

Interpretation and Implementation of the Convention

SIGNIFICANT TRADE IN APPENDIX-II SPECIES

ANIMALS

1. This document has been prepared by the Secretariat and is submitted for information.

Background

2. Since species should normally be included in Appendix II before they are included in Appendix I, the successful implementation of the provisions relating to Appendix II should be considered as critical to the success of the Convention. It is these provisions, in particular Article IV, paragraphs 2.(a) and 3, that embody the principle of sustainability. Trade in Appendix-II species must be limited to ensure that the survival of the species is not detrimentally affected and that the population is maintained at a level consistent with the role of the species in its ecosystem.
3. It was in recognition of the problems in implementing these provisions that the Conference of the Parties established a procedure for identifying species in Appendix II that might be subject to significant levels of trade and for formulating and implementing appropriate remedial measures. The procedure was initiated with the adoption of Resolution Conf. 4.8 at the fourth meeting of the Conference of the Parties (Gaborone, 1983). When the Animals Committee was established [in Resolution Conf. 6.1, adopted at the sixth meeting of the Conference of the Parties (Ottawa, 1987)], it was given responsibility for the procedure.
4. The procedure was revised at the eighth meeting of the Conference of the Parties (Kyoto, 1992), with the adoption of Resolution Conf. 8.9, on trade in wild-caught animal specimens, which now provides the basis for the continuing review of significant trade in Appendix-II species of animals. It requires the Secretariat to monitor the implementation of the Resolution and to report to each meeting of the Conference of the Parties. The present document is submitted in fulfilment of this requirement.

The procedure

5. In the course of its continuing work, the Animals Committee identifies Appendix-II species that might be subject to significant levels of trade. Information about these is compiled and the range States are consulted. If the Animals Committee is concerned that the provisions of Article IV are not being implemented, in accordance with Resolution Conf. 8.9 it may formulate recommendations of two types to the States concerned: **primary recommendations**, which should be implemented within 90 days of receipt; and **secondary recommendations**, which should be implemented within 12 months of receipt.
6. The Secretariat conveys the recommendations to the States concerned and is responsible for deciding whether the recommendations have been implemented. A great deal of correspondence is sometimes required to ensure that what is required is clear and to advise the State concerned about the appropriate action.
7. If a recommendation of the Animals Committee has not been implemented when the deadline has passed, the Secretariat should make a recommendation to the Standing Committee about strict measures to be taken by all Parties. The Secretariat has proposed measures to the Committee only in cases where it considers this

appropriate after discussions with the States concerned.

8. The Secretariat's proposals have resulted in recommendations being made by the Standing Committee to a number of States to establish cautious export quotas and, where this was not done, the Standing Committee has recommended to the Parties to suspend trade in specimens of the species of concern from the relevant State, pending the taking of appropriate measures. The cases where the recommendations of the Standing Committee remain in effect at the time of writing (March 1997) are indicated in the Annex.
9. The Secretariat has reported regularly to the Standing Committee and to the Animals Committee on the implementation of Resolution Conf. 8.9. Whenever the Standing Committee has made recommendations in this context, or these have been withdrawn, the Parties have been informed. (See Notifications to the Parties Nos. 737, 761, 775, 800, 818, 833, 873, 887 and 898.) As the Parties have been kept informed in this way, the present report merely summarizes the action taken and the present position.

Implementation of Resolution Conf. 8.9

10. There have been three phases in the implementation of Resolution Conf. 8.9, each beginning with the selection of a number of species by the Animals Committee and with desk studies of these being carried out by the World Conservation Monitoring Centre (WCMC), IUCN and TRAFFIC. Drafts of the reports on each species were sent to the range States for comment. The final reports were sent to all Parties for information (with Notifications to the Parties Nos. 702, 785 and 917).
11. In the first phase, the recommendations of the Animals Committee were sent to the States concerned in June 1992. The recommendations made in the second phase were sent in January 1994. Those made in the third phase were sent to the Parties concerned in March 1996.
12. The table in the Annex lists the species and genera with respect to which primary and secondary recommendations have been made, indicating the phase in which the recommendations were made, the States concerned and the present stage of implementation. Because the information in the Annex is presented in tabular form, it is necessarily abbreviated. However, the Secretariat can provide any additional information that is required by any Party.
13. A number of recommendations arising from the review of significant trade have been made by the Animals Committee that could not strictly be considered as recommendations made in accordance with Resolution Conf. 8.9. These were conveyed by the Secretariat to the States concerned but have not been included in the table.
14. In the third phase, in accordance with Decision of the Conference of the Parties No. 1 directed to the Animals Committee, the Committee took an approach different from that taken previously, by undertaking additional consultations with the range States of a number of species to enable a better determination of whether it was appropriate to make recommendations. The consultations were in most cases carried out by

the members of the Animals Committee. In a number of cases, no response or no satisfactory response was received. In these cases, in accordance with the agreed procedure, the Committee is to formulate recommendations to the States concerned.

15. It should be noted that, in 1996, the IUCN Species Survival Commission, in collaboration with TRAFFIC, produced a report, at the request of the Animals Committee, to indicate which species should be considered for detailed review in the context of Resolution Conf. 8.9. This involved examination of a large volume of trade data and review by experts on a number of species. The Secretariat is very grateful to IUCN and TRAFFIC for this work although the report was not used in 1996 because the next selection of species for review should be after the 11th meeting of the Conference of the Parties.

Implementation problems

16. Three concerns that have arisen during the implementation of Resolution Conf. 8.9 should be mentioned.
17. Firstly, it is evident that the procedure for the review of significant trade in Appendix-II species of animals (i.e. for implementation of Resolution Conf. 8.9) is not well understood. The Animals Committee has agreed that there is a need for a document containing a simple

explanation and has requested the Secretariat to produce this. Unfortunately, this has not been possible yet because of other priorities but it will be included in the work programme of the Secretariat.

18. Secondly, it is extremely important that the Animals Committee, when formulating its recommendations, takes care to specify its intentions precisely and not leave the country concerned and the Secretariat to try to interpret what the Committee wanted. It is clear that there have sometimes been differing expectations of the action to be taken.
19. Thirdly, experience has shown that the Animals Committee needs to deal with a particular kind of case that has arisen. This is where the Animals Committee has made a recommendation that was not implemented, the Secretariat has referred it to the Standing Committee and, after some discussion, the State concerned has agreed to set an export quota considered as cautious by the Secretariat. The Secretariat considers that these cases need to be reviewed again by the Animals Committee in due course. In this context, it should be noted that the Conference has already agreed (Decision No. 1 directed to the Animals Committee) that species that have been subject to primary recommendations will normally be subject to further review after two consecutive periods between meetings of the Conference of the Parties.

Doc. 10.55 Annex

Implementation of Recommendations of the Animals Committee Made in Accordance with Resolution Conf. 8.9

Species	Phase	Range States subject to recommendations of the Animals Committee	Status of implementation of recommendations (and relevant remarks)
MAMMALIA			
<i>Tarsius syrichta</i>	(1)	Philippines	Implemented.
<i>Cercopithecus petaurista</i>	(3)	(recommendations being formulated at time of writing)	
<i>Chlorocebus aethiops</i>	(3)	(recommendations being formulated at time of writing)	
<i>Macaca nemestrina</i>	(2)	Indonesia	Export of wild-caught specimens prohibited.
<i>Macaca fascicularis</i>	(2)	Indonesia, Philippines	Export of wild-caught specimens prohibited.
<i>Trachypithecus francoisi</i>	(2)	China	Implemented.
<i>Manis pentadactyla</i>	(1)	China, Malaysia, Singapore, Republic of Korea	Implemented.
<i>Manis crassicaudata</i>	(1)		
<i>Manis javanica</i>	(1)		
<i>Monodon monoceros</i>	(3)	Canada, Denmark (Greenland)	Primary recommendations implemented. Information on implementation of secondary recommendations under review at time of writing.
<i>Dusicyon spp.</i>	(2)	Argentina	Implemented.
<i>Ailurus fulgens</i>	(2)	China	Species transferred to Appendix I.
<i>Lynx lynx</i>	(1)	Armenia, Azerbaijan, Belarus, China, Estonia, Georgia, Kazakstan, Kyrgyzstan, Latvia, Lithuania, Republic of Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine, Uzbekistan	Implemented except in Azerbaijan, Latvia, Lithuania, Republic of Moldova, Ukraine; Standing Committee recommends that imports from these States be suspended.
<i>Prionailurus bengalensis</i>	(1)	China	Implemented.

Species	Phase	Range States subject to recommendations of the Animals Committee	Status of implementation of recommendations (and relevant remarks)
<i>Tayassu tajacu</i>	(2)	Bolivia, Peru	Bolivia: a field survey is planned and funds are sought. Peru: a field survey is under way.
<i>Tayassu pecari</i>	(2)		
<i>Lama guanicoe</i>	(1)	Argentina, Chile	Standing Committee recommends suspension of imports from Argentina (except of specimens from registered stock).
<i>Moschus</i> spp.	(2)	China, Russian Federation	China: further information sought. Russian Federation: implemented.
AVES			
<i>Phoenicopterus chilensis</i>	(2)	Argentina	Exports suspended.
<i>Agapornis canus</i>	(1)	Madagascar	Action taken to implement recommendation.
<i>Agapornis fischeri</i>	(1)	United Republic of Tanzania	Standing Committee recommends suspension of imports from United Republic of Tanzania.
<i>Agapornis lilianae</i>	(2)	Mozambique, Zambia	Mozambique: export of ranched specimens only allowed; further information sought. Zambia: implemented.
<i>Alisterus amboinensis</i>	(2)	Indonesia	Action taken to implement recommendation.
<i>Amazona aestiva</i>	(1)	Argentina	Implemented.
<i>Amazona auropalliata</i>	(2)	Nicaragua	Field survey under way.
<i>Amazona oratrix</i>	(1)	(all Parties)	Parties were informed.
<i>Amazona viridigenalis</i>	(1)	(all Parties)	Parties were informed.
<i>Aprosmictus erythropterus</i>	(2)	Indonesia	Export suspended.
<i>Aprosmictus jonquillaceus</i>	(2)	Indonesia	Export suspended.
<i>Ara ararauna</i>	(2)	Suriname	Action taken to implement recommendation.
<i>Ara chloropterus</i>	(2)	Suriname	Action taken to implement recommendation.
<i>Aratinga acuticaudata</i>	(2)	Argentina	Implemented.
<i>Aratinga erythrogaena</i>	(1)	Peru	Survey under way. Standing Committee recommends suspension of imports from Peru.
<i>Brotogeris pyrrhopterus</i>	(1)	Peru	Implemented.
<i>Brotogeris versicolurus</i>	(2)	Peru	Export suspended.
<i>Cacatua alba</i>	(1)	Indonesia	Implemented.
<i>Cacatua galerita</i>	(2)	Indonesia	Export suspended.
<i>Cacatua goffini</i>	(1)	Indonesia	Species transferred to Appendix I.
<i>Cacatua haematuropygia</i>	(1)	Philippines	Species transferred to Appendix I.
<i>Cacatua sanguinea</i>	(2)	Indonesia	Export suspended.
<i>Cacatua sulphurea</i>	(1)	Indonesia	Standing Committee recommends suspension of imports from Indonesia.
<i>Chalcopsitta atra</i>	(2)	Indonesia	Export suspended.
<i>Chamosyna josefinae</i>	(2)	Indonesia	Export suspended.
<i>Coracopsis vasa</i>	(2)	Madagascar	Standing Committee recommends suspension of imports from Madagascar.
<i>Cyanoliseus patagonus</i>	(2)	Argentina	Implemented.
<i>Eos bornea</i>	(2)	Indonesia	Action taken to implement recommendation.
<i>Eos cyanogenia</i>	(2)	Indonesia	Export suspended.

Species	Phase	Range States subject to recommendations of the Animals Committee	Status of implementation of recommendations (and relevant remarks)
<i>Eos reticulata</i>	(1)	Indonesia	Implemented.
<i>Eos squamata</i>	(2)	Indonesia	Implemented.
<i>Loriculus flosculus</i>	(2)	Indonesia	Export suspended.
<i>Loriculus galgulus</i>	(2)	Malaysia	Export quota set following a recommendation of the Standing Committee.
<i>Loriculus philippensis</i>	(2)	Philippines	Export of wild-caught birds prohibited.
<i>Lorius garrulus</i>	(2)	Indonesia	Export suspended.
<i>Nandayus nenday</i>	(2)	Argentina	Implemented.
<i>Pionus maximiliani</i>	(2)	Argentina	Implemented.
<i>Pionus senilis</i>	(2)	Nicaragua	Action taken to implement recommendation.
<i>Poicephalus cryptoxanthus</i>	(2)	Mozambique, United Republic of Tanzania	Mozambique: export of ranched specimens only allowed; further information sought. United Republic of Tanzania: suspension of imports recommended by Standing Committee.
<i>Poicephalus gulielmi</i>	(3)	Côte d'Ivoire (recommendations being formulated at time of writing)	
<i>Poicephalus meyeri</i>	(2)	Mozambique, United Republic of Tanzania	Mozambique: export of ranched specimens only allowed; further information sought. United Republic of Tanzania: suspension of imports recommended by Standing Committee.
<i>Poicephalus rufiventris</i>	(2)	United Republic of Tanzania	Standing Committee recommends suspension of imports from United Republic of Tanzania.
<i>Poicephalus senegalus</i>	(2)	Senegal	Export quota set following recommendation of Standing Committee.
<i>Psittacula alexandri</i>	(3)	(recommendations being formulated at time of writing)	
<i>Psittacula finschii</i>	(3)	(recommendations being formulated at time of writing)	
<i>Psittacula longicauda</i>	(2)	Malaysia	Export quota set following recommendation of Standing Committee.
<i>Psittacula roseata</i>	(2)	Viet Nam	Export quota set following a recommendation of the Standing Committee.
<i>Psittaculirostris desmarestii</i>	(2)	Indonesia	Export suspended.
<i>Psittaculirostris salvadorii</i>	(2)	Indonesia	Export suspended.
<i>Psittacus erithacus</i>	(1)	Cameroon, Ghana, Guinea, Liberia, Togo	Implemented or action taken to implement recommendation. No exports permitted from Liberia.
<i>Psitteuteles iris</i>	(2)	Indonesia	Export suspended.
<i>Psittinus cyanurus</i>	(2)	Malaysia	Export quota set following recommendation of Standing Committee.
<i>Tanygnathus heterurus</i> (= <i>T. sumatranus</i>)	(2)	Indonesia	No export permitted.
<i>Tanygnathus megalorhynchus</i>	(2)	Indonesia	Export suspended.
<i>Tauraco fischeri</i>	(2)	United Republic of Tanzania	Standing Committee recommends suspension of imports from United Republic of Tanzania.

