous genera in cultivation and is a leading horticultural bulb crop in many countries. A very wide range of species and cultivars is available commercially.

Production figures are available for over 50 types of *Iris* in the Netherlands where the total area planted with *Iris* is about 900 ha.

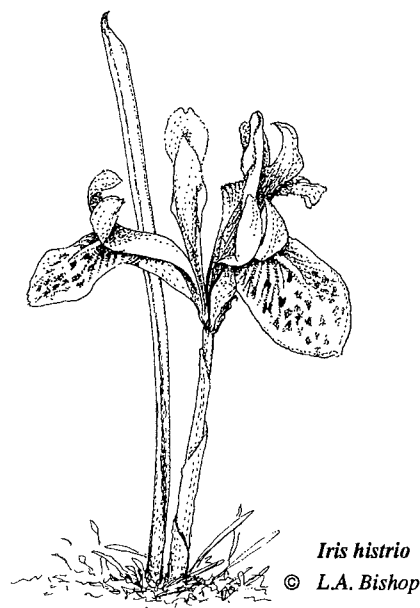
Imports of *Iris* to the Netherlands are recorded from France, Israel, Italy, Saudi Arabia, Turkey, UK and USA. There are thought to be some commercial exports of wild-collected *Iris* spp. from Turkey but no trade is recorded in Turkish Government statistics for 1987. The species recorded by Demiriz (1987) as exported from

Turkey are: *Iris germanica* (a species widely cultivated and widely naturalised throughout Europe), *I. iberica* subsp. *elegantissima*, *I. paradoxa*, *I. persica*, *I. reticulata*, *I. sari* and *I. tuberosa*. Of these, *I. reticulata* (cultivars) are produced commercially in the Netherlands, with a current production area of 16.68 ha (Anon., 1988). *I. tuberosa* (= *Hermodactylus tuberosus*) increases rapidly in cultivation and is grown in some countries for the cut-flower trade. *I. danfordiae*, a species now hard to find in the wild in Turkey, is also produced on a large scale in the Netherlands.

Some Turkish *Iris* spp. are considered to be under severe threat from specialist collectors. A number of *I. sari* populations have been lost, and it is now considered 'Endangered'. *I. pamphylica* has been reduced at its only known locality and *I. stenophylla* subsp. *allisonii* is also thought to have suffered from over-collecting (McGough et al., 1989).

Exports of *Iris* from Israel are all commercially produced. Populations of Israeli *Onocylus Iris* spp. are now very restricted in the wild, in part because of commercial exploitation in the past. Tira nurseries at the kibbutz Tirat Zvi are cultivating *I. atropurpurea*, *I. haynei*, *I. jordana*, *I. lortetti*, *I. nigricans* and *I. samariae*, for export to specialists worldwide. These species are all considered to be severely threatened in the wild. Nurseries in Japan also produce *Iris*, the area of production being recorded as 223 ha.

Various other very rare *Iris* species, from other countries, are available in trade but it is not clear to what extent wild-collection continues to be a problem. A range of species from Central Asia is included in catalogues of UK bulb firms. *I. winogradowii*, listed as 'Endangered' in the IUCN Plant Red Data Book, is now established in cultivation.



Leucojum

The genus *Leucojum*, commonly known as snow flakes, consists of about ten species, with a centre of distribution in the western Mediterranean. *Leucojum aestivum* is the most widespread species, occurring from western Ireland through to Asia Minor and the Caucasus. It is widely cultivated and naturalised. Turkey is the main source of *L. aestivum* in trade. Exports for the genus average 8 M annually and the majority of these are *L. aestivum*. There is a Turkish collection quota of 5 M a year. Nursery production of *Leucojum* is limited, although some artificial propagation now takes place in Turkey (McGough et al., 1989) and in the UK.

Dutch stock is available of *L. vernum* but the majority of bulbs of this species in trade are imported from eastern Europe, mainly Hungary. In the season 1986/87, 92% of Netherlands' imports of *Leucojum* were from Turkey and 8% from Hungary.

In the UK, *L. autumnale* is obtainable on a small scale from several specialist nurseries. *L. nicaense*, a rare, protected, French bulb considered by IUCN to be 'Vulnerable' in the wild, is offered by eight UK specialist nurseries.

Lilium

This genus of about 90 species is distributed across the northern hemisphere, with the greatest concentration of species in S.E. Asia and Japan.

Some species of lily have been in cultivation since ancient times. Lilies have been used by the Chinese for medicinal purposes for at least two millennia, and several species have also been grown for food. At the beginning of this century lilies were considered a luxury plant, and the bulbs were generally dug from the wild for horticulture. The supply of lily bulbs from the wild is now virtually closed but a small amount of wild-collection may still continue (Fox, 1982). Of the nine species of European lily, several, such as *Lilium martagon* and *L. candidum*, have been cultivated for centuries and have become naturalised over wide areas. Despite the early cultivation of some lilies, however, the range of species grown has remained small. Commercial cultivation did not become established until after the Second World War. Most lily bulbs in trade are now cultivated in France, Israel, Japan, the Netherlands and USA.

In the Netherlands, total production of *Lilium* is over 1800 ha, and consists mainly of the hybrids 'Connecticut King' and 'Enchantment', but there is a trend towards production of a wider range.

In Japan the area of lily production in 1985 was 370 ha. As recently as 15 years ago, 2 000 000 lily bulbs were gathered in Japan each year for export (Stoop van de Kastele, 1974). Now, although large-scale, commercial production of *Lilium* is established, some of the bulbs offered by Japanese wild plant nurseries may be collected from the wild in Japan or countries such as Korea and Taiwan, or grown from wild-collected seed. Several taxa of *Lilium* are considered threatened by collecting for specialist nurseries in the Japanese Plant Red Data List. *L. concolor* var. *buschianum* is 'Vulnerable' locally in Japan for this reason, as is *L. japonicum* var. *abeanum* which is endemic to Tokushima Prefecture. *L. nobilissimum*, endemic to Kagoshima Prefecture, is considered to be 'Endangered' in the wild because of over-collecting, but is now propagated commercially.

The principal commercial species in Japan are cultivated for export using tissue culture techniques and, in order of popularity, include the following: *L. longifolium*, *L. nobilissimum*, *L. japonicum*, *L. speciosum*, *L. auratum* and varieties of *L. concolor*.