Species	Phase	Range States subject to recommendations of the Animals Committee	Status of implementation of recommendations (and relevant remarks)
REPTILIA			
<i>Geochelone pardalis</i>	(2)	United Republic of Tanzania	Standing Committee recommends suspension of imports from United Republic of Tanzania.
<i>Geochelone sulcata</i>	(3)	(recommendations being formulated at time of writing)	
<i>Indotestudo elongata</i>	(2)	Malaysia	Export quota set following recommendation of Standing Committee.
<i>Kinixys belliana</i>	(2)	Ghana, Togo	Implemented.
<i>Kinixys erosa</i>	(2)	Ghana, Togo	Implemented.
<i>Kinixys homeana</i>	(2)	Ghana, Togo	Implemented.
<i>Malacochersus tornieri</i>	(1)	United Republic of Tanzania	Standing Committee recommends suspension of imports from United Republic of Tanzania.
<i>Manouria emys</i>	(2)	Malaysia	Export quota set following recommendation of Standing Committee.
<i>Testudo graeca</i>	(2)	Turkey	No export authorized.
<i>Testudo horsfieldii</i>	(1)	Kazakhstan, Russian Federation, Turkmenistan, Uzbekistan	Implemented.
<i>Testudo kleinmanni</i>	(2)	Egypt	Species transferred to Appendix I.
<i>Crocodylus niloticus</i>	(2)	Madagascar	Implemented.
<i>Crocodylus novaeguineae</i>	(2)	Indonesia	Implemented.
<i>Crocodylus porosus</i>	(2)	Indonesia	Implemented.
<i>Phelsuma</i> spp.	(2)	Madagascar	Standing Committee recommends suspension of imports from Madagascar (except <i>P. laticauda</i> , <i>P. lineata</i> , <i>P. madagascariensis</i>); field project approved and funds sought.
<i>Chamaeleo</i> spp.	(2)	Madagascar	Standing Committee recommends suspension of imports from Madagascar (except <i>C. lateralis</i> , <i>C. oustaleti</i> , <i>C. pardalis</i> , <i>C. verrucosus</i>); field project approved and funds sought.
<i>Chamaeleo gracilis</i>	(3)	Benin	Most specimens exported from Benin are ranched or produced in captivity; the Secretariat has not proposed action by the Standing Committee.
<i>Chamaeleo senegalensis</i>	(2)	Togo	Action taken to implement recommendations.
<i>Iguana iguana</i>	(2)	Colombia, El Salvador, Honduras	Colombia: implemented. El Salvador: implemented. Honduras: the Secretariat is in communication.
<i>Tupinambis</i> spp.	(2)	Colombia	Implemented.
<i>Varanus niloticus</i>	(2)	Benin, Cameroon, Chad, Mali, Sudan	Benin: implemented. Cameroon: implemented. Chad: primary recommendation implemented; implementation of secondary recommendation would require taking of stricter domestic measures so Secretariat has not proposed action by Standing Committee. Mali: implemented. Sudan: implemented.
<i>Varanus salvator</i>	(2)	Indonesia	Action taken to implement recommendation.

Species	Phase	Range States subject to recommendations of the Animals Committee	Status of implementation of recommendations (and relevant remarks)
<i>Boa constrictor</i>	(2)	Colombia, El Salvador, Guatemala	Colombia: implemented. El Salvador and Guatemala: low level of exports.
<i>Eryx colubrinus</i>	(2)	United Republic of Tanzania	Standing Committee recommends suspension of imports from United Republic of Tanzania.
<i>Eunectes notaeus</i>	(1)	Argentina	Implemented.
<i>Python curtus</i>	(2)	Indonesia	Action taken to implement recommendations.
<i>Python molurus bivittatus</i>	(2)	Malaysia, Thailand	Implemented.
<i>Python regius</i>	(1)	Ghana, Togo	Implemented but ranching needs further consideration. Survey under way in Ghana.
<i>Python reticulatus</i>	(2)	Indonesia	Action taken to implement recommendations.
<i>Python sebae</i>	(2)	Ghana, Guinea, Mali, Togo	In Ghana: partially implemented; most trade is in ranched specimens; export quota set; survey under way. In Guinea: export quota set following recommendation of Standing Committee. In Mali: export quota set following recommendation of Standing Committee; survey planned. In Togo: most trade in ranched specimens; export quota set.
<i>Ptyas mucosus</i>	(1)	Bangladesh, China, Indonesia, Thailand	Bangladesh does not permit trade. Implemented by Thailand. Standing Committee recommends suspension of imports from China and Indonesia.
AMPHIBIA			
<i>Rana hexadactyla</i>	(1)	Bangladesh, India	Bangladesh and India prohibit the export.
<i>Rana tigerina</i>	(1)		
INSECTA			
<i>Trogonoptera brookiana</i>	(2)	Malaysia	Implemented.
<i>Ornithoptera urvillianus</i>	(2)	Papua New Guinea, Solomon Islands	Papua New Guinea: implemented. Solomon Islands: Standing Committee recommends suspension of imports from Solomon Islands.
<i>Ornithoptera victoriae</i>	(2)		
MOLLUSCA			
Tridacnidae spp.	(3)	Philippines, Solomon Islands	Philippines: export prohibited. Solomon Islands: export of cultured clams only allowed.
<i>Strombus gigas</i>	(3)	(recommendations being formulated at time of writing)	

Interpretation and Implementation of the Convention

SIGNIFICANT TRADE IN APPENDIX-II SPECIES

PLANTS

1. This document has been prepared by the Secretariat and the Plants Committee's Co-ordinator for Significant Trade Studies on Plants at the request of the Plants Committee.

Introduction

2. The standard of reporting on plant species included in the CITES appendices has generally been considered to be poor. For example, some Parties do not report plant trade at all, others do not report to species level and there are frequent inaccuracies in the reporting of wild and artificially propagated plants. Such problems have been discussed at various meetings of the Conference of the Parties and are also discussed in document Doc. 10.26. On the basis of document Doc. 9.34, a programme of work was approved at the ninth meeting of the Conference of the Parties. The report attached as Annex 3, entitled a *Review of national reporting procedures for trade in plants listed in the CITES appendices*, presents the results of a two-phase project, being the first part of this programme, undertaken by the World Conservation Monitoring Centre (WCMC), under contract with the CITES Secretariat.
3. It is clear from an analysis of trade data in the annual reports of the Parties, that these are commonly incomplete or inaccurate for wild plants. One of the main reasons for this is the lack of reporting of the source of specimens by both importing and exporting countries. Of the plant trade records reported by Parties for 1994, 93 per cent indicated the source. For 1990, only 74 per cent indicated the source. It is encouraging to see this improvement.
4. Reporting on trade is one of the obligations of Parties but it is clearly not currently being adequately met for plants. The scale of international trade in artificially propagated CITES plants, with some countries exporting large quantities of Appendix-II cacti and orchids, for example, does add to the complexity of reporting the trade accurately. From a conservation point of view, accurate reporting of the wild plant trade is of importance mostly because it facilitates monitoring of the impact of trade on wild populations. The development of the Review of Significant Trade in Plants is currently hindered by the paucity of reliable data on trade in wild plants of Appendix-II species.
5. It would seem particularly important that countries permitting export of native wild plants should endeavour to ensure that the source of such plants is accurately recorded on permits and in CITES annual reports. As far as possible the accuracy of the recording of the source should be checked. Importing countries should also be encouraged to check and report the source of imported plant specimens. It is equally important that these countries regularly check the shipments being imported to ensure that the source of the plants as indicated on the export permit corresponds to the specimens in the shipment concerned.
6. One of the main reasons why the reporting of trade in plants (and animals) is apparently inaccurate is the method of compiling data on the basis of permits issued, whether or not these are subsequently used. As is noted throughout the report in Annex 3, it is frequently difficult to relate data from exporting countries

to those of importing countries because of the different ways in which data are compiled at national level. For trade in wild plants it is particularly important for data to be compiled from the permits used and returned to the Management Authorities so that reporting reflects actual trade. The current resolution covering annual reports and the monitoring of trade, Resolution Conf 9.4, does not urge or recommend Parties to report on the basis of used permits. However, it does urge Parties to implement the Guidelines for the preparation and submission of annual reports (Notification to the Parties No. 788), which state that, as far as possible, such reports should record the actual trade that took place. It is recognized that this would require a system whereby consignments were checked to ensure that the permit details were correct and the corrected permits were returned to the Management Authorities. It is also recognized that some Management Authorities are experiencing resource problems and that some countries would require assistance to set up such a system.

7. Analysis of CITES trade data can help both to identify problems in implementation of the Convention and to identify actual or potential conservation problems faced by the species in trade. Unfortunately for many Appendix-II species there is insufficient information on the conservation status of the species in the wild. It is therefore difficult to assess the impact of levels of trade. The report in Annex 3 highlights the particular deficiency of information on conservation status for many of the orchid species that are collected from the wild for international trade. This is an area that should be urgently addressed both by pooling information that may be available from the literature, together with unpublished information in botanical institutions and by a co-ordinated programme of field research.
8. From the study in Annex 3 it is apparent that aspects of the trade in wild plants of CITES species that require particularly close monitoring include the import of timber species, which is currently poorly reported for example by European countries, trade in orchids involving China and Thailand, and export of succulents and orchids from Madagascar. These have been identified because of the relatively high volume of the trade and the particular problems highlighted in the text. In addition other groups of wild plants in trade need continued vigilance even though the level of trade is not apparent from the trade statistics for the period 1990-1994, or they have not been reviewed in this particular study. For Mexican cacti, for example, there have been problems of illegal trade; likewise for wild succulent plants from Southern Africa, which do not show up in the CITES trade data. The trade in cycads may warrant closer review, to see if problems in reporting and thus enforcement can be detected. The tree fern trade continues to need monitoring, particularly at the level of species in trade. The trade in wild bulbs needs continued attention, especially as new countries of export are supplying the international market.
9. **The Parties are recommended to give special attention to chapters 5 (Analysis of wild plant trade country by country), 6 (Discussion), and 7 (Elements for an action programme to improve CITES trade reporting for plants) of the report in Annex 3.**

In particular the Parties mentioned in chapter 7 should make every effort to immediately remedy the inconsistencies observed.

Programme until the 10th meeting of the Conference of the Parties

10. The Decisions of the Conference of the Parties contain a number of decisions on the Review of Significant Trade in Plants, resulting from documents presented to the eighth and ninth meetings of the Conference of the Parties. The programme approved by the ninth meeting of the Conference of the Parties (Decision No. 3 directed to the Plants Committee) has been fully implemented, with the exception of 'the Review of Significant Trade in Plants included in Appendix II of CITES (1990-1994)'. The reasons for this are clear from the introductory paragraphs of this document and are further explained in the section below on the future programme.
11. Also included in the Decisions of the Conference of the Parties (Decision No. 2 directed to the Secretariat), are a number of items resulting from an earlier review of trade data on plants (cf. document Doc. 8.34). The decision on trade in tree-ferns (Decision 21.f) has been implemented, and a report was presented to the sixth meeting of the Plants Committee. The decision regarding several Appendix-I genera of the Zamiaceae (Decision 21.e) is included in the future programme on Cycads. A first step into investigating the trade in salep (Decision 21.h) has been taken by the Scientific Authority of Germany. Surveys of the trade in *Pleione* and *Cypripedium* (both Orchidaceae; Decisions 21.c and 21.d) and in *Aloe*-products (Decision 21.g) were regarded as being important by the Plants Committee. They have not been included in the programme presented here but will be initiated if sufficient external funding becomes available. However, some of the concerns regarding the two orchid genera may be addressed through the analysis of the trade in orchids from Thailand and from China. The decisions on a survey of the population status of the cacti genera *Notocactus* and *Ferocactus* (Decisions 21.a and 21.b) were given a very low priority by the Plants Committee and will, for the time being, not be initiated. The species of most concern could be considered in the context of the cacti studies proposed in the programme for the period 1998-2000. Also in progress is a survey of South Africa's trade in succulent plant species, carried out by TRAFFIC East/Southern Africa. The objective of this survey is to assess the magnitude of South Africa's succulent plant trade and to identify areas of concern, including illegal, unsustainable and unreported trade.
12. At its 36th meeting, the Standing Committee approved project proposal S-109 on trade in medicinal plants, to be carried out by the Scientific Authority of Germany (which also funded it), jointly with the IUCN/SSC Medicinal Plants Specialist Group and TRAFFIC. The study mainly aims to analyse the trade in medicinal plants in Europe. The study is not related to any particular country, but was designed to serve as a basis for the development of more specific projects. Project S-109 is not yet completed, although an interim report has recently been submitted. The interim report lists 45 species currently included in the CITES appendices that, to various extents, are of value in the medicinal plants trade. Some of these are significantly traded for other purposes, such as for ornamental use (*Cyclamen*, *Galanthus*, *Dendrobium*), for which reason they are included in the programme proposed in Annex 2. The proposed projects on *Prunus africana* and *Aquilaria malaccensis* (see Annex 2) are separate taxa specific projects. It is currently difficult to determine the needs for follow-up studies once S-109 is

completed (second half of 1997) but two general projects are proposed in the future programme.

Programme until the 11th meeting of the Conference of the Parties

13. At its fifth, sixth and seventh meetings, the Plants Committee discussed extensively the various issues relating to the establishment of procedures to carry out studies on plants species included in Appendix II that are traded in significant amounts. It also nominated a Co-ordinator for Significant Trade Studies on Plants, Mr Noel McGough of the Scientific Authority of the United Kingdom. The Plants Committee concluded that it was not yet appropriate to initiate procedures similar to the ones that are currently in place for animals.
14. The main reasons for this decision are:
 15. – the lack of adequate and reliable information on quantities traded; and
 16. – the lack of information on conservation status and population status of many species in taxa such as Cactaceae, Orchidaceae, *Euphorbia* and *Aloe*.
17. From the introduction to this document and from the report in Annex 3, it should be clear that there are several more reasons why an approach is required different from the one currently used for the Review of Significant Trade in Animals.
18. At its seventh meeting, the Plants Committee adopted a set of procedures for the Review of Significant Trade in Plants, to be implemented in relation to the conclusions of the WCMC report, and their applicability to the taxa under study. While preparing the current report for the tenth meeting of the Conference of the Parties, the Co-ordinator for Significant Trade Studies on Plants, representatives of WCMC and the Secretariat's Plants Officer looked carefully into the possibility of applying these general procedures. They concluded that, in view of the lack of reliable and adequate information on quantities traded, it was not possible to establish meaningful cut off levels for all species in trade. It was also noted that, for some taxa, trade data were not available, although specimens were known to occur in international trade. It was therefore suggested that a well focused approach be taken to the Review of Significant Trade in Plants. Rather than going through the whole process of analysing all the data stored in the WCMC trade database (as was included in the programme for Significant Trade Studies approved at the ninth meeting of the Conference of the Parties) it is now suggested that particular groups of taxa be studied. This approach allows the presentation of a detailed budget for the period 1998-2000 (see Annex 2). The selection of projects is based on conclusions of earlier studies and concerns expressed by the Plants Committee and range States. The proposed, slightly amended procedures for the Review of Significant Trade in Plants are included in Annex 1 to this document.
19. Rather than developing one large project on the Review of Significant Trade in Plants, it is proposed to create a series of small projects, each designed for specific taxa, taking into account the deficiencies in the annual reporting on plants by the Parties. This will allow the appropriate use of the knowledge and experience of WCMC, TRAFFIC and the IUCN/SSC Specialist Groups and other experts on the taxa concerned.
20. The possible projects are arranged into four groups. For each of the projects a co-ordinator will be appointed and supervised by the Co-ordinator for Significant Trade Studies on Plants and the CITES Secretariat. The project co-ordinator will have to ensure

that all relevant sources of information and expertise are used and that recommendations regarding the taxa under study are prepared in time for consideration by the Plants Committee and the range States involved. The fact that the projects are small may facilitate the acquisition of external funding as well as the further development of follow-up projects, if such is required.

21. The Secretariat and the Co-ordinator for Significant Trade Studies on Plants will be responsible for the preparation of a draft resolution for consideration by the Plants Committee and the Conference of the Parties. They will also, in co-operation with WCMC, make recommendations regarding the possible need to design a system to link the CITES trade database maintained by WCMC with the WCMC plants database with a view to storing and processing data resulting from the Review of Significant Trade in Plants.
22. All on-going or completed projects on plants (S-52, succulents of Madagascar; S-53, cacti in Mexico; S-56, trade in *Dendrobium*; S-57, orchids from Thailand; and S-109, medicinal plants in Europe) are linked to the proposed programme.

The projects

23. – Group A (data sufficient) will comprise projects on taxa for which sufficient trade data are believed to be available from the CITES annual reports.
24. – Group B (taxa rich in species – data poor) will comprise projects on taxa with a large number of species (e.g. orchids) for which there is a varying quantity and quality of trade information and a lack of information on conservation status, requiring immediate review by experts, because trade data alone are not sufficient to make a selection.
25. – Group C (target taxa) will comprise projects on taxa for which CITES annual report data are inadequate and incomplete and for which field investigations are urgently required. The projects will cover single species listings or small discrete groups.
26. – Group D (new taxa) will comprise projects on taxa that are newly included in the appendices and for which it could be expected that trade reporting might be insufficient, based on the conclusions of the WCMC report.

Group A – (data sufficient)

27. The projects on species included in this group will be based on trade data available in the CITES trade database, and will have to be dealt with by implementing the procedures outlined in Annex 1, starting with paragraph 1.i) then continuing with paragraphs 2. to 6. Two genera have already been identified for projects in this category, namely *Galanthus* and *Cyclamen*, and projects summaries are included in Annex 2.

Group B – (taxa rich in species, data poor)

28. The projects on species included in this group will follow a different approach. There will be a more immediate involvement of the IUCN/SSC Specialist Groups, who will make an initial analysis of the information available. The procedure to implement these projects starts with paragraph 1.ii) of Annex 1 and continues to paragraph 6. For these projects the role of the project co-ordinator is particularly important.
29. The two major plant groups that are to be studied in Group B are the succulents and the orchids. The succulents will be divided into cacti, *Euphorbia* and *Aloe*, with the possibility of adding *Pachypodium* at a later stage. The orchids will be considered on a regional basis or as specific taxa, following the approach used for two on-going projects; one on the orchid trade in

Thailand and the other on the trade in *Dendrobium* spp. A study on the orchid trade from China and Madagascar are other projects in this series. The Scientific and Management Authorities of China and the Management Authority of Madagascar have expressed great interest in these projects.

30. It is important that projects in this group be carried out after the checklists of the taxa concerned have been completed, or in parallel with the development of these.

Group C – (target taxa)

31. The projects in this group cover taxa for which CITES annual report data are inadequate and incomplete. Field investigations will form an important component in each project, not only to analyse the existing trade structure but also to collect trade data and to quantify the trade.

Group D – (new taxa)

32. The projects in this group are of a preventive nature, but are based on knowledge acquired from the analysis of the trade in similar species or species used for similar purposes. The preventive nature of these projects is related to the fact that the ones proposed here deal with two species used in the medicinal plants trade but not yet included in the appendices, although there is a proposal to include them in Appendix II at the 10th meeting of the Conference of the Parties. Close monitoring of the trade in these species, at the same time as the analysis of trade in similar parts and derivatives of some other medicinal species (see group C projects in Annex 2) should provide valuable information on the implementation of the provisions of Article IV, paragraphs 2) and 3) and on possible enforcement problems and their solutions. These projects will only be initiated if the Conference of the Parties agrees to the inclusion of these species in Appendix II.

A draft resolution on trade in wild plants

33. Through the adoption of Resolution Conf. 8.9, the Conference of the Parties has put in place a mechanism that will assist the Parties in regulating the trade in wild-caught animal specimens. It includes a process for applying corrective measures where a Party is not complying with the provisions of Article IV of the Convention.
34. A draft resolution, to be presented at the 11th meeting of the Conference of the Parties, will address the same issues as Resolution Conf. 8.9 but in relation to plants. It will also have to take into account specific aspects of the trade in plants (in particular the high number of species involved, and the inadequacies of reporting) and other issues following the completion of the studies proposed.
35. As explained above, the projects proposed will address various aspects of the international trade in plants included in the CITES appendices (e.g. trade to and from particular countries, trade in specific taxa, trade in parts and derivatives). They will provide valuable information on how plant trade can be dealt with in the Review of Significant Trade in Plants.
36. The budgets proposed for these projects are estimates only. The final proposals will be submitted to the Plants Committee (or the Standing Committee as appropriate) for approval, before they are implemented.

Finances

37. If the modest amount allocated in the 1997 budget for initiating the programme of projects in the second half of 1997 (following its approval by the Conference of

the Parties) USD 535,000 is needed for the triennium 1998-2000.

38. An allocation of USD 175,000 is request for 1998 (initiation of projects), USD 235,000 for 1999 (all projects

on-going) and USD 125,000 for 2000 (completion of the projects). If the Conference of the Parties agrees to allocate these amounts, the expenditure should only be for the projects included in Annex 2.

Doc. 10.56 Annex 1

General Procedures to Implement the Review of Significant Trade in Plants for Species in Appendix II

The main process of implementing the procedures for the Review of Significant Trade in Plants and selecting experts consultants will be directed by the project co-ordinators under the supervision of the Co-ordinator for Significant Trade Studies on Plants and the CITES Secretariat.

Main Process

1. i) Produce an initial list of selected taxa for review, based on levels of international trade in relation to conservation status as recorded in the WCMC plants database; or
ii) If there is not sufficient trade information, select an initial list based on experts opinions and concerns with regard to conservation status and possible trade threats.
2. Review of the list by relevant Parties and experts, including IUCN/SSC Specialist Groups, taking into account conservation status, vulnerability of the wild populations to trade, or the absence of trade information although trade is known to exist.
3. Prepare and circulate questionnaires on priority species to relevant Parties and experts including, IUCN/SSC Specialist Groups and TRAFFIC, for review

taking into account the criteria in Resolution Conf. 9.24 and the IUCN Red List Categories.

4. Evaluate the methodology and priority needs for further data collection, in particular with regard to distribution, conservation and trade status of the taxa concerned.
5. Synthesize the results of the expert review and make specific recommendations for detailed trade studies and field work for review by the Plants Committee.
6. Prepare drafts of proposals to amend the appendices, when appropriate, for consideration by the Plants Committee and by the range States concerned and for possible consideration at the 11th meeting of the Conference of the Parties.

Other Procedures

7. The co-ordinator for the Review of Significant Trade in Plants and the Secretariat will prepare a draft resolution to specify a procedure to address and resolve inadequate implementation of Article IV of the Convention with respect to trade in plants, for consideration at the 11th meeting of the Conference of the Parties.

Doc. 10.56 Annex 2

Proposed Projects for the Programme of the Review on Significant Trade in Plants for the Period 1998-2000

A. Estimated budgets

Group A projects

1. *Galanthus, Cyclamen* USD 24,700

Group B projects

2. Succulents
i) Cactaceae USD 40,200
ii) *Aloe* and *Euphorbia* spp. USD 22,700

3. Orchids

- i) International trade in orchids from Thailand (Project S-57); funding still required for the second phase USD 49,500
ii) International trade in Chinese orchids USD 30,000
iii) Trade in orchids from Madagascar USD 100,000

4. Trade in Cycads USD 17,900

Group C projects

5. *Prunus africana* USD 28,000
6. *Aquilaria malaccensis* USD 40,000
7. Medicinal Plants
i) In demand for roots (*Panax quinquefolius* excluded) USD 25,000
ii) In demand for parts and derivatives USD 50,000

Group D projects

8. Trade in *Hydrastis*

9. Trade in *Nardostachys* and *Picrorhiza* USD 25,000

Development of detailed project proposals for presentation to the Standing Committee USD 5,000

Total USD 558,000

B. Summary descriptions

Group A projects

1. *Galanthus, Cyclamen*

Bulbs and tubers of these genera have been regularly traded in reasonably large quantities. Until recently the trade was reasonably easy to monitor. The major country of export was Turkey. The bulbs were traded to few countries only, the Netherlands being the main destination. It was observed that re-exports from the Netherlands have been recorded in several annual reports of importing countries as being artificially propagated.

Various projects are currently being developed in Turkey to stimulate artificial propagation of species of these two taxa.

However, traders are currently exploring possibilities of exporting *Galanthus* and *Cyclamen* from other countries, such as Georgia, and concerns have been expressed about proper application of Article IV, paragraph 3, with regard to the quantities harvested. Georgia and Turkey have recently become Parties to the Convention.

The project intends to provide to these two Parties the necessary information for determining appro-

ropriate levels of sustainable exploitation. It will also provide an overview of the artificial propagation of these taxa in Georgia and Turkey and will seek to establish whether trade is occurring from other countries in the region.

Estimated expenditures:

Co-ordinator	USD	5,000
Research (data review, literature review, reporting)	USD	3,000
Consultancies (including local scientists etc.)	USD	7,000
Field work		
Airfares	USD	2,400
Car hire etc.	USD	3,000
Subsistence	USD	3,000
Miscellaneous	USD	1,300
Total	USD	24,700

Group B projects

2. Succulents

i) Cactaceae

Field-collected cacti remain popular in international trade but data in annual reports of the Parties do not adequately reflect this trade. Information on the conservation status of cacti has been compiled for most species of the family and is maintained in the WCMC plants database. The need to apply the new IUCN Red List categories and criteria is noted in the IUCN/SSC Cactus and Succulent Group's recently published Action Plan. This project will link conservation status and associated information with trade information from various sources as a basis for making recommendations about the implementation of Article IV. Project S-53 (population studies of Mexican cacti) will provide valuable information for this project.

Activities:

- Project initiation and a workshop on the application of the 1994 IUCN Red List categories and criteria to cacti will take place at the IUCN/SSC Cactus and Succulent Group meeting at Huntington Botanic Garden, California, United States, September 1997.
- Application of the new categories and criteria by members of the Group and other experts. Priority to be given to selected genera for which conservation status information is currently lacking, as identified in the Action Plan, for example, genera of South American cacti, but also those from Mexico. Collection of associated information on ecology, local uses, distribution, threats and ease and extent of artificial propagation using a standard data collection form.
- Entry of information into a species conservation database designed for distribution to CITES authorities, IUCN/SSC Group members and other interested organizations.
- Analysis of CITES trade data and collection of additional data on occurrence of wild species in trade, in association with TRAFFIC.

- Application of the criteria for amendment of Appendices I and II on the basis of the above information.
- Synthesis of the information collected on conservation status and trade and formulation of recommendations for detailed trade studies, field work, trade restrictions and proposals to amend the appendices as necessary.

Estimated expenditures:

Project co-ordinator	USD	10,000
Research	USD	22,000
Travel and Subsistence (Experts to workshops in California)		
Air fares	USD	5,500
Subsistence	USD	2,700
Total	USD	40,200

ii) *Aloe and Euphorbia* spp.