Lilium candidum is grown in Turkey, with around 4 ha under cultivation, some of which consists of the 'farming of wild-collected plants' but there is also propagation using bulb scales (McGough et al., 1989). The export of wild-collected bulbs of *L. candidum* and *L. martagon* has been banned in Turkey since 1986. *L. candidum* is also cultivated for export in Israel.

Lilium is an important bulbous genus in the Himalayas but little information has been collected on the nursery production of bulbs in the region and to what extent artificially propagated bulbs supply the international market. There are some bulb nurseries in Kashmir and Nepal. According to Malla (pers. comm., 1988), there are about five nurseries selling horticultural bulbs in Nepal, but there is no licensed export of bulbs at present. Nepalese species recorded in trade include *L. nepalense*, and *L. wallichianum* which is considered by IUCN to be 'Vulnerable'.

In the wild, 15 species of *Lilium* are considered to be rare or threatened on a world scale by WCMC. A further 11 are rare or threatened in parts of their ranges. Generally these rarer species do not seem to be included in trade catalogues.

Narcissus

The genus *Narcissus* has over 40 species, with a primarily Mediterranean distribution. The greatest species diversity occurs in Spain and Portugal. Some species have been cultivated for centuries and cultivated forms have become quite widely naturalised.

There are many hundreds of *Narcissus* cultivars and hybrids in cultivation. The UK is the world's main exporter of daffodil bulbs, with five varieties dominating commercial growing. In 1987 the UK exported nearly 87 M *Narcissus* bulbs with a value of over UK£4 M (US\$5.5 M).

Other countries important for the commercial production of *Narcissus* bulbs include Israel, Netherlands (production area around 1600 ha) and the USA (production area around 1500 ha). In the Netherlands about 10% of the production is devoted to dwarf *Narcissus* varieties and species, the trade in which has increased in the past ten years.

Despite field cultivation of *Narcissus* as a major horticultural crop, collection of certain species from the wild presents a serious conservation problem. *Narcissus pseudonarcissus* is the most widely grown species and has been used to produce an extensive range of cultivars. Nevertheless, some wild-collected stock is still in trade and collection from naturalised populations takes place, for example in the Ardennes, Belgium. There are many subspecies of *N. pseudonarcissus*, several of which are offered by the specialist trade. *N. pseudonarcissus* subsp. *moschatus*, which is raised by some authorities to specific status, may now be extinct in the wild.

The major source of wild *Narcissus* bulbs in trade is Portugal and some export of wild daffodil bulbs has also been reported from Morocco and Turkey. The trade has largely been hidden and even some retailers appear to have been unaware of the source of the material. This is partly because small wild species have been used in breeding for many years and a range of cultivars is available.

It is thought that all wild *Narcissus* exported from Portugal go to the Netherlands and that the species include *N. asturiensis*, *N. bulbocodium*, *N. cyclamineus*, *N. juncifolius* (= *N. requienii*), *N. rupicola* and *N. triandrus*. Several Dutch firms contacted also import *N. lobularis*, although one has stopped importing this species as the bulbs offered are now too small. In 1987, 519 000 *Narcissus* bulbs were imported from Portugal (PVS, 1987). *N. asturiensis* and *N. cyclamineus* are considered to be threatened in Portugal and are included in a list of plants recommended for protection (Dray, 1985). Ten taxa of *Narcissus* are included in this list.

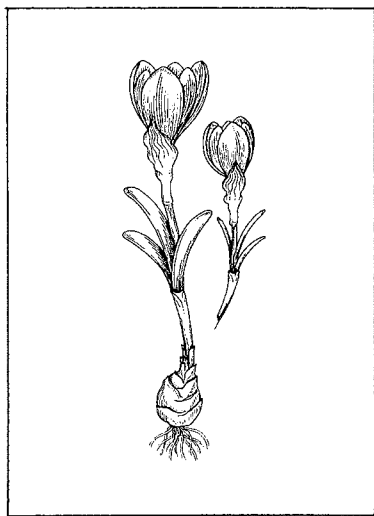
There is no evidence of recent commercial exploitation of wild *Narcissus* populations in Spain. There are, however, various Spanish species which are of conservation concern for which any resumption of trade would be very damaging. The Iberian species which are considered to be possibly vulnerable to commercial use are *N. callicola*, *N. cantabricus* and *N. scaberulus* (Webb, pers. comm., 1988). The autumn flowering green daffodil *N. viridiflorus* has already suffered from over-collecting as well as from development of its habitat and is now considered almost unobtainable in trade. *N. willkommii* is believed to have become extinct recently in Spain as a result of building work. Fortunately this species has been introduced into cultivation near Coimbra, Portugal. It is considered to be 'Vulnerable' in the Algarve (Dray, 1985).

The North African populations of *Narcissus* include a large number of varieties of *N. bulbocodium* and two desirable species related to *N. rupicola*, *N. watieri* and *N. marvieri*. *N. watieri* is believed to be very scarce in the wild, partly as a result of over-collection, but its status is unknown. According to Koopowitz and Kaye (1983), it is occasionally "advertised by unscrupulous bulb merchants who substitute another variety".

N. tazetta, a widespread species distributed from Spain to Japan, is the main *Narcissus* exported by Turkey. There is now some artificial propagation of this species within Turkey. Israeli-bred hybrids of *N. tazetta* x *N. papyraceus* are amongst the most important flowering bulb crops in Israel. *N. jonquilla* has also been reported as a wild import to France from Turkey. The Turkish Government has imposed a quota on the export of bulbs of all native *Narcissus* spp. from the wild.

Sternbergia

The genus *Sternbergia* has eight species, with a centre of distribution in Turkey, the Caucasus and western Iran. *S. lutea* is the species most commonly offered by the trade and is a popular garden plant. Bulbs in trade are imported from Turkey where true artificial propagation is not yet taking place (McGough *et al.*, 1989). The Netherlands is the major importer of *Sternbergia* from Turkey. Out of a total of 450 000 *Sternbergia* bulbs exported by Turkey in the 1987/88 season, 324 000 were imported by the Netherlands. Re-export from the Netherlands is primarily to F.R. Germany (49%) and to Japan (24%). There is very little cultivation of *Sternbergia* in the Netherlands (around 17 000 m²) as all species of this genus are considered difficult to grow there.