The trade in wild-collected specimens of *Aloe* and *Euphorbia* remains a concern because it forms a threat to various species within these genera. Trade reporting remains inadequate and conservation status information is incomplete for the genera in various parts of their range. Application of the new IUCN threat categories and criteria, collection of supplementary data and review of the listings in CITES appendices are priorities recognized by the IUCN/SSC Cactus and Succulent Group. The results of project S-52 (see 2.iii) below) will provide valuable information for this work.

Activities

- Project initiation and workshop on the application of the 1994 IUCN Red List categories and criteria to *Aloe* and *Euphorbia* spp. at the IUCN/SSC Cactus and Succulent Group meeting in 1998.
- Application of the new categories and criteria by members of the Group and other experts. Collection of associated information on ecology, local uses, distribution, threats and ease and extent of artificial propagation using a standard data collection form (as developed in the Significant Plant Trade Study for Cacti).
- Entry of information into the species conservation database, designed for the Significant Plant Trade Study for Cactaceae, for distribution to CITES authorities, IUCN/SSC Group members and other interested organizations.
- Analysis of CITES trade data and collection of additional data on occurrence of wild species in trade, in association with TRAFFIC.
- Application of the criteria for amendment of Appendices I and II to all succulent *Euphorbia* and *Aloe* spp. on the basis of the above information.
- Synthesis of the information collected on conservation status and trade formulation of recommendations for detailed trade studies, field work, trade controls and proposals to amend the appendices as necessary.

Estimated expenditures:

Project co-ordinator	USD	5,000
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Research	USD	12,500
Travel and Subsistence (SSC)		
Group meeting in South Africa)		
Air fares	USD	3,200
Subsistence	USD	2,000
Total	USD	22,700

3. Orchids

i) International trade in orchids from Thailand (Project S-57)

This project has been approved by the Standing Committee. It started in November 1995, and is being executed by the Management Authority of Thailand for Plants jointly with the Royal Botanic Gardens, Kew, United Kingdom.

Budget required for the second phase: USD 49,500

ii) International trade in Chinese orchids

This project will largely follow the methodology used for the project on the trade in orchids from Thailand (S-57). It will involve the following activities.

- Analysis of the data available on all international trade in Chinese orchids species, including re-exports from third countries and catalogue surveys, with special focus on the species identified in the Biodiversity Conservation Action Plan of China.
- Review of the distribution in China of orchid species common in international trade and preliminary survey of the conservation status of Chinese orchid species reported in trade.
- Collection of information on the internal trade in and utilization of orchids in China and their relation to international trade.
- Collation and review of data on the possible import and re-export of orchid species from neighbouring countries.
- Analysis of existing conservation measures for wild orchid species in China and current mechanisms for the implementation of CITES with respect to trade in orchids and other species of flora.
- Provision of assistance and/or training to help strengthen the role of the CITES Management and Scientific Authorities for plants in China in the implementation of CITES.
- Analysis of the population status of selected species common in trade.
- Synthesis of the information collected on conservation and trade and formulation of recommendations for detailed trade studies, field work, improved trade control and proposals to amend the appendices as necessary.

Estimated expenditures:

Co-ordinator	USD	20,000
Research and local consultants	USD	40,000
Equipment (computers, photos)	USD	4,000
Reporting and report production	USD	5,000
Travel for field studies (six to eight weeks over two years)		
Airtfares	USD	8,000

Car hire, petrol, support	USD	8,000
Subsistence	USD	5,000
Capacity building (training materials, translations etc.)	USD	30,000
Miscellaneous	USD	10,000
Total	USD	130,000

iii) Trade in orchids from Madagascar

This project will again largely follow the procedures laid down for the project on the trade in orchids from Thailand (S-57). However a number of different field, data collecting and data recording activities are already taking place. This project will bring together all available information and in its recommendations provide guidance for present and future biodiversity projects in Madagascar. It will also seek to ensure that all such information is made available in a form which is useful to the Malagasy authorities.

It will involve the following activities.

- Analysis of the data available on all international trade in Malagasy orchid species, including re-exports from third countries and catalogue surveys.
- Review of the distribution in Madagascar of orchid species common in international trade and preliminary survey of the conservation status of Malagasy orchid species reported in trade.
- Collection of information on the internal trade in and utilization of orchids in Madagascar and their relation to international trade.
- Collation and review of data on the possible import and re-export of orchid species from neighbouring countries.
- Analysis of existing conservation measures for wild orchid species in Madagascar and current mechanisms for the implementation of CITES with respect to trade in orchids and other species of flora.
- Provision of assistance and/or training to help strengthen the role of the CITES Management and Scientific Authorities for plants in Madagascar in the implementation of CITES.
- Analysis of the population status of selected species common in trade.
- Synthesis of the information collected on conservation and trade and formulation of recommendations for detailed trade studies, field work, improved trade control and proposals to amend the appendices as necessary.

Estimated expenditures:

Co-ordinator	USD	15,000
Research and local consultants	USD	20,000
Equipment (computers, photos, etc.)	USD	10,000
Report production	USD	4,000
Travel for Field Studies and Training		
Airtfares	USD	4,000
Van hire, petrol, support	USD	4,000

Subsistence	USD	3,000
Capacity building (training materials, translations etc.)	USD	30,000
Miscellaneous	USD	10,000
Total	USD	100,000

4. Trade in Cycads

This project will bring together and analyse information available on the trade in all cycad taxa covered by CITES.

It will involve the following activities.

- Analysis of the data available on all international trade in Cycads, including re-exports from third countries and catalogue surveys.
- Review of the distribution and conservation status of Cycads in international trade.
- Collection of information on the internal trade in and utilization of cycads in selected range States and their relation to international trade.
- Preparation of a directory of cycad propagation.
- Provision of information/recommendations to help strengthen the role of the CITES Management and Scientific Authorities within range States.
- Analysis of the population status of selected species common in trade.
- Synthesis of the information collected on conservation and trade and formulation of recommendations for detailed trade studies, field work, improved trade controls and proposals to amend the appendices as necessary.

Estimated expenditures:

Project co-ordinator	USD	5,000
Consultancies	USD	4,000
Communications	USD	4,000
Travel	USD	1,900
Report & Directory Production	USD	3,000
Total	USD	17,900

Group C projects

5. *Prunus africana*

This species is traded internationally primarily in the form of bark, bark products (extract), and finished retail products such as tablets or capsules. The main producer countries are Cameroon, Kenya and Madagascar, and to a lesser extent the United Republic of Tanzania, Zaire and other countries with afro-montane forest. *Prunus* bark and extract are primarily exported to France, Italy and Spain, although retail products are available in South and North America as well as Asia. While data are available on some of the existing international trade, much trade information is scattered and difficult to acquire. CITES annual report data for *Prunus africana* are incomplete and for some Parties known to trade even non-existent.

The Scientific Authority of Germany has already commissioned an initial survey on the trade in *Prunus africana* (Cunningham, M. 1997. Review of trade structure and elaboration of an identification guide for *Prunus africana*). This project is one of the activities this Scientific Authority has developed with regard to the trade in medicinal plants (see

also 7. below). The follow-up to this study can be completed at comparatively low cost.

This project will involve the following:

- Collection of additional information on trade routes
- Assessment of the impact of harvesting at previously unstudied sites
- Clarification of the role of the major importers
- Clarification of whether *Prunus crassifolia* is also in trade.

Estimated expenditures:

Project co-ordinator	USD	8,000
Consultants	USD	7,000
Travel (Visits to range States from which trade is known to occur)		
Airtfares	USD	5,000
Subsistence	USD	3,000
Miscellaneous	USD	3,000
Report	USD	2,000
Total	USD	28,000

6. *Aquilaria malaccensis*

Aquilaria malaccensis was included in Appendix II at the ninth meeting of the Conference of the Parties. The highly valuable fragrant wood of this species, known as 'agarwood', is traded in a variety of forms including oil, timber pieces, powder and extract. Other *Aquilaria* species are also harvested for agarwood, some of which may, like this one, be threatened by over-exploitation for international trade and/or may be confused with *A. malaccensis*, complicating implementation of the Convention for *A. malaccensis*. There are significant discrepancies in the reporting of trade in this species, and it is clear that reporting is incomplete.

TRAFFIC Southeast Asia and TRAFFIC India have undertaken some initial studies of the status of and trade in *A. malaccensis*. This project provides for the further study of *Aquilaria*'s status, complex trade patterns, and potential cultivation, with an emphasis on key range States and markets. It will seek to assess the importance in trade of *A. malaccensis* relative to other *Aquilaria* species, identify the types of specimens in trade and actual trade volumes, and explore the use of substitutes.

This study is necessary in order to evaluate the effectiveness of the Appendix-II listing of *A. malaccensis* to ensure that trade is maintained within sustainable levels, and to identify problems hindering this effectiveness, including reporting problems. Recommendations for any actions necessary to improve implementation will be developed.

Estimated expenditures:

Project co-ordinator	USD	10,000
Consultants	USD	15,000
Travel	USD	15,000
(Visits will be made to key exporting, re-exporting and importing countries in South East Asia, Middle East, Indian subcontinent)		
Total	USD	40,000

7. Medicinal plants

TRAFFIC offices are currently undertaking studies on the trade in various medicinal plants, including CITES-listed species. There is also a CITES project on this subject (see paragraph 12. in the introductory part to this document).

- i) In demand for roots (*Panax quinquefolius* excluded)

A number of taxa are included in Appendix II with an annotation that generally restricts the trade controls to roots, specifically excluding finished products such as medicines. But, with the exception of *Panax quinquefolius* and *Saussurea costus* very few data are available from the annual reports of parties to indicate that these specimens are traded internationally. It is not possible to determine which taxa should be studied before the final report of project S-109 is available. Yet a certain amount of funding is needed to initiate projects resulting from it. The results of the project would also assist the Plants Committee in its work on the Review of the Appendices.

Amount proposed USD 25,000

- ii) In demand for parts and derivatives

For a rather large number of taxa, in particular orchids, international trade is only recorded for live specimens. Yet it is known that parts and derivatives, dried or processed, are traded internationally without the appropriate CITES permits.

The Scientific Authority of Germany has already completed an initial study on the trade in salep (a product made from the root bulbs of terrestrial orchids; cf. Kasparak, M. & U. Grimm.

1996. European Trade in Turkish Salep with special reference to Germany; draft report to the seventh meeting of the Plants Committee, 27 pp.). Although trade was known to exist it was never recorded in the annual reports of the Parties.

Similarly, in Asia, dried roots and leaves of various orchid species are used in traditional medicines, but it is unknown what quantity of specimens is used and which parts are traded internationally because this trade is not recorded in the annual reports.

All these derivatives are not exempted from CITES controls. It is not possible to determine which taxa should be studied before the final report of project S-109. Yet a certain amount of funding is needed to develop projects resulting from it, and to at least determine which trade control mechanisms should be put in place or improved to adequately regulate this trade.

Amount proposed USD 50,000

Group D projects

8. Trade in *Hydrastis*

9. Trade in *Nardostachys* and *Picrorhiza*

Projects on the taxa referred to under 8. and 9. can only be developed if the Conference of the Parties approves their inclusion in Appendix II. The main purpose of the projects would be to immediately start monitoring the trade and to evaluate possible omissions in the regulation of it, utilizing information resulting from projects mentioned above under 5., 6. and 7.

Amount proposed for 8. + 9. USD 25,000

Doc. 10.56 Annex 3

Review and Improvement of National Reporting for Trade in Plants Listed in the Appendices of CITES 1990-1994

A report prepared on behalf of the CITES Secretariat
by the World Conservation Monitoring Centre
Sara Oldfield and Lorraine Collins

January 1997

1. Introduction

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) requires Parties to maintain records of trade in specimens of species included in the appendices of the Convention and to transmit to the Secretariat annual reports summarizing the trade information. The reports should include information on the number and type of permits and certificates granted; the States with which trade occurred; the numbers or quantities and types of specimens, and names of species as included in the appendices. The standard of reporting on plant species included in the CITES appendices has generally been considered to be poor, with, for example, some Parties not reporting plant trade, others not reporting to species level and frequent inaccuracies in the reporting of wild and artificially propagated plants. Such problems have been discussed at various Meetings of the Conference of the Parties and highlighted, for example, in the report presented to the Eighth Meeting of the Conference of the Parties on Significant Trade in Appendix II Species – Plants (Doc. 8.31). Based on this report and subsequent discussions within the Plants Committee, a programme of activities was approved by the Eighth Meeting of the Conference of the Parties to address issues of Significant Trade in Appendix II species. This report presents the results of a two phase project within this programme, undertaken by the World Conservation

Monitoring Centre (WCMC), a *Review of national reporting procedures for trade in plants listed in the CITES appendices*. Terms of Reference for the Review are given in Annex 1.

1.1 Project objectives

- To review the trade data for plants listed in the appendices of CITES in order to analyze the current deficiencies in data collection and reporting.
- To identify specific problems of lack of reporting by country and by plant group and to ascertain the reasons for this lack of reporting.
- To develop an action programme to improve the standard of reporting for plants, addressing specific problems identified by the trade data review and highlighting countries where the provision of technical and financial assistance may be required.

Phase I of the project concentrated on the first of these objectives, and partially addressed the second objective. The report of Phase I activities and results was discussed by the Plants Committee at its Sixth Meeting in Tenerife, June 1995, and was approved by the Committee.

The Phase I report recommended that, for Appendix II plants, Parties should concentrate their efforts on reporting accurately and fully the trade in wild specimens. In order to

facilitate this it was recommended that a detailed breakdown of the trade in wild CITES plants should be provided to all Parties highlighting the major wild plants traded and the source countries. This analysis was undertaken in Phase II of the project, thus helping to meet the second objective.

Furthermore the Phase I report identified aspects of CITES plant trade reporting which required further detailed analysis notably:

- reporting of the timber trade
- major discrepancies in reported wild plant trade between major trading partners
- analysis of the value of CITES plant trade data or the Significant Trade in Plants process

These aspects were also addressed in Phase II. A document on the CITES timber trade, highlighting the problems in trade reporting was presented to the First Meeting of the CITES Timber Working Group (TWG). Comments from members of the TWG were incorporated into the report of Phase II of the project.

The report of Phase II activities and results was discussed by the Plants Committee at its Seventh Meeting in Costa Rica, November 1996, and was approved by the Committee.

1.2 Sources of information

The following sources of information have been used in the review of national reporting for plants:

- i) annual reports submitted to the CITES Secretariat by Parties to the Convention.
- ii) plant trade data held in the WCMC *CITES Trade Database*. Various standard outputs can be produced to

analyze and compare the trade data. More details are provided in Section 2.2. For the current review, outputs prepared for analysis include tabulations of gross and net trade in live plants, roots, timber, parts and derivatives by country and by particular plant group; tabulations of trade in plants reported to be wild and of unknown source; and comparative tabulations linking the data on plant transactions between importing and exporting countries. In Phase I the data were generally analyzed for the period 1990-1992, and in Phase II, concentrating on wild plants, data were analyzed for the period 1990-1994.

- iii) results of a questionnaire on procedures for national collection of CITES plant data, sent to CITES Management Authorities on 11/04/95. The questionnaire and accompanying letter is given in Annex 2. In total 49 Parties responded to the questionnaire. Throughout this report information referenced as *in litt.*, 1995 has been derived from the questionnaire respondents.

2. Cites Data Collection

2.1 Compilation of National Reports

The procedures for collection of CITES trade data for the production of annual reports are generally based on national permit systems administered by CITES Management Authorities. Information extracted from the CITES permits is commonly computerized and the range of computer systems used for annual report production is indicated in Annex 3. The collection of trade data is usually based on permits issued prior to actual trade or, less commonly, permits utilized and returned to the Management Authority. Table 1 shows the basis for the production of annual reports as indicated by Parties responding to the questionnaire.

Table 1. Information sources used in the production of annual reports

Basis for annual report	Country
Permits issued	Algeria; Australia; Brazil; Bermuda (for exports); Brunei Darussalam; Burundi; Canada (and export permits received); Costa Rica; Czech Rep. (and permits used); Denmark (and permits used); Estonia (and permits used); Guyana; Jersey; Madagascar; Mexico; Morocco (and permits used); New Caledonia (and permits received); Norway (and permits received); People's Republic of China; Papua New Guinea; Peru; Philippines; New Zealand; South Africa; Sweden (& permits received); Switzerland (for exports)
Permits used	Bermuda (for imports); Czech Rep. (and permits issued); Denmark (and permits issued); Estonia (and permits issued); Germany; Hong Kong; Malaysia; Malta (wherever possible & permits issued); Morocco (and permits issued); New Caledonia (and permits issued); Singapore; Sweden (& permits issued); Switzerland (for imports); Thailand; United Kingdom; United States of America
Other	Sweden (plant health certificates); Denmark (computerized list from exporters); New Zealand (returns from nurseries)

Documentation requirements for artificially propagated plants may be simplified under the terms of the Convention with certificates of artificial propagation issued in lieu of export permits. Furthermore, the Conference of the Parties has determined that in certain circumstances phytosanitary certificates may be used as certificates of artificial propagation. Phytosanitary controls are the responsibility of agencies within the agricultural sector of governments, which may for the purposes of CITES implementation have CITES duties delegated to them. This clearly modifies the practical arrangements for the collection of CITES plant trade data based on documentation.

Management Authorities in some countries have developed arrangements for major exporters of artificially propagated CITES plants to carry out self-certification through the periodic issuance of relevant paperwork. Such a system

requires prior knowledge of the nurseries and their propagation capabilities. The questionnaire survey asked Parties whether they compile information on nurseries involved in the CITES export trade. Nine Parties replied that they did so and a further three mentioned that there are only one or two nurseries producing CITES plants within the country. Australia pointed out that it is currently paying particular attention to nurseries producing *Dicksonia antarctica*.

In general the information reported on the CITES plant trade is not based on actual inspection of plants and verification of the data provided in applications for permits. The questionnaire survey asked Parties if they carry out routine checks of CITES plant material in trade *in order to improve enforcement, avoid authorizing trade in wild plants wrongly declared as artificially propagated, and also improve the accuracy of information in annual reports*. The Dominican

Republic replied that checks are carried out at nurseries. Eighteen other Parties replied that they do carry out routine inspections, several Parties pointing out that inspections are limited by availability of personnel.

The survey also asked Parties whether they accept CITES plant imports without inspection of the plants. The majority of Parties stated that they do not and some stated that they accept a proportion without inspecting the plants. Switzerland, for example, replied that they accept imports of CITES Appendix II artificially propagated plants, with some random checks, but they inspect all Appendix I and wild plants. The accuracy of reporting of plant imports will clearly be influenced by the degree to which actual plant consignments, in addition to the paperwork, are checked.

The reporting of imports for Appendix II species is commonly based on collection of export documentation, and additionally on the information recorded on import permits where these are issued. In some cases retrieval of export documentation may be incomplete. The questionnaire received from Canada, for example, pointed out that not all

foreign permits are received from Customs and the rate of return is not known.

Several other Parties indicated problems in adequately reporting imports of CITES plant material. As pointed out by Moore, *in litt.*, 1995, in relation to documentation provided by exporting countries, two issues appear to be dominant:

due to lack of resources exporting countries do not possess the ability to check and verify all consignments; and

due to the type of plant material being exported e.g. seedlings, seeds, tissues cultures, etc., they are unable to verify which species are being exported, irrespective of the resources available.

Approximately half of the Management Authorities which responded to the questionnaire reported that they have adequate personnel to compile data on the plant trade. Several commented, however, that staffing was barely adequate or that they managed with the limited resources available. A specific area where Parties reported insufficient personnel was in checking actual plant consignments.

Box 1. Selected examples of national procedures for CITES plant documentation and the preparation of annual reports

Brazil: The Management Authority operates a centralized permitting system for plant exports. This is computerized and the computer system is currently being updated in line with Notification no. 788. Inspections of nurseries are made every six months and stock reports collected.

Denmark: All nurseries are registered and inspected as part of a compulsory plant health inspection regime. Exporters provide computerized lists of "supermarket plants". The information from the thousands of consignments of this type of plant is summarized for inclusion in annual reports. Information from CITES permits for specialist orchid nurseries is treated separately.

Guyana: Persons wishing to export plants have to bring the plants to the CITES Management Authority. The Management Authority seeks assistance from one of two private individuals who have been approved to identify the species. CITES export forms are then prepared. Most of the trade in plants is not reported as not many people choose to notify the Management Authority. Shipments are checked at the airport at the time of departure by the Plant Quarantine Officer and Customs Officers. At present the MA is trying to have all exporters licensed. Once the exporters and the species exported/imported are known, the Management Authority wishes for regulations to be drafted to control trade.

New Zealand: Data are collected from records of permits and certificates issued. They are also collected from records of seized and surrendered specimens and from the returns compiled by nurseries registered under the multiple export certificate scheme. All this information is drawn together for the production of the CITES annual report.

Sweden: Each year the producers of plants report their plan of production to the Swedish Board of Agriculture. The Swedish Board of Agriculture monitors plant imports from countries outside the EU and issues permits and plant health certificates necessary for export to countries outside the EU. Certificates for artificially propagated plants are also issued by the Board, sometimes after a visit to the place of production.

United States of America: National legislation requires that CITES plant shipments enter or exit the United States of America at designated ports of import or export where the animal and plant health inspectors (APHIS) inspect the shipments and clear them by endorsing the accompanying CITES documentation. After endorsing the CITES documents, the APHIS inspectors send either the original endorsed/cancelled documents, in the case of imports, or copies of the endorsed/cancelled documents, in the case of exports/re-exports, to the Office of Management Authority (OMA). OMA staff then code and enter the CITES plant trade data from these documents into a computer database. APHIS inspectors also notify OMA of all CITES plant shipments that they confiscate or seize and OMA staff also code and enter these data into the computer database. On an annual basis, OMA staff compile the CITES plant data entered into the computer database into the plant portion of the United States of America CITES annual report and send an electronic copy of these data to WCMC.

2.2. Compilation of CITES Plant data at WCMC

Under the provisions of **Resolution Conf. 9.4**, annual reports may be sent either to the offices of the Secretariat in Switzerland or to the Wildlife Trade Monitoring Unit of WCMC, which is the Secretariat's consultant for the management of the computerized database of CITES trade statistics. The resolution urges every Party to consider whether the preparation of its statistical reports could be computerized, or undertaken under a contract between the Party and WTMU. As of December 1996, 21 Parties (16%) had submitted annual reports on computer tapes or diskettes.

Data from the annual reports are entered into the WCMC *CITES Trade Database*. For many years however, WTMU has not been required to computerize the records of artificially propagated Appendix II plants under the terms of the contract with the CITES Secretariat. Attempts were made however, to computerize these data up until the end of 1992. Since then the only data on artificially propagated Appendix II plants held in the WCMC *CITES Trade Database* are those which can be directly transferred to the database. The countries which submitted their annual reports electronically or digitally have been listed in Table 2. The Parties whose data were directly transferred have been

marked with a tick. Those marked with a cross, were not directly transferable.

A more recent development has been the direct transfer of annual reports directly from a Management Authority's

database to the one at WCMC via electronic mail, the 1992 annual reports from both Brazil and the United States of America being received in this fashion.

Table 2. Countries submitting annual reports in electronic form 1990-1992

Country	1990	Data received	1991	Data received	1992	Data received	Direct transfer
Australia	D	imp/exp	D	imp/exp	D	imp/exp	_
Belgium					D	imp/exp	×
*Brazil	D	imp/exp	D	imp/exp	E-M	imp/exp	_
*Canada	T	imp/exp	D	imp/exp	D	imp/exp	_
*Chile			D	imp/exp			×
*Denmark & Greenland	D	imp/exp	D	imp/exp	D	imp/exp	_
Ecuador	D	imp/exp	D	imp/exp	D	imp/exp	×
Finland					D	imp/exp	×
*Germany	T	imp/exp	T	imp/exp	T	imp/exp	_
*Japan	D	imp	D	imp			_
Malta					D	imp/exp	×
*Mexico					D	imp/exp	_#
New Zealand			D	imp/exp	D	imp/exp	×
Norway	D	imp/exp	D	imp/exp	D	imp/exp	×
Papua New Guinea	D	exp					×
Russian Federation					D	imp/exp	×
*Spain	D	imp/exp	D	imp/exp	D	imp/exp	_
*South Africa			D	imp/exp	D	imp/exp	×
Switzerland#	D	imp/exp	D	imp/exp	D	imp/exp	×
United Kingdom			D	imp/exp	D	imp/exp	×
United States of America	T	imp/exp	T	imp/exp	T/E-M	imp/exp	_
Zimbabwe	T	exp	T	exp	T	exp	_

* = important source countries of CITES-listed plants
D = diskette
T = magnetic tape
E-M = E-mail
= some data were entered manually

2.3 WCMC CITES Trade Database outputs

Data from the WCMC CITES Trade Database can be analyzed and presented in a variety of ways. Two commonly produced types of output are comparative tabulations and gross/net trade figures.

2.3.1 CITES Comparative Tabulations

The object of these tables produced from the WCMC CITES Trade Database is to compare trade reported as exports or re-exports by one country with the imports reported by others. They can be of several basic formats to show, for example, all exports/re-exports from a particular country, all imports to a country, all trade involving that country (including where it has been reported as a country of origin), or all trade in a particular species, item, or year.

It should be appreciated however, that there are many reasons why trade involving the same shipments may be reported differently by importer and exporter/re-exporter. These include: differences in the units reported, for exam-

ple, "roots" may be reported by number or by weight; the source of the items and the purpose of the transaction is frequently poorly reported; exports may take place at the end of one year and not be imported until the following year; some countries may report at species level while others only report at family level.

When annual reports are compared using Comparative Tabulations a common problem is that the number of specimens exported exceeds the number of imports reported. This is often due to the fact that a number of producing countries are reporting trade based on permits issued rather than on the permits used. Although Parties should specify whether their Annual Reports are based on true trade or permits issued, they often do not do so.

It should be noted that annual reports from CITES Parties should normally be presented within ten months of the end of the year in which the trade took place (31st October). Currently more than half the Parties fail to make this deadline and thus the last year for which the tables contain a

comprehensive coverage of annual reports is probably two years prior to their date of production.

2.3.2 CITES Gross/Net tables

Gross trade can be defined as the total number of items reported to be in trade. However, this may be an overestimate of the actual number of items involved; e.g. if 1000 items are exported from one country to another and are then re-exported from that second country to a third, the gross trade reported will be 2000 items.

WCMC's gross/net trade output programme is used to derive both the gross figures, as shown above, and also to derive an estimate of the actual number of any defined commodity in trade, the **net trade**. Careful manipulation of the raw data and subsequent use of the programme makes the production of outputs very flexible. They can be customized to show, for example, trade by each species individually, trade summed by genus or even trade summed simply as all flora. In addition, specific countries or geographic regions, e.g. Africa, European Union, etc. may be selected.

The programme initially looks at trade between countries and calculates the total number of items imported or exported. Each trade record is treated both as an export and an import and in the case where one of the trading partners reports more than the other, or perhaps one Party fails to report (e.g. in the case of non-Party States), the higher figure is chosen to prevent underestimation of the trade. The programme then subtracts each countries gross imports from their gross exports to calculate the net trade. Total gross exports will be the same figure as total gross imports and similarly, total net exports will be the same as total net imports.

3. Overview of Data Collection and Reporting

Phase I of the project highlighted and quantified a range of problems associated with the reporting of the CITES plant trade. For the period 1990-1992, the average reported net export of live CITES plants was over 50 million specimens.

Seven CITES Parties, Brazil, China, Canada, Denmark, Dominican Republic, France and Thailand, and three non-Parties Taiwan, Province of China, Turkey and Korea all having net exports of over one million plants in any one year during this period. The task of accurately reporting all CITES plant transactions either at a national or international level is clearly daunting. Nevertheless Parties are making efforts to report the plant trade and the accumulated data are of considerable value in highlighting trends and identifying problem areas where conservation attention should be focused. Major problems which need to be addressed to improve reporting can be summarized as follows.