Sternbergia
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Other species of *Sternbergia* exported from Turkey are *S. clusiana*, *S. fischeriana* and *S. sicula*. *S. clusiana* is now frequently traded as '*S. lutea*' because of declining availability of *S. lutea*. Turkey has banned the export of wild-collected bulbs of all native *Sternbergia* species.

There is some small-scale propagation of *S. clusiana* and *S. sicula* in F.R. Germany and Czechoslovakia (M. Hoog, *in litt.*, 1987). *S. lutea* is offered by Japanese companies. At least five US bulb firms have recently offered *Sternbergia*.

S. candida is the rarest species of *Sternbergia* in the wild and is considered by IUCN to be 'Vulnerable'. It is native to Turkey and, following its description in 1979, commercial collection placed severe pressure on the type locality. It is currently offered by three specialist nurseries in the UK from propagated stock.

The whole genus is considered vulnerable to commercial collection, particularly because the trade switches from species to species, as wild stocks decline. At the seventh meeting of the Conference of the Parties to CITES, in October 1989, *Sternbergia* was listed in Appendix II.

Trillium

There are about 30 species of *Trillium*, occurring mainly in North America and with several in East Asia. Nearly the full range of species is represented in trade. *Trillium* spp. can be propagated from seed but this method is slow and difficult. There is no commercial production of *Trillium* in the Netherlands and plants, mainly of wild origin, are imported from the USA and Canada. The import figure for 1986/87 was 13 000.

Tulipa

The genus *Tulipa* has around 100 species, the majority of which occur in Afghanistan, Iran, Turkey, and the southern USSR. Tulips have been cultivated in the Netherlands since the sixteenth century, and they now form the major bulb export, accounting for 28% of bulbs exported. Modern cultivated tulips are derived from *Tulipa gesnerana* which is widely naturalised in southern Europe. The wild origins of *T. gesnerana* are obscure but its ancestors are thought to have occurred in Turkestan. Other species of tulip which have become widely naturalised include *T. sylvestris* and *T. clusiana*. *T. sylvestris*, known as the wild tulip, is the most widespread in Europe and its wild flowers are often sold in Spanish and Italian markets (Grey-Wilson & Mathew, 1981). *T. clusiana* used to be wild dug in south-eastern France for commercial trade, but is now cultivated (A. Mevel, *in litt.*, July 1988). It is grown commercially in Greece and exported to the Netherlands. Dutch statistics record the import of 22 000 kg of *Tulipa* bulbs from Greece in 1987 (PVS, 1987). It is possible that the figures partly reflect bulbs in transit through Greece.

Only a small percentage of the known species of *Tulipa* are in general cultivation and bulb production is dominated by large, showy hybrids. The so-called 'botanical tulips' are smaller-flowered cultivars, and are mostly grown in the Netherlands, with a production area of around 600 ha (about 10% of the total tulip area).

Over 50 species of tulip have been recorded in the survey of nursery catalogues, many of these being offered by one or two specialist nurseries only. About 30 species are offered by one Dutch firm which has been responsible for increasing the general availability of species tulips. Its stocks of *Tulipa* species are all 'home grown', and include several species which are now very rare in the wild.

Some commercial wild collection of tulips may still occur, but significant imports into the Netherlands are not known. Kashmir, Nepal and Pakistan are thought to export some wild tulips. However these are likely to be in small quantities and they are not recorded in Dutch import statistics. Some of the bulbs in trade of *T. aitchisonii*, a species distributed from Afghanistan to Kashmir, are of wild source, and *T. kurdica*, an Iraqi species, is imported from wild stocks.

Species which have been exported by Turkey in recent years are *T. hageri*, *T. humilis*, *T. praecox*, and *T. undulatifolia*. Ekim *et al.*, (1984) recommended that *T. humilis* be totally protected in Turkey and, since 1986, the export of wild bulbs of this species has been banned. It is grown commercially on a large scale in the Netherlands and it is not thought that Turkish imports would be competitive. *T. hageri* is grown from seed by several Dutch nurseries (A. Hoog, *in litt.*, December 1988). *T. praecox* is considered to be endangered in Turkey (T. Ekim, *in litt.*, January 1989). This species

is not included in Dutch production figures for minor bulbs.

A number of rare or threatened Tulipa species of the USSR are recorded in trade. The conservation status of tulips within the USSR is well documented in Red Data Books and most rare species are in cultivation in botanic gardens. Legislation protects rare tulips and, although there may be collection of wild bulbs for propagation purposes, export of rare species does not take place (L. Belousova, *in litt.* to Dr F. Campbell, February 1988). According to Hoog (*in litt.*, December 1988) exports of Tulipa from the USSR stopped in around 1940.

SUMMARY

Through the two phases of the Bulb Trade and Propagation Study and associated projects, a substantial body of information has been compiled on the international bulb trade and the extent to which wild bulbs enter into commercial trade. Gaps in the knowledge remain but there is now sufficient information on which to base conservation action to prevent over-exploitation of natural bulb populations.

There is clear evidence that commercial collection of wild bulbs is harming natural populations in Japan, Portugal and Turkey. The level of trade in certain genera from natural populations in other countries, for example Galanthus from France, Leucojum from Hungary and Trillium from the USA, may also be a cause for concern, in the absence of any control mechanisms.

No examples have been found of the sustainable harvesting of bulbs from wild populations for international trade. The collecting of Galanthus from naturalised stocks under semi-cultivated conditions may be a form of sustainable production but concern has been expressed about the long-term supply of Galanthus for the international market.

The elements of a long-term management strategy for trade in Turkish bulbs have been introduced but, although deserving of international support, propagation systems still rely heavily on wild-collected bulbs and the export controls are not yet fully effective.