3.1 Lack of reporting on the plant trade

Several Parties to CITES have never submitted an annual report. These countries are Afghanistan, Guinea-Bissau and St. Vincent and the Grenadines. Other countries have not yet included information on the plant trade in their CITES annual reports; these are Namibia and Uganda. Others have done so rarely, Malawi, for example, reported plant exports at family level in 1987 and as "plants" in 1989.

Eritrea indicated in its questionnaire response that it is not yet in a position to control the plant trade under CITES, and the Republic of Guinea, Sierra Leone and Benin have indicated that they currently have no involvement in the CITES plant trade.

3.2 Lack of reporting of exports or imports in a particular year

Table 3 below indicates the number of Parties which have reported plant imports or exports in a given year together with the number of additional Parties involved in imports or exports according to annual reports other than their own. This information is derived from comparative tabulations. It should be noted that where export records, as reported in an annual report, are based on permits issued (which is frequently the case) rather than permits used it is not possible from the trade data to determine whether the corresponding imports actually took place.

Table 3. Number of Parties involved in the trade of CITES-listed Plants 1990-1992

Year	Number of Parties to CITES	No. of Parties reporting exports	No. of Additional Parties reported to be exporting	Total	No. of Parties reporting imports	No. of Additional Parties reported to be importing	Total
CITES-listed Plant Export Trade				CITES-listed Plant Import Trade			
1990	107	50	13	63	32	46	78
1991	111	45	22	67	30	66	96
1992	115	51	26	77	34	55	89

3.3 Major discrepancies in the quantities of plants imported or exported

In comparing reported exports and imports of plants from the comparative tabulations, many discrepancies in reported trade quantities have been highlighted. A few examples of specific reporting discrepancies between two Parties are given below, selected because these transactions involved particularly large numbers or were wild specimens.

Austria and Germany: Austria reports on permits issued and Germany bases their annual report on permits used. Each year from 1990-1993, Austria issued permits for the import of a far greater number of specimens than Germany reported as actual exports. The Austrian Management Authority has confirmed that actual import figures for the reported plant transactions are not available.

In 1991, Austria reported importing two Appendix I plants and 791,034 live Appendix II plants from Germany. Austria's

report included considerable numbers of live Appendix II plants to family or generic level (642,990) including: 91,473 Cactaceae spp., 175,000 *Euphorbia* spp., 60,042 Orchidaceae spp., 130,000 *Cyclamen* spp., 21,000 *Aloe* spp. and 61,000 *Ceropegia* spp. Ninety percent of shipments in Appendix II plants were stated to be artificially propagated. Germany did not report exporting any Appendix I or Appendix II plants to Austria in 1991.

In 1992, Germany reported exporting 54 live Appendix II plants, this is again less than the quantities reported by Austria. All of the plants were declared as coming from artificially propagated sources.

In 1993, Austria reported importing 100,000 live wild plants from Germany. Two shipments were involved, both shipments were reported to generic level and they featured one shipment of 60,000 *Galanthus* spp. and one shipment of 40,000 *Cyclamen* spp. Both shipments were re-exports from

Turkey. The only exports reported by Germany to Austria in this year were 1,647 live Appendix II artificially propagated plants, the majority of which were reported to species level.

The Austrian 1994 CITES import annual report contains records of 10,134,086 artificially propagated "plants" with no indication of species, genus or family. These were derived from a mixture of phytosanitary permits and CITES import permits, but mostly the former.

United States of America and the Dominican Republic: In 1990, the United States of America reported importing 3,203,375 live Appendix II plants from the Dominican Republic who reported exporting 575,600 to the United States of America, giving a discrepancy of 2,627,775 plants. There was no indication as to whether these were wild or artificially propagated. The species included *Cereus hildmannianus*, *Opuntia leucotricha*, *Cycas revoluta*, *Euphorbia lactea* and *Aloe vera*.

The Dominican Republic did not report exporting any plants in 1991. The United States of America, recorded importing 4,007,113 live Appendix II plants from the Dominican Republic, with similar species to those above. The source of these plants was again recorded as source unknown. In 1992, there are similar large differences in the numbers of plant species reported by these two Parties. The United States of America reported importing 1,498,556 more live Appendix II plants than were reported as exported by the Dominican Republic.

As indicated in the Dominican Republic's response to the questionnaire, and as discussed at the Sixth Meeting of the CITES Plants Committee, the situation has much improved since 1992 for the reporting of CITES-listed plants, and care is being taken to report the source of all the plants exported from the country. All plants were reported as artificially propagated in the Dominican Republic's Annual report for 1994.

Mexico: Mexico became a Party to CITES on 30/09/91. The only plants reported as exports from Mexico in 1991 were 1582 orchids destined for Japan. Importing countries reported imports of 146,117 live Appendix II plants from Mexico in 1991. The main importer was the United States of America, which reported 139,581 plants, together with an additional 135 items and four shipments described as 'timber' (including three of *Carnegiea gigantea*) and 500 specimens reported as 'roots'. Plant imports to the United States of America from Mexico in 1991 were 254 specimens reported as wild plants (31 orchids, 212 cacti, 11 *Vanilla planifolia*), approximately 50,000 were described as originating from an unknown source and the remainder were artificially propagated. The vast majority of artificially propagated plants were *Aloe vera* (c. 83,000). In total, United States Customs Officials seized 2048 Mexican plants. Mexico did not report any plant exports to the United States of America in this year, but this may be because trade took place prior to the period covered by the Mexican 1991 annual report (October-December, 1991).

France and Sweden: Fifteen countries are indicated from annual reports to have imported plants from France. France, however, only recorded exports to six of those countries.

All of Sweden's CITES-listed plant imports from France, the majority of which are *Galanthus* spp., are reported to genus level. In total, Sweden recorded importing 2,888,905 artificially propagated *Galanthus* spp. from France between 1990 and 1993. In this same period the only reported French exports of plants to Sweden were 602 Cactaceae spp. and two *Cattleya* spp. It would be useful to clarify whether the *Galanthus* are, in fact, artificially propagated.

Brazil and the Netherlands: The majority of CITES-listed plants exported from Brazil to the Netherlands are artificially propagated cacti and orchids. There is little correlation in

the quantities of artificially propagated plants reported by these two trading partners. Brazil's annual report is compiled from permits issued and is directly transferred to the WCMC *CITES Trade Database*, the Netherlands report is produced from used permits which are input into the database by hand, thus records of Appendix II artificially propagated plants will not be entered. The Netherlands 1993 (import data) and 1994 plant data are not available at the time of writing for further comparison. There is little wild plant trade reported by Brazil to the Netherlands.

In 1991 and 1992, Brazil reported 50 'timber' and 8166 *Dicksonia sellowiana* carvings, respectively. These were not reported by the Netherlands.

In 1991, Brazil reported issuing permits for the export of 4810 Appendix I plants but the Netherlands reported importing none. The species concerned were 180 *Astrophytum asterias*, 4480 *Mammillaria plumosa*, and 150 *Uebelmannia pectinifera* (an indigenous Brazilian species). These were all reported to be artificially propagated.

In 1992, the last year for which a comparison can be made owing to the unavailability of the Netherlands 1993 and 1994 plant data at the time of writing, Brazil reported issuing permits for the export of 3675 Appendix I artificially propagated plants and again none were reported by the Netherlands. The species concerned were 1000 *Astrophytum asterias*, 2330 *Mammillaria plumosa*, 320 *Uebelmannia pectinifera*, and 25 *Cattleya skinneri*.

3.4 Trade with non-Parties

During the period 1990-1992, Turkey, then a non-party to CITES, was the main exporter of CITES plants as reported in the CITES annual reports. It is also the major source country for wild plants, principally *Cyclamen*, *Galanthus* and *Sternbergia*. Taiwan, Province of China is another major non-party trader in CITES wild plants, principally exporting wild tree fern material and artificially propagated orchids. The plants exported from Korea (DPR) are principally cacti and orchids generally reported to be artificially propagated or source unknown.

Eleven questionnaire respondents stated that they attempt to identify the plant species imported when these are not specified on the export documentation of non-parties and a further seven reported that they sometimes do depending on circumstances. The United States of America pointed out that in most cases plants can only be identified to family or genus level when imported from non-parties.

3.5 Unspecified countries of origin

Between 1990 and 1992, gross exports and gross imports from unspecified countries totalled 1,900,328 and 190,542 respectively. Of most concern is the 915,490 live plants recorded as originating from an unspecified area in Europe as reported by Austria.

The vast majority of plants traded from unspecified countries of origin or export from 1990-1992 were artificially propagated *Pachypodium* spp., Cactaceae spp., Cycadaceae spp., and *Euphorbia* spp. In 1991, the following additional families, genera or species were noted: *Araucaria araucana*, *Ceropegia* spp., *Aloe* spp., Orchidaceae spp., *Areca ipot*, *Cyclamen* spp and *Camellia chrysantha*.

3.6 Reporting at family level

During the period 1990-1992, 29 Parties reported trade in Cactaceae to family level (22 importers/17 exporters). Eight countries, Austria, Australia, Canada, Japan, Netherlands, Sweden, Switzerland and the United States of America, reported importing over 50,000 Cactaceae spp. in this period and six countries, Belgium, Canada, Denmark, Japan, the Netherlands and Spain reported exporting over 100,000 Cactaceae spp.

Forty three Parties reported trade in Orchidaceae to family level (25 importers/30 exporters) during the period 1990-1992. Two countries, Austria and Japan, reported importing over 100,000 Orchidaceae spp. and two countries, China and Japan, reported exporting over 100,000.

Most of the orchids and cacti reported at family level were artificially propagated, however Japan, one of the main exporters of Cactaceae and Orchidaceae in 1990, did not report the source of these plants. There are reported instances of trade in wild plants recorded at family level, for example, wild orchids exported mainly from Belize, Madagascar and Thailand.

3.7 Inadequate reporting of trade in wild and artificially propagated plants

The bulk of the trade in CITES plants is in artificially propagated specimens but this is not generally fully reported. The extent to which Parties report on the source of the plants, in other words whether the plants are of wild or artificially propagated origin varies considerably. Of the questionnaire responses, 22 said they gave the source of plants in all cases, although four qualified this by saying that for plant imports they only record whether the plants are wild or artificially propagated when this information is given on the accompanying export documentation. Export of artificially propagated CITES plants is frequently reported at family level for certain groups, notably Cactaceae exported from European countries. Information of this nature is of very limited value in tracking world trade in CITES plants. Other countries have noted the practical problems in reporting orchid exports to species level because of the sheer numbers of species involved.

3.8 Differential use of terms

Standard units and descriptions of specimens are given in CITES Notification to the Parties No. 788. Nearly all the respondents to the questionnaire specified that they follow these. A notable exception was Thailand, who nevertheless said that they would have no problem in doing so. Three countries were not familiar with the Notification. A wide variety of terms are used to describe the plant specimens traded and different units of measurement are frequently applied. This is a problem, for example, with the timber trade as discussed in Section 4.4.3.

4. **Overview of Trade in Wild Plants**

In Phase II of the project the reported trade in wild plants was summarized and reviewed by taxonomic or product group. By volume, the main CITES plants and products

traded from the wild are timber of the species listed on Appendix II and tree fern products, derived from the families Cyatheaceae and Dicksoniaceae. Timber is predominantly sourced from natural forests with very little of the current timber produced on plantations, although not all the timber is reported as source "wild" in the CITES reported trade data (sometimes the source code is left empty). An analysis of the reported timber trade was prepared for consideration by the CITES Timber Working Group and the results are presented in section 4.4. The CITES reported trade in tree fern material was reviewed in the report *International trade in tree ferns – an evaluation of the application of CITES* prepared by WCMC (Oldfield, 1995) and discussed at the Sixth and Seventh Meetings of the Plants Committee. The trade in tree fern material is, therefore, not discussed further in this current report.

The remaining groups of CITES plants which are wild sourced are orchids, cacti, other succulents, cycads, insectivorous plants and bulbs all traded primarily for the specialist horticultural market, and the products of certain other species traded for medicinal purposes. The trade in wild orchids and cacti during the period 1990-1994, as recorded in the CITES trade data, is summarized in sections 4.2 and 4.3 and wild orchid exports are discussed further in the country summaries in Section 5. Certain aspects of the trade in wild succulents, bulbs, insectivorous plants and medicinal plant products are also discussed in the country summaries.

All the countries which are reported to have exported wild CITES plants during the period 1990-1994 have been determined from the WCMC *CITES Trade Database*. The major exporting countries and the main plant groups exported by them are summarized in Table 8. Reporting discrepancies between trading partners where one of the partners is a major exporter of wild plants as shown in Table 14 are summarized in Section 5.

4.1 Availability of data on CITES trade in wild plants

As explained in Section 2.2, only partial information is recorded in the WCMC *CITES Trade Database* for artificially propagated plants. The number of plant records with different source codes recorded in the WCMC *CITES Trade Database* for the period 1990-1994 is shown in Table 4. It is interesting to note that even though not all artificially propagated plant transactions are recorded in the Database nevertheless only a small proportion of CITES recorded trade is reported to be in wild plants. However, in many cases no source code is given or the source is recorded as Unknown. It is thus difficult to ascertain the total amount of wild CITES-listed plants in trade.

Table 4. Reported source of all plant records contained in the WCMC *CITES Trade Database* 1990-1994

Description of source (code)	Number of records	% of total plant records
Specimens taken from the wild (W)	31,413	10.0
Artificially propagated (A)*	229,247	73.0
Appendix I artificially propagated (D)	104	–
Source unknown (U)	4,170	1.3
Source not given	45,840	14.6
Pre-convention specimens (O)	413	
Confiscated or seized specimens (I)	1,976	0.6
Total number of records	313,163	

4.2 Trade in wild orchids

As can be seen in Table 5, over 500,000 live wild orchids were reported to be in trade each year from 1991 to 1994.

The principal country of export for wild orchids is Thailand and more discussion of the Thai orchid trade is given in

Section 5.7. The proportion of the orchid trade reported at family level is relatively small.

Table 5. Total net export of live wild orchids 1990-1994

Year	Total quantity	Total quantity reported at family level	Percent reported at family level
1990	243505	13204	5.4
1991	514526	23857	4.6
1992	552496	15773	2.9
1993	556794	39631	7.1
1994	555861	23457	4.2

During the period 1990-1994, over 1400 orchid species are reported to be in trade as wild species. The most heavily traded of these are listed in Table 6.

Table 6. Wild orchids reported to be traded at an average of over 3000 per year

	Average 1990-1994
<i>Habenaria rhodocheila</i>	48834
<i>Dendrobium chrysotoxum</i>	18915
<i>Dendrobium aggregatum</i>	18678
<i>Ascocentrum miniatum</i>	16565
<i>Dendrobium thyrsiflorum</i>	14608
<i>Pecteilis sagarikii</i>	14092
<i>Ascocentrum ampullaceum</i>	13947
<i>Calanthe rosea</i>	12840
<i>Dendrobium farmeri</i>	9593
<i>Cymbidium ensifolium</i>	7559
<i>Habenaria carnea</i>	5852
<i>Dendrobium parishii</i>	5801
<i>Schoenorchis fragrans</i>	5619
<i>Dendrobium scabrilingue</i>	5537
<i>Cymbidium sinense</i>	5095
<i>Dendrobium secundum</i>	4410
<i>Rhynchosstylis gigantea</i>	4371
<i>Rhynchosstylis coelestis</i>	4167
<i>Dendrobium unicum</i>	3879
<i>Cymbidium kanran</i>	3802
<i>Dendrobium oligophyllum</i>	3097
<i>Rhynchosstylis retusa</i>	3076

The source country for the majority of the orchids listed in Table 6 is reported as Thailand. The conservation status of the species in the wild is generally unknown (see Section 5.7). *Cymbidium sinense* and *C. kanran* are mainly exported by China. Again their conservation status in the wild is unknown (see Section 5).

4.3 Trade in wild cacti

The number of wild cacti reported to be in international trade for each year 1990-1994 is given in Table 7. The percentage of wild cacti reported in trade at family level appears to fluctuate, but with an average of 45 percent, this does indicate some cause for concern. In 1994, the recorded trade in wild cacti reported as live plants at family level includes 12523 specimens exported from Chile to France and reported by the importing country, and 10000 specimens exported from the United States of America to Japan, again reported by the importing country. Given the high levels of trade in rainsticks recently exported from Chile (see for example, Sandison, 1995) it is possible that the French import figures mentioned above are a reporting error.

In 1992, the United States of America reported importing eight shipments of wild cacti specimens from Mexico. The species reported in this way were *Ferocactus cylindraceus*, *Myrtillocactus cochal*, *Opuntia* spp., *Pachycereus pringlei*, *Pachycereus schottii*, *Stenocereus alamosensis*, *Stenocereus gummosus*, and *Stenocereus thurberi*. All were reported to be for scientific purposes. Clearly "shipment" is not a useful term in the compilation of trade statistics, as it gives no indication of the number of specimens or volume of plant material involved.

Table 7. Total net exports of wild cacti 1990-1994

Year	Total	Total reported at family level	Percent reported at family level
1990	3	2	66.7
1991	1700	553	32.5
1992	2147	1732	80.7
1993	6997	152	2.2
1994	24402	10820	44.3

In total, 128 species of Cactaceae are recorded in trade as live wild plants during the period 1990-1994. Reviewing the conservation status information for these species indicates that the level of trade may be a possible cause for concern for various species of *Neoparteria* and *Copiapoia*. In general, however, the actual numbers recorded as wild plants in trade of named cacti species is low.

Another issue of concern is the reporting of trade in cacti where the source code is not given or the source is given as Unknown. The trade in significant quantities of Mexican cacti species recorded in the United States of America annual reports is recorded in this way. Some of the figures relate to species which are threatened in the wild. In 1991, for example, 1835 live plants of *Ariocarpus kotschoubeyanus* were reported to be imported from Mexico together with 1213 live plants of *Astrophytum*

myriostigma (Conservation status: Vulnerable) and 1992 specimens of *Ferocactus pilosus* (Conservation status: Vulnerable).

4.4 Trade in timber

4.4.1 Trade in timber of *Pericopsis elata*

The most heavily traded CITES timber species as recorded in the CITES trade data is Afrormosia *Pericopsis elata*. This species was included in Appendix II of CITES following a decision by the Eighth Meeting of the Conference of the

Parties in 1992. A summary of the reported trade in the species by country of export is given in Table 8.

As can be seen in Table 8, three of the four main source countries for *Pericopsis elata* base their annual reports on permits issued, with the fourth country, Ghana, failing to specify how its annual report is compiled. Since only a few of the importing countries report their imports on permits used it is not possible to determine the actual level of CITES trade in this species.

Table 8. CITES reported exports of *Pericopsis elata* 1992-1994 (unless otherwise stated the trade was reported as "timber")

Country of origin	Annual reports not available 1992-1994	Basis of recent Annual report compilation	1992	1993	1994
Cameroon	all timber permits made available	permits issued	4467m ³ 5 pieces	2856m ³ ; 50kg; 143m; 29 live	21338m ³ (2525 = sawn wood)
Congo	1992, no plant data; 1994	permits issued		2464m ³	82872m ³
Ghana	1992, no plant data	report does not state	29m ³	4732m ³ ; 5895m ² ; 22998 pieces	83862m ³ ; 7963m ²
Nigeria	1994	report does not state			32m ³
Zaire	1992	permits issued		20513m ³ , 10529m ³ , 130m	118534m ³
Re-exporting countries					
Belgium	all available	permits issued	80m ³		21648m ³
Germany	1994	permits used	97m ²		
United Kingdom	all available	permits used		12730kg	15kg
Switzerland	all available	permits used and issued	15000kg		

The only countries to report exports of *Pericopsis elata* in 1992 were Cameroon which reported exports to Belgium, Denmark, France, Italy, Japan, Malaysia, Switzerland and the United Kingdom; Belgium which reported the re-export of relatively small quantities of sawn wood of this species, and Germany which again recorded the re-export of small quantities.

The only countries to report imports were Belgium (29m³ from Ghana, subsequently re-exported to Switzerland), France which reported importing five items from Cameroon, and Germany, which reported importing 15000kg timber pieces from Switzerland (origin Côte d'Ivoire). Côte d'Ivoire became a Party to CITES in 1995.

In 1993, Cameroon, Congo, Ghana and Zaire all reported exports. The United Kingdom reported re-exports of timber from Congo and Zaire to itself (presumably to dependent territories). The only countries to report imports in this year were Italy, France and the United Kingdom. France and the United Kingdom reported importing very small amounts. Italy, appears to have imported significant quantities: 8004m³, 350m (timber pieces), 1849m, 130m (timber) and 537 "individual carvings". There are, however, difficulties in interpretation of the Italian import data. The most recent list of codes used in the Italian annual reports, received by WCMC, was created in 1993. The Italian 1993 Annual Report includes the unit 'MC'; although the list of codes does not include this, we have assumed it represents cubic metres.

Countries to which exports were recorded in 1993 but imports were not are: Belgium, Denmark, Germany, Ireland, Japan, South Africa, Switzerland and the United States of America. In total this amounts to the following: 4690m³ of

timber (3955m³ from Zaire, 648m³ from Congo, 87m³ from Ghana), 5858m³ of sawn wood (from Zaire), and 5070 pieces of timber (from Ghana).

Data on exports of *Pericopsis elata* in 1994 have been received by the CITES Secretariat for Cameroon, Congo, Ghana and Zaire and have been added to the WCMC *CITES Trade Database* either directly from permits or from annual reports. The countries of import for *Pericopsis elata* in 1994, based mainly on the export documentation are: Belgium, Cyprus, France, Germany, Greece, Italy, Japan, Korea, Morocco, Portugal, South Africa, Spain, Switzerland, Taiwan, Province of China, Tunisia, the United Arab Emirates and the United Kingdom. Belgium, Japan, Italy, France and the United Kingdom reported some imports of *Pericopsis elata* in 1994. The following Parties, whose annual reports were available for comparison did not: the Republic of Korea, South Africa, Switzerland, Spain, Portugal and Morocco. The German 1994 data was not available at the time of writing and the Greek 1994 Annual Report did not include any plant data. There has been very little reported trade in *Pericopsis elata* from Nigeria. Nigeria reported exporting 32 m³ of timber to Italy in 1994. This was not reported by Italy.

Italy is reported by the origin countries to be the most significant importer of *Pericopsis elata* timber in 1994. Total recorded exports of timber and sawn wood to Italy in 1994 being 98838m³ and 7963m². All Ghana's reported exports for timber of this species in 1994 (83862m³ and 7963m²), were to Italy. Table 9 shows the Italian 1994 records of import for *Pericopsis elata*.

Table 9. Total imports of *Pericopsis elata* from Cameroon, Congo, Ghana and Zaire as reported by Italy in 1994

Item	Units	Volume
Timber	–	475.12
Pieces	metres	360
	–	607
Carvings	–	1851.87
	metres	769.96

4.4.2 Trade in timber of other species

Araucaria araucana

According to CITES statistics, Chile is the only country of export for the timber of *Araucaria araucana* exporting 7043m³ in 1990, mainly to Italy; 1873m³ in 1991 to Argentina, Belgium, Italy, United States of America and Uruguay; and 2347m³ in 1992 to Argentina, Spain and the United States of America. None of these imports are reported by the corresponding importing countries. The exports from Chile were in contravention to the Convention since the species is, for Chile, included in Appendix I. As well as trade in timber of this species, trade in live, artificially propagated plants and seed is reported in CITES annual reports. The live plants are mainly produced in European nurseries and exported from Denmark, Germany and the Netherlands.

Dalbergia nigra

Dalbergia nigra was included in Appendix I of CITES following a decision by the Eighth Meeting of the Conference of the Parties in 1992. Specific problems relating to the reporting of trade in worked products of *Dalbergia nigra*, and in particular the trade in musical instruments, were referred to the Standing Committee, following the listing of the species. Trade data currently recorded in the WCMC CITES Trade Database refer to the years 1992 and 1993. The products reported in trade are carvings, timber, timber pieces and veneer, with one shipment of 'live plants'. The various units of measurement given are kg, m³, cm³, m² and ft². The largest single transaction recorded is 710715m³ of timber imported to Japan from Brazil in 1992, as reported by Japan. At the CITES Timber Working Group meeting, the representative of Brazil pointed out that the figure should read 0.7 m³ and this was agreed by the representatives of Japan and ITTO. In 1993, no exports of *Dalbergia nigra* from Brazil, are recorded in the CITES statistics. Table 10 provides a summary of the CITES-reported trade in *Dalbergia nigra*.

Table 10. CITES-reported trade in *Dalbergia nigra* 1992-1993

Country of export	1992	1993
Brazil	710715m ³ *; 71cm ³	
Australia		6kg
Canada	9000m ²	
Denmark		1 (no unit of measurement)
France	1 carving; 19033m ²	

Country of export	1992	1993
Germany	27 (no unit of measurement); 1616m ²	26 carvings; 2543m ²
Japan	14336ft ² veneer	
Spain		6541 carvings
Switzerland	1 shipment (live plants)	1297m ³
United Kingdom	6kg	
United States of America	29 (no unit of measurement)	56 (no unit of measurement); 180m ²
* reporting error by Japan – see above		

Fitzroya cupressoides

This species is included in Appendix I of CITES but Chile entered a reservation in 1987 against this listing thus legally treating it as if included in Appendix II. Exports to CITES parties are recorded as pre-convention, that is from stocks acquired before 1 July 1975.

In 1990, Chile exported 41876m³ of *Fitzroya cupressoides* the majority to East Germany and the United Kingdom. In 1991, 3164m³ of the timber was exported together with 2667727 timber pieces. An additional 772422 items of timber were reported to be imported by Japan in the same year. In 1992, Chile reported exporting 3148m³ of *Fitzroya cupressoides*. Except for the trade reported by Japan in 1991, and relatively small imports reported by the United States of America, 85m³ (1991) and 168m³ (1992), the majority of the exports of *Fitzroya cupressoides* recorded by Chile were not reported by the corresponding importers. It is believed, from their 1994 CITES annual report that Chile bases its annual reports on permits issued, although this was not made clear.

Guaiacum officinale

This species was included in Appendix II of CITES following a decision by the Eighth Meeting of the Conference of the Parties in 1992. In 1992, the only trade reported to CITES, was the export of 11000kg of timber reported by Japan. In 1993, Japan reported exporting 15 tons of sawn wood and 120 timber pieces; Spain reported exporting 36 timber carvings from the Dominican Republic; the Dominican Republic reported exporting 113 timber pieces to the United States of America, and the United Kingdom reported importing 615kg from Mexico.

Guaiacum sanctum

In its returned questionnaire in Phase I of the study, Mexico highlighted Guayaacán, *Guaiacum sanctum* as an export item. Import of 5430 timber items of this species (no units of measurement given) from Mexico were reported by Japan in 1991. In 1992, the United States of America reported importing 7358kg of timber of the species. Exports are reported by Mexico for the years 1993, 1994 and 1995. The average quantity exported for these years is 222m³, with exports to Canada, Germany, Japan, Hong Kong, Korea, Singapore, and United States of America.

Pilgerodendron uviferum

The only recorded export of the Appendix I species, *Pilgerodendron uviferum*, during the period 1990-1994 (and in contravention to the Convention) is a single export of 20000 timber pieces to Argentina from Chile in 1992, as reported by Chile. The export of 80 fruits of the same species by Argentina to the United Kingdom is recorded in 1993.

Swietenia humilis

CITES reported trade for this species in the period 1990-1994 consists of two transactions reported by Guatemala; 72m³ exported to Guadeloupe and 41m³ exported to the United States of America.