It appears that technical knowledge is not generally a constraint to the commercial production of bulb species, and the range of species which is still largely wild-collected is determined more by economic factors and tradition. In some countries, commercial harvesting

TABLE 4
Trade and conservation status for Turkish bulbous species

Genus/Species	Conservation category	Export figures for 1987	Export controls	Cultivation in Turkey (where known)
<u>Allium roseum</u>	V		B	
<u>Anemone blana</u>	V	7 500 000	Q	
<u>Arum</u> spp.	R		Q	
<u>Crocus</u> spp.			B	
<u>Cyclamen</u> spp.		995 000	Q	
<u>Cyclamen cilicium</u>	V			
<u>C. graecum</u>	V			
<u>C. hederifolium</u>	V			
<u>C. mirabile</u>	E			
<u>C. persicum</u>	V			
<u>C. repandum</u>	I			
<u>Dracunculus</u> spp.			Q	
<u>Eranthis hyemalis</u>	V	10 000 000	Q	wild-transplanted
<u>Fritillaria imperialis</u>	E	275 000	B	artificially propagated
<u>F. persica</u>	E	275 000	B	artificially propagated
<u>Galanthus</u> spp.	V	30 000 000 (<u>G. elwesii</u> & <u>G. ikariae</u>)	Q	wild-transplanted
<u>Hyacinthus orientalis</u> subsp. <u>orientalis</u>	V		B	
<u>Leucojum aestivum</u>	V	8 500 000	Q	artificially propagated
<u>Lilium candidum</u>	E	1335		wild-transplanted
<u>L. martagon</u>	E			artificially propagated
<u>Muscari</u> spp.			B/Q	
<u>Narcissus</u> spp.			Q	
<u>N. serotinus</u>	R			
<u>Pancratium maritimum</u>	V		B	
<u>Scilla</u> spp.	R	100 000		
<u>Sternbergia</u> spp.	V	450 000 (<u>S. lutea</u> & <u>S. clusiana</u>)		wild-transplanted
<u>Tulipa</u> spp.	R			
<u>T. praecox</u>	E			
<u>T. humilis</u>		37 000	B	
<u>Urginea maritima</u>			Q	

B = ban on export; E = Endangered; I = Indeterminate; R = Rare; Q = quota system for exports; V = Vulnerable

Sources: Ekim, *in litt.*, 1989; McGough *et al.*, 1989.

TABLE 5
Dutch imports of Turkish bulbs

Genus	Quantity		
	1985/86	1986/87	1987/88
<u>Anemone</u>	3845 000	5 853 000	9 104 000
<u>Arum</u>	121 000	863 000	76 000
<u>Calla</u>	149 000	276 000	235 000
<u>Colchicum</u>	2 000	/	1 000
<u>Crocus</u>	/	/	/
<u>Cyclamen</u>	943 000	1 175 000	801 000
<u>Eranthis</u>	9 290 000	11 437 000	12 771 000
<u>Fritillaria</u>	441 000	711 000	224 000
<u>Galanthus</u>	42 009 000	52 267 000	33 359 000
<u>Iris</u>	146 000	28 000	47 000
<u>Leucojum</u>	4 706 000	6 842 000	6 094 000
<u>Lilium</u>	126 000	170 000	151 000
<u>Narcissus</u>	/	/	192 000
<u>Ornithogalum</u>	53 000	25 000	1 622 000
<u>Polyanthus</u>	154 000	208 000	149 000
<u>Scilla</u>	/	0	100 000
<u>Sternbergia</u>	257 000	148 000	324 000
<u>Tulipa</u>	104 000	93 000	35 000
<u>Urginea</u>	5 000	2 000	0

Source: Plantenziektenkundige Dienst (Dutch Plant Health Service). / = less than 1000

of wild species has been replaced by artificial propagation on a commercial scale, for example with Japanese native Lilium spp. In Israel, wild collection for the export trade has been replaced by strict conservation legislation protecting wild bulb populations and commercial propagation of indigenous species, such as the threatened native species of Iris.

Most of the commercial propagation of bulb species takes place in the Netherlands. This country also remains the international centre for the bulb trade and most of the wild bulbs sold internationally, particularly from Portugal and Turkey, are traded through the Netherlands. The sale of wild bulbs represents only a small proportion of the Dutch bulb trade, but in terms of the loss of wild populations it may be highly damaging. Mislabelling of wild bulbs as 'produce of Holland' is a source of concern because it misleads consumers and damages the reputation of the Dutch bulb industry.

Increasingly, retailers in countries such as the UK and USA are refusing to stock bulbs of wild origin in response to information on the source of the material and the effects of collecting on wild populations.

Bulb species are amongst the most attractive garden plants and have widespread popular appeal. Fortunately very few examples are evident of bulb taxa traded to extinction. There are, however, an alarming number of species which are threatened, at least in part, by international trade and for which protection is necessary both *in situ* and through effective trade controls. The following recommendations, based on the findings of the report, are proposed to help prevent wild bulb species moving closer to extinction.

RECOMMENDATIONS

1. Information on wild bulb species in trade should be maintained and updated in a central database. Information on the range of species in trade, sources of wild-collected bulbs, quantity in trade and level of commercial production should be maintained. The information should be readily available, where appropriate, to conservation agencies and the horticultural trade.
2. Dutch bulb trade organisations should compile and publish information on the range of wild bulbs imported and exported by the Netherlands with sources and the quantities involved. The work could be co-ordinated, for example, by the International Bulb Centre in Hillegom. Interested organisations could use such information for deciding priorities for developing alternative propagated supplies.
3. Conservation organisations in partnership with bulb trade organisations should promote the establishment of propagation schemes for rare and threatened bulb species using the expertise of commercial growers, both in countries of origin and bulb importing countries.
4. Botanic gardens should be supported in their bulb conservation activities and in particular through the work of the Botanic Gardens Conservation Secretariat.
5. A requirement for accurate labelling on the origin of bulbs in trade should be introduced by voluntary agreement if not through legislation, so that consumers can make an informed choice of the bulbs they purchase.
6. Further information is needed on the status of bulbs in the wild for many parts of the world, notably North Africa, Central Asia and South America. Conservation organisations should ensure the compilation of such information through literature survey, correspondence and, where possible, field surveys. New information collected should be added to the WCMC plants database and should be provided for the compilation of national red data lists.
7. Threats to wild bulbs should be publicised widely, for example through the publication of red data books and popular articles in the gardening press. Emphasis should be placed on species threatened through trade and accurate information provided on the effects of trade on such species.

TABLE 6
Status in the wild of rare bulbs in trade

This list has been compiled by comparing the taxa recorded in trade catalogues with the bulb taxa included as threatened in the WCMC Threatened Plants database. The conservation categories are IUCN categories (see Key). Endemic species have also been listed, even when their conservation status is unknown, and a few other taxa believed to be rare (according to information from various sources) have also been incorporated.

Genus/species	National Status	Notes	Genus/species	National Status	Notes
AMARYLLIDACEAE			<i>C. kotschyanus</i> subsp. <i>cappodocicus</i>	Turkey	Endemic
<i>Galanthus</i> spp.	Turkey V		<i>C. kotschyanus</i> subsp. <i>hakkariensis</i>	Turkey	Endemic
<i>G. elwesii</i>	Europe nt/USSR I	Endemic	<i>C. leichtlinii</i>	Turkey	Endemic
<i>G. byzantinus</i>	Turkey	Endemic	<i>C. malyi</i>	Yugoslavia nt	Endemic
<i>G. ikariae</i>	Greece R/		<i>C. minimus</i>	Corsica	Endemic
	Turkey	World status R/V	<i>C. nivens</i>	Greece	Endemic
<i>G. plicatus</i>	Romania R		<i>C. olivieri</i> spp. <i>balansae</i>	Greece	Endemic
<i>G. reginae-olkae</i>	Ukraine V	Endemic	<i>C. pestalozzae</i>	Turkey	Endemic
<i>G. rizehensis</i>	Greece V	Endemic	<i>C. robertianus</i>	Greece V	Endemic
<i>Leucojum aestivum</i>	Turkey V		<i>C. sieberi</i> spp. <i>sieberi</i>	Crete	Endemic
<i>L. nicaeense</i>	France V	Endemic	<i>C. speciosus</i>		
<i>Narcissus scaberulus</i>	Portugal V	Endemic	<i>C. versicolor</i>	France V/Italy	World status E
<i>N. serotinus</i>	Turkey R	Endemic	<i>Cypella herberti</i>	Argentina E/Brazil E	
<i>Sternbergia</i> spp.	Turkey V			Uruguay E	
<i>S. candida</i>	Turkey E	Endemic	<i>Hyacinthella heldreichii</i>	Turkey	Endemic
ARACEAE			<i>H. lineata</i>	Turkey	Endemic
<i>Arisaema sikokianum</i>	Japan V	overcollecting	<i>Hyacinthus orientalis</i>		
<i>Biarum davisii</i>	Greece (Crete) R		subsp. <i>orientalis</i>	Turkey V	
FUMARIACEAE			subsp. <i>chionophilus</i>	Turkey	Turkey
<i>Corydalis cashmeriana</i>	Jammu and Kashmir E	Endemic	<i>Iris atropurpurea</i>	Israel I	
<i>C. caucasica</i>	European USSR V		<i>I. bakeriana</i>	Turkey and Iran	
TRIDACEAE			<i>I. danfordiae</i>	Turkey	Endemic
<i>Crocus abantensis</i>	Turkey	Endemic	<i>I. galatica</i>	Turkey/Traq	Endemic
<i>C. adamii</i>	Yugoslavia	Endemic	<i>I. gatesii</i>	Israel/Jordan	World status R
<i>C. adanensis</i>	Turkey	Endemic	<i>I. haynei</i>	Israel/Lebanon/Syria	World status R
<i>C. alexandri</i>	Yugoslavia	Endemic	<i>I. hermona</i>	Turkey	Endemic
<i>C. ancyrensis</i>	Turkey	Endemic	<i>I. histriodes</i>	Israel R/Jordan E	World status V
<i>C. antalyensis</i>	Turkey	Endemic	<i>I. jordana</i>	USSR R	Endemic
<i>C. asumaniae</i>	Turkey	Endemic	<i>I. kolpakowskiana</i>	Israel E/Lebanon I	World status E
<i>C. baytopiorum</i>	Turkey	Endemic	<i>I. lortetii</i>	Asiatic USSR I	World status I
<i>C. biflorus isauricus</i>	Turkey	Endemic	<i>I. magnifica</i>	Israel/Jordan E	
<i>C. b. pulchricolor</i>	Turkey	Endemic	<i>I. nigricans</i>	Central Asia	
<i>C. boryi</i>	Greece nt		<i>I. orchiodes</i>	Afghanistan	
<i>C. cambessedesii</i>	Balearics	Endemic	<i>I. paradoxa</i>	USSR V	Endemic
<i>C. corsicus</i>	Corsica nt	Endemic	<i>I. paradoxa</i> var. <i>choschap</i>	Turkey	Endemic
<i>C. danfordiae</i>	Turkey	Endemic	<i>I. parvula</i>	Central Asia	Rare
<i>C. fleischeri</i>	Turkey	Endemic	<i>I. reticulata</i>	European USSR V	
<i>C. fargarius</i>	Turkey	Endemic	<i>I. samaria</i>	Israel E	Endemic
<i>C. fargarius</i> subsp. <i>herbertii</i>	Turkey	Endemic	<i>I. sari</i>	Turkey E	Endemic
<i>C. foulimyi</i>	Turkey	Endemic	<i>I. sprengeri</i>	Turkey E	Endemic
<i>C. hadriaticus</i>	Greece R	Endemic	<i>I. stenophylla</i>	Turkey	Endemic
<i>C. imperati</i>	Italy I	Endemic	<i>I. winogradowii</i>	Asiatic USSR I	Endemic
<i>C. karduchorum</i>	Turkey	Endemic	<i>Moraea gigandra</i>	South Africa V	Endemic
			<i>M. loubseri</i>	South Africa E	Endemic
			<i>Romulea tempskayana</i>	Greece R	Endemic
			<i>Sparaxis tricolor</i>	South Africa E	Endemic

TABLE 6
Status in the wild of rare bulbs in trade (ctd)

Genus/species	National Status	Notes	Genus/species	National Status	Notes
LILIACEAE			L. martagon	Turkey E	
Allium obliquum	Romania R/USSR		L. philippinense	Luzon V	World status I
A. roseum	Turkey V			Taiwan	
A. schubertii	Israel	Endemic	L. wallichianum	Nepal V	
Chionodoxa albescent	Crete	Endemic		Uttar Pradesh I	
C. cretica	Crete	Endemic	Muscari azureum	Turkey	Endemic
C. nana	Turkey	Endemic	M. latifolium	Turkey	Endemic
C. forbesii	Turkey	Endemic	M. macrocarpum	Greece R	World status nt
C. sardensis	Turkey	Endemic	Ornithogalum reverchonii	Spain R	Endemic
C. boissieri	Greece	Endemic	Scilla litardieri	Yugoslavia R	Endemic
C. bornolmelleri	Turkey	Endemic	S. reverchonii	Spain R	Endemic
C. chalcedonicum	Turkey	Endemic	Trillium tschonoskii	China V	
C. cilicium	Turkey	Endemic		Japan	
C. micranthum	Turkey	Endemic	Tulipa albertii	Asiatic USSR I	Endemic
C. pannonicum	Romania		T. carinata	USSR R	Endemic
C. umbrosum	European USSR R		T. cretica	Greece nt	
	Asiatic USSR I		T. eichleri	European USSR R	
Erythronium caucasicum	California I	Endemic		Iran	
E. tuolumense	Turkey	Endemic	T. goulinskyi	Greece V	Endemic
Fritillaria alfredae	Turkey	Endemic	T. greigii	Asiatic USSR I	Endemic
subsp. glaucoviridis	Greece R		T. ingens	Asiatic USSR I	Endemic
F. assyriaca subsp.	Turkey	Endemic	T. lanata	Asiatic USSR I	Endemic
melanathera	Turkey	Endemic	T. hissarica	Western Pamirs	
F. aurea	Turkey	Endemic	T. marjoletti	South of France	
F. carica	Greece R		T. linifolia	USSR R	Endemic
F. cirrhosa	Himalayas		T. ostromskiana	Asiatic USSR I	Endemic
F. davisii	Greece R	Endemic	T. polychroma	Egypt E	
F. drenovskii	Greece R	World status R		Israel R	
	Bulgaria R		T. praecox	Jordan V	
F. elwesii	Greece R	Endemic	T. praestans	USSR V	Endemic
F. epirotica	Greece R		T. saxatilis	Greece nt	
F. imperialis	Turkey E		T. schrenkii	USSR V	
F. involucreta	France R/Italy E		T. sosnovskii	USSR E	
F. japonica	Japan V	World status R	T. sprengeri	Turkey	Endemic
F. michaelovskyi	Turkey	overcollecting	T. tarda	USSR R	Endemic
F. pallidiflora	China V	Endemic	T. undulatifolia	Greece V	
F. persica	Turkey E			Turkey nt	
F. pinardii	Greece R		T. vvedenskii	USSR R	Endemic
	Turkey		T. zenaidae	USSR R	
F. raddeana	Asiatic USSR I	Endemic			
F. roylei	Myanmar V	World status V	PRIMULACEAE		
	Jammu and Kashmir E		Cyclamen creticum	Greece nt	
F. ruthenica	European USSR V		C. cyprum	Cyprus nt	
	Asiatic USSR		C. mirabile	Turkey R	
F. sibthorpiana	Turkey	Endemic	C. rohlfsianum	Libya V	
F. walujewii	China V	Endemic			
F. whittallii	Turkey	Endemic	RANUNCULACEAE		
Ipheion uniflorum	Argentina V	World status V	Anemone biflora	Kashmir I	
	Uruguay V		A. blanda	European USSR V	
Lilium candidum	Turkey E				

E = Endangered; I = Indeterminate; nt = not threatened; R = Rare; V = Vulnerable

8. National legislation should be developed to control trade in threatened bulb species in Japan and Portugal and to protect rare species in situ in Turkey.
9. Other countries which allow the export of wild bulbs should ensure that adequate steps are taken to prevent over-exploitation.
10. The EEC should introduce controls on the commercial collection of wild bulbs within Community countries, particularly for Narcissus and Galanthus, for example through the proposed Habitats Directive. Ideally management plans should be obligatory for the commercial collection of any wild bulb species within the Community.
11. Detailed information should be sought on Arisaema, Leucojum and Trillium with a view to developing CITES-listing proposals for these genera, if appropriate. Turkey should be urged to accede to CITES.
12. Detailed information should be collected on the genera Fritillaria, Iris and Lilium to assess the status of the species in the wild, in cultivation and in trade and, as far as possible, the impact of collection by specialists.

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References

- Anon., (1984). MAFF. Bulb and Corm production. MAFF Reference Book 62 HMSO, London.
- Anon., (1988). Produktnota Bijgoed 1988. International Bloembollen Centrum, Hillegom.
- Committee for the Japanese Red Data Plant Study (1989). The Japanese Red Data Plant Study. Nature Conservation Society of Japan and WWF Japan.
- Demiriz, H. (1987). Endangered geophytes of Turkey. Poster Session, XIV Botanical Congress, Berlin (abstract).
- Demiriz, H. and Baytop, T. (1985). The Anatolian Peninsula. In: Gomez-Campo, C. (ed.). Plant conservation in the Mediterranean area. Dr W. Junk, Dordrecht.
- Dray, A.M. (1985). Plantas a proteger em Portugal Continental. Servico Nacional de Parques, Reservas e Conservacao da Natureza, Lisbon.
- Ekim, T., Koyuncu, M., Erik, S., Güner, A., Yildiz, B., and Vural, M. (1984). Taxonomic and ecological investigations on the economic geophytes of Turkey. Research Project TBAG, 490A. Ankara.
- Ekim, T., Koyuncu, M., Erik, S., Ilarslan, R. (1989). List of Rare, Threatened and Endemic Plants in Turkey. Turkish Association for Conservation of Nature and Natural Resources (Series No: 18), Ankara.
- Fox, D.B. (1982). The propagation of lilies. The Plantsman 4(1):16-28.
- Grey-Wilson, C., and Mathew, B., (1981). Bulbs. The bulbous plants of Europe and their allies. Collins, London.
- Koopowitz, H. & Kaye, H. (1983). Plant extinction. A global crisis. Stone Wall Press, Inc., Washington D.C.
- Mathew, B. (1973). Dwarf bulbs. Batsford Ltd., London.
- McGough, H.N., Mathew, B.F., Peter, H., Read, M., Wertel, N., and Wijnands, O. (1989). A report on the status and cultivation of Cyclamen species and other geophytes in Turkey. Paper prepared for the Scientific Working Group of the EC CITES Committee.
- Plas-Haarsma, M. van der, (1987). Cyclamen in trade. TRAFFIC Rapport 5. TRAFFIC Netherlands.
- PVS (undated). Bloembollen (voorjaarsbloeiers) Beplante oppervlakten 1984/85 tot en met 1987/88. PVS, 's-Gravenhag.
- PVS (1987). Annual Report Produktschap voor Siergewassen. PVS, 's-Gravenhage.
- Stoop van de Kastele, F.S.C. (1974). Conservation of wild Lilium species. Biological Conservation 6(1):26-31.
- Synge, H.A.S. (1980). Endangered monocotyledons in Europe and South West Asia. In: Brickell, C.D. et al., (eds.). Petaloid monocotyledons, horticultural and botanical research. Academic Press, London.
- Wendelbo, P. (1975). Endangered flora and vegetation, with notes on some results of protection. In: Ecological guidelines for the use of natural resources in the Middle East and South West Asia. IUCN, Switzerland.

We are grateful to Lucy Anne Bishop and Christopher Grey-Wilson for allowing us to reproduce their illustrations of geophyte species.

TRAFFIC Network Activities

For all TRAFFIC offices, the latter part of 1989 was dominated by preparation for and attendance at the TRAFFIC Network meeting, held in Frankfurt, and the seventh meeting of the Conference of the Parties to CITES.

TRAFFIC(Austria)

A study of the Austrian trade in tropical timber continues. There has been collaboration with the CITES Management and Scientific Authorities in Austria in order to establish criteria for a private institution for commercial breeding of endangered species. Contact has been made with eastern European NGOs hoping for ratification of CITES by their countries.

TRAFFIC(Belgium)

The Director of TRAFFIC(Belgium) served as an official adviser on the delegation of Belgium at the CITES Conference in October. The unprecedented attention paid to CITES and the Conference by the national media, in view of the African Elephant issue, led to a number of interviews with the press and the dissemination of information to journalists and students working on CITES matters.

The Belgian Management Authority sought the assistance of TRAFFIC(Belgium) in reviewing certain provisions of the present Belgian CITES implementation laws, which need to be amended following the listing of the African Elephant in Appendix I. A new definition of "personal objects" is required, and forms must be developed to inventory worked-ivory stocks and to register sales of ivory items. Assistance was also given in the preparation of a comprehensive list of CITES-listed species, which will become available to CITES implementing officers early in 1990.

Staff also participated in a number of inquiries and seizures.

The office provided a display for an important national exhibition on cats, which was held in Brussels over a period of six months.

TRAFFIC(Germany)

The first part of the study on the implementation of CITES and national wildlife trade regulations in the state of Hessen has been completed; this study comprises a worldwide list of wildlife export bans, a list of import bans in the European Community, a report on the characteristics of illegal trade in CITES specimens, confiscated specimens, and a report on the development of trade in protected wildlife species in Germany.

TRAFFIC(Italy)

A part-time assistant, Marco Pani, has been appointed; assistants based in Treviso (Venice), Naples and Florence provide occasional help in investigating trade issues in those regions.

Following considerable demand, the wildlife trade booklet (see *Traffic Bulletin* 11(1):18) has been updated and reprinted.

The investigation into the collection of, trade in and protection of Italian herpetofauna is continuing and the results will be published during 1990.

Lectures to WWF-Italy regional offices on CITES and wildlife trade matters continue to be given. A number of CITES violations have been referred to the Italian Management Authority and police for action (see page 31).

TRAFFIC(Japan)

A detailed report on the South Korean rhino horn trade, based on market survey work and other sources of information, was recently completed. Data in the report document widespread rhino horn use and indicate a substantial reversal of previous trade trends documented by Esmond Bradley Martin. Follow-up work in conjunction with South Korean conservationists is currently underway.

TRAFFIC(Japan) participated as a technical adviser at the first meeting of the international advisory committee of the Pro Iguana Verde Fundación in Costa Rica, and is currently assessing international trade in and demand for the Green Iguana *Iguana iguana*.

TRAFFIC continues to monitor the illegal movement of ivory, trade in marine turtles, and other species. Presentations on CITES were given to the Yokohama Customs office, a local high school, and a Japanese consumer organisation. Public awareness has been promoted through the publication of two issues of the TRAFFIC(Japan) Newsletter, including a comprehensive analysis in Japanese of the ivory trade.

TRAFFIC(Netherlands)

The parrot breeding investigation is progressing and the distribution of a questionnaire has yielded a good response from aviary associations. The report is expected to be completed by May 1990.

Hans Brouwer has been employed on a part-time basis to organise a TRAFFIC seminar on the Management and Implementation of CITES in the Netherlands, to be held in Utrecht on 26 April 1990. The seminar will be attended by CITES enforcement personnel, NGOs and dealers. A report, in Dutch, on the current situation will be presented, and the seminar will include lectures on tracing illegal trade, the administration of issuing permits, the implementation of Dutch laws, and trade and hobby associations.

A preliminary investigation into the tropical timber trade in the Netherlands commenced in January; trade in and propagation of *Tillandsia* is also being looked at.

A 'souvenir-awareness' leaflet will be prepared by volunteers and is scheduled for distribution before the 1990 tourist season begins.

TRAFFIC(Oceania)

Both members of staff attended the CITES Conference, and the Director was an official adviser on the delegation of the Government of Papua New Guinea. The Director made a brief visit to Port Moresby in October to discuss the brief for the CITES Conference.

Prior to the CITES Conference, TRAFFIC(Oceania) was sub-contracted by WCMC to research and write the Indonesian section of a WWF report on implementation of CITES in certain countries. This work was undertaken by the Research Assistant, Debbie Callister, who visited various parts of Indonesia during August. The final report was distributed by WWF during the CITES Conference; it identifies the implementation and enforcement problems in Indonesia, Thailand, Spain and Argentina, and makes constructive suggestions for improvements. The report, entitled *Problems in CITES Implementation: Case Studies in Four Selected Countries*, is available from WWF-International.

The report on trade in Australasian marsupials and monotremes, referred to in the TRAFFIC Network Activities report in *Traffic Bulletin* 11(1):18, was completed in time for a Workshop on the Action Plan for Australasian Marsupial & Monotremes, which was held immediately following the National Conference on the

Conservation of Threatened Species & their Habitats (Sydney, 1-4 December 1989). TRAFFIC(Oceania) was represented at this conference, and also at the Scientific Meeting of the Australasian Wildlife Management Society (Melbourne, 6-8 December 1989) and at the 4th South Pacific Conference on Nature Conservation & Protected Areas (Port Vila, Vanuatu, 4-12 September 1989).

Liaison with law enforcement agencies, both in Australia and other countries in the region, has continued on a regular and frequent basis. A number of fauna smuggling cases have come to light over the last few months. TRAFFIC(Oceania) has been able to assist in many of these cases, and has provided proofs of evidence in several court cases.

TRAFFIC(South America)

Recently the Director visited the CITES Management Authorities and various NGOs in Argentina, Brazil, Paraguay and Venezuela. Prior to the CITES Conference in Lausanne, staff collaborated with a number of countries in giving advice on trade in and the status of those species which would be discussed at the meeting.

The Director has been re-elected as the regional representative for South and Central America and the Caribbean on the CITES Animals Committee.

Meetings have been held with representatives of the governments of Brazil and the Philippines, the CITES Secretariat and two captive-breeding facilities, to discuss the programme of breeding in captivity of Spix's Macaw *Cyanopsitta spixii*.

A volunteer, Adrian Azpiroz, has assisted in the study of psittacine exports from Argentina.

In his inauguration speech in November 1989, the new President of Uruguay, Dr Luis Alberto Lacalle Herrera, stated that TRAFFIC(South America)'s establishment in Uruguay offered prestige to the country and asked for close collaboration to be given to the office.

Prior to the CITES Conference, the Director, together with Tomas Waller, produced a report under contract to WCMC, on the implementation of CITES in Argentina. This report is contained in Problems in CITES Implementation: Case Studies in Four Selected Countries (see under TRAFFIC(Oceania)).

TRAFFIC(USA)

Nina Marshall, TRAFFIC(USA)'s research botanist, attended a meeting on 28/29 September with representatives from the Netherlands flower bulb industry and other conservation organisations, at the invitation of the Commodity Board for Ornamental Horticulture of the Netherlands. This was the first formal flower industry initiative to address conservation issues relevant to the bulb trade.

Preceding the seventh meeting of the Conference of the Parties to CITES, the 140+ species proposals were examined and analysed by staff of TRAFFIC(USA), WTMU and several other TRAFFIC offices, resulting in the Analyses of Proposals to Amend the CITES Appendices, a 205-page technical document produced jointly with IUCN which was circulated in three languages at the Conference. The official TRAFFIC recommendations on the CITES amendment proposals were completed at the TRAFFIC Network meeting in Frankfurt and the final document was also circulated in three languages at the CITES meeting.

Draft chapters on the wildlife trade laws of Asian countries were circulated to CITES Management Authorities before and during the CITES meeting. Final comments are now being incorporated into the drafts, for publication of Asian Wildlife Trade Laws later this year.

The second phase of the US CITES implementation study is underway - the results of a survey of federal law enforcement officers have been computerised and are being analysed.

A preliminary survey of the captive breeding of psittacines in the USA was completed as the precursor to the development of a larger survey and development of a database on US captive-breeding expected to be initiated this year.

Representatives of TRAFFIC(USA) and TRAFFIC(Japan) met in the USA to review the database being developed by a consultant on the trade in Oriental medicinal products.

Vol. 9 No. 4 of the TRAFFIC(USA) newsletter was published.

WWF-US published a popular book on the wildlife trade, International Wildlife Trade: Whose Business Is It?, by Sarah Fitzgerald (see page 33 for availability).

Staff Changes in the TRAFFIC Network and at WTMU

We are sorry to report that Jonathan Barzdo left WCMC at the end of January 1990.

Jon's association with the organisation began in 1976, when the first TRAFFIC office was established, in London. Working as a freelance consultant, Jon was later appointed Deputy Chairman of the IUCN/SSC TRAFFIC Group, in 1980. In 1983, following TRAFFIC's move to Cambridge to form part of the IUCN Conservation Monitoring Centre, Jon went on to become Head of the Wildlife Trade Monitoring Unit. During this period, Jon built up the expertise of WTMU to include a number of new projects, greatly expanding the scope of the work undertaken. He also played a leading role in developing the TRAFFIC Network to the form it is in today. His task of co-ordinating the Network was formalised in 1987 by the creation of the post of Director of TRAFFIC(International), thus giving him what most would regard as two full-time jobs. His good-natured, quiet diplomacy will be keenly missed by members of the Network across the world and particularly the staff at WTMU and TRAFFIC(International). We would like to wish Jon luck in his new role as a consultant to the Commission of the European Communities, where he will be involved in producing new EEC regulations on wildlife trade, and establishing an information management system for dealing with international wildlife conventions.

Richard Luxmoore, previously a Senior Research Officer at WTMU, has taken over as Acting Head of the Unit. Jorgen Thomsen, from TRAFFIC(USA), has been appointed the new Director of TRAFFIC(International) and will take up his position on 1 March 1990.

We are sorry to report that a further four Network staff members have moved on: Jean-Pierre d'Huart, Director of TRAFFIC(Belgium) since the office was established in December 1984, left in October 1989 to work full-time for WWF-Belgium; Tom De Meulenaer has taken over his position. Manfred Niekisch, Director of TRAFFIC(Germany) since June 1985, left in December 1989 to establish an organisation concerned with tropical forest issues; no decision has yet been made about his successor. Harald Martens, a former TRAFFIC(Germany) officer, is now employed as WWF-Germany's campaign officer. In January 1990, Daniel Slama, Director of TRAFFIC(Austria) resigned; he has been appointed Director of an animal welfare organisation in Austria.

Subscription Charges to Cease

From Volume 12, the Traffic Bulletin will be available free of charge to all interested persons. This is made possible by the support of WWF.

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