Swietenia mahagoni

CITES reported trade in this species, added to Appendix II of the Convention following a decision by the Eighth Meeting of the Conference of the Parties in 1992, consists of the export of 72 carvings from the Dominican Republic to Spain as reported by Spain; 41 live plants and 32 timber pieces exported from the Dominican Republic to the United States of America as reported by the Dominican Republic.

4.4.3 Problems in reporting the CITES timber trade

Although reporting of the CITES plant trade is generally poor, it would seem that for the commercial timber species listed prior to the Ninth Conference of the Parties to the Convention, information reported to the CITES Secretariat provides a useful indication of the size and direction of the trade. There are reporting problems, however, as revealed both by the data summarized in this document and by correspondence with Management Authorities. Reporting problems may partially result from the routing of timber trade flows from point of origin to consumption as discussed at the CITES Timber Working Group meeting with particular reference to *Pericopsis elata*. Specific problems are summarized below.

- i) Lack of reporting: As can be seen from the data presented for *Araucaria araucana*, *Fitzroya cupressoides* and *Pericopsis elata*, the trade in these species has been reported much more comprehensively by countries of export as compared with countries of import. There are also instances where the exporting country appears not to have reported significant transactions.
- ii) Differential use of terms and units of measurement: Notification to the Parties No. 788 concerning annual reports, recommends the use of the description of specimens and units of quantity shown in Table 11 for reporting trade in timber species.

Table 11. Recommended description of specimens and units of quantity for timber trade reporting

Description	Code	Preferred units	Alternative units	Explanation
Saw-logs	SAL	no./m ³		substantially whole tree trunks
Sawn wood	SAW	m ³		tree trunks sawn into unworked planks, beams, blocks etc
Timber	TIM	m ³	kg	raw timber except saw-logs and sawn wood
Veneer	VEN	m ²	kg	veneers

As can be seen from the data presented in this document and as summarized in Table 12, the trade in timber is reported in a variety of ways. Frequently the specimens are reported as timber pieces ("TIM"- "PIE"), timber ("TIM"); with no indication of the size and volume, or in m³ of timber ("TIM"- "CUM"). Where there is lack of consistency in the use of terms or units of measurement between importing and exporting countries or where units of measurement are not given, this clearly weakens the value of reporting.

In the returned questionnaire received during Phase 1 of the study, the United States of America Management Authority referred to this problem, "In cases of United States of America imports of lumber of CITES-listed timber species, the lumber is recorded in a variety of different ways, with regard to unit and description, on the accompanying CITES export permits. We attempt wherever possible to record lumber in m³. However, we are sometimes forced to try to convert other units of measure used on the accompanying permits to m³. In some cases the lumber is recorded on the accompanying permits only as "pieces of lumber" (Lieberman, *in litt.* 1995).

Table 12. Terms and units of measurement used in reporting the timber trade from 1990-1994

Term	Unit	Description
CAR		carvings
TIC	-	timber carvings
TIM	-	timber
TIM	BAG	bags of timber
TIM	CAR	timber carvings
TIM	CCM	cm ³ of timber
TIM	CUM	m ³ of timber
TIM	kg	kgs of timber
TIM	PIE	timber pieces
TIM	SHP	shipments of timber
TIM	SQM	m ² of timber
TIP	-	timber pieces
TIP	SQM	m ² of timber pieces
VEN	SQF	ft ² of veneer
VEN	SQM	m ² of veneer
WOO	CUM	m ³ of wood products

The differential terms and measurements used for reporting the timber trade have been discussed by the TWG and recommendations put forward for standardization.

- iii) Other reporting problems for timber: Other specific problems mentioned by Management Authorities in the questionnaires returned in Phase 1 of the study include lack of expertise in identifying the diverse range of CITES listed timber products, particularly by sight; the lack of scientific names on paperwork accompanying shipments; difficulties in the reporting of trade in small worked timber products; documents are not always valid since the shipment may be sold to a different destination between the origin and arrival of the load; the control of timber is done by other people than those controlling the "traditional" CITES plants and difficulties of retrieving documentation from other agencies. Not all of the Parties returning the questionnaire stated that their enforcement agencies were aware of the CITES timber listings (Algeria, Brazil, Brunei, Madagascar) and one Party requested a specific list of timber species included in the appendices of the Convention.

5. Analysis of Wild Plant Trade by Country of Export

A total of 55 countries are recorded as export countries for wild CITES plants during the period 1990-1994 as indicated by the CITES reported trade data. Table 13 lists the more significant source countries for wild plants for this period and the main species traded in each case.

Table 13. Source countries for CITES wild plants in trade 1990-1994 and the main species reported

Exporter	Main plant exports as recorded in CITES annual reports
Australia	Tree ferns including leaves of <i>Culcita dubia</i>
Belgium	Timber of <i>Pericopsis elata</i> (re-exports)
Brazil	<i>Dicksonia sellowiana</i>
Belize	Orchids
Cameroon	Timber of <i>Pericopsis elata</i>
Chile	Cacti (including rainsticks), timber of <i>Fitzroya cupressoides</i> & <i>Pilgerodendron uviferum</i>
China	Orchids
Congo	Timber of <i>Pericopsis elata</i>
Ecuador	Orchids
Ghana	Timber of <i>Pericopsis elata</i>
Hungary	<i>Galanthus nivalis</i>
Indonesia	tree ferns
Japan	Orchids, <i>Cycas</i>
Madagascar	Orchids and succulents
Mexico	Cacti
Malaysia	<i>Cyathea</i>
Nicaragua	Orchids
Netherlands	Bulbs (re-exports)
Philippines	Orchids
Paraguay	Orchids and Cacti
Russian Federation	Bulbs (<i>Galanthus ikariae</i> in 1994 data)
South Africa	<i>Aloe ferox</i>
Suriname	Orchids
Thailand	Orchids
Turkey	Bulbs
Taiwan, Province of China	Tree ferns
United States of America	<i>Panax quinquefolius</i> roots, <i>Sarracenia</i>
Zaire	Timber of <i>Pericopsis elata</i>

Table 14 lists the major exporting countries except for those whose main wild plant exports are reported to be timber, tree ferns and, in the case of South Africa, *Aloe ferox* (discussed by Oldfield, 1993). Table 14 also shows the main importing countries for wild plants from each major country of export and indicates where there are significant trade data discrepancies and/or reporting problems. These are discussed in Sections 5.1-5.8.

Table 14. Principal trading partners of exporters of CITES-listed wild plants (excluding timber, tree ferns and *Aloe ferox*) 1990-1993 selected for analysis

Exporter	Main destination countries of wild plants & products
Belize*	United States of America*
China*	Hong Kong*, Japan*, Republic of Korea, Malaysia, Thailand, United States of America
Hungary	Netherlands
Madagascar*	France*, Germany*, Japan*, Netherlands, United States of America
Philippines	Germany, Japan, United States of America
Thailand	Canada*, China*, Germany*, Hong Kong*, Japan*, People's Dem. Rep. of Korea, Republic of Korea, Netherlands, Taiwan, Province of China, United States of America*
United States of America	Canada*, Hong Kong*, Japan, Malaysia, Netherlands*, Singapore*, Taiwan, Province of China, Thailand

* problems or discrepancies in reporting exist

5.1 Belize

During the period 1990-1994, importers of wild orchids exported by Belize were the United States of America, Japan, Germany and Puerto Rico, with the United States of America being the main trading partner. Table 15 gives the total number of wild orchids reported in trade between Belize and the United States of America for the years 1990-1994.

Table 15. Comparison of quantities of live wild orchids reported in trade between Belize and the United States of America

Year	Quantities 1	Quantities 2
1990	6349	4518
1991	12266 + 1000 to Puerto Rico	8659
1992	9968 + 5 to Puerto Rico	19125
1993	34577	no data
1994	23424	no data

Quantities 1 = Quantities for which permits were issued by Belize for export to the United States of America

Quantities 2 = Quantities for which import permits were used by the United States of America

As can be seen from this table, the United States of America reported importing 9152 more orchids than Belize issued permits for in 1992. It is possible that this was due to the permits having been issued in 1991 but the import not having taken place until 1992.

The reporting of trade between Belize and the United States of America is inconsistent for a variety of reasons; namely the United States of America reporting to species level, Belize reporting to family level, Belize's annual report being

compiled from permits issued and the United States of America on permits used. Also, there are discrepancies in the reported source of the plants. The United States of America 1990 report did not specify a source for the orchids imported from Belize, but their 1991 and 1992 annual reports did. In 1991, 33 plants, which were reported to family level (mainly orchids), were reported by the United States of America as having an "unknown source which must be justified". All of these plants were confiscated. In 1992 the number of species for which the source was again "unknown" increased to 89, representing 11227 individual live orchids. In this year, there were no confiscations.

The annual average quantity of wild orchids recorded in trade at a family level for the period 1990-1994 is 18,390. In addition there are small quantities of orchids recorded in trade at generic level for *Aerides*, *Bulbophyllum* and *Pleurothallis*. The most commonly imported orchids from Belize to the United States of America 1990-1994 are given in Table 16.

Table 16. The most commonly imported orchids from Belize to the United States of America 1990-1994

	1990	1991	1992	1993	1994
#Orchidaceae spp.	6349	12263	9968	34577	23424
<i>Brassavola nodosa</i> *	747	1056	1983		
<i>Brassia caudata</i> *	35	-	902		
<i>Encyclia alata</i> *	300	1207	1698		
<i>Encyclia boothiana</i>	27	101	268		
<i>Encyclia bractescens</i> *	180	796	1620		
<i>Encyclia radiata</i> *	100	120	913		
<i>Epidendrum stamfordianum</i> *	33	186	442		
<i>Galeandra batemanii</i>	25	66	378		
<i>Maxillaria tenuifolia</i> *	60	128	314		
<i>Notylia barkeri</i> *	121	100	294		
<i>Oncidium ascendens</i>	75	222	649		
<i>Oncidium carthagenense</i> *	215	376	816		
<i>Oncidium sphacelatum</i> *	326	1593	998		
<i>Rhyncholaelia glauca</i> *	140	378	844		
<p># These volumes were reported as exports by Belize. The United States of America reports the vast majority to species level, although for the years 1991 and 1992, they reported 330 and 32 plants as <i>Orchidaceae</i> spp. Neither the United States of America 1993 nor 1994 annual report plant import data had been received at the time of writing</p> <p>* Species reported as imports with an annual average of over 100</p>					

Conservation implications

For the species traded at an annual average of over 100 (see Table 16) information on the conservation status is currently recorded in the WCMC Plants Database for

Brassavola nodosa, *Epidendrum stamfordianum* and *Maxillaria tenuifolia* all of which are recorded as Not Threatened in Belize. According to Wilson, *in litt.* 1996, these relatively highly traded species are not currently under any apparent threat from international trade in Belize, with the exception of *Rhyncholaelia glauca*. There is however some concern about the possible export of rare species included under the general "live wild orchid" heading.

5.2 China

The majority of wild plants exported from China are species of Orchidaceae, traded as live plants or derivatives for medicinal use. Until 1992, Chinese CITES annual reports contained no details of the source of specimens in trade. The major importing countries of plants not recorded in annual reports to be of artificially propagated origin are, in order of magnitude: Hong Kong, Japan, the Republic of Korea, Malaysia, Singapore, Thailand and the United States of America. In general there is very little correlation in the reported orchid trade between China and the major destination countries. This is partly because China bases its annual reports on permits issued whereas Hong Kong, Malaysia, Thailand and the United States of America base their annual reports on permits used.

Live orchid trade

The trade in live *Cymbidium* between China and Japan shows poor correlation in terms of the recording of the source of the plants. In 1990, China did not report a source but Japan reported the imports as artificially propagated. In 1991, neither Party reported a source. In 1992, China reported the plants as artificially propagated but Japan did not report a source. In 1993, both Parties reported the source of the plants indicating that most of the recorded trade is in artificially propagated *Cymbidium*. There is very little reported trade in wild *Cymbidium* in 1993, 30 specimens in all.

In 1994, trade in wild *Cymbidium* involved 4000 *Cymbidium kanran*. These were reported by China who also reported exporting 900 artificially propagated plants. Japan reported importing 4900 artificially propagated plants of this species which matches the total number of plant specimens reported by China but leads to some confusion as to whether the 4000 plants were wild or artificially propagated.

Hong Kong did not report any imports of orchids from China in the years for which their annual report data was available (1990-1992) and yet China has reported having issued permits for the export of 10000 live wild *Cymbidium sinense* in 1991 plus hundreds of thousands of artificially propagated *Cymbidium* species over the years 1992-1994.

Medicinal plant trade

Chinese "medicinal plants" reported in the CITES annual report data as derivatives are *Dendrobium chrysanthum*, *D. nobile* and *Gastrodia elata*. Another species known for its medicinal use, *Bletilla striata*, was reported in trade as live plants. One species of tree fern *Cibotium barometz* is also traded as a medicinal derivative. The main destination countries for medicinal plants over the period 1990-1994 are Hong Kong and Japan, whilst the Republic of Korea became noticeable for *Cibotium barometz* in 1994. In 1994, China issued permits for the export of 31000kg of derivatives of wild *Cibotium barometz* to the Republic of Korea. The Republic of Korea reported the import of 16000kg of wild *C. barometz* and 23000kg of artificially propagated plants of this species.

From 1990 to 1994, although China has reported issuing permits for trade in medicinal plant derivatives to Hong Kong, the latter has not reported any of the trade as described in China's annual report, as shown Table 17.

Table 17. Permits issued by China for the export of *Dendrobium* products to Hong Kong 1990-1994

Year	Species	Term	Unit	Permits issued Volume
1990	<i>Dendrobium nobile</i>	derivatives	cartons	83
1991		derivatives	–	18000
		derivatives	cartons	67
		live	–	60000
1992		derivatives	–	18000
		derivatives	boxes	1000
		derivatives	cartons	74
1993		derivatives	cartons	42
1994		derivatives	cartons	25

Conservation implications

The national conservation status of *Cymbidium kanran*, *Cymbidium sinense* within China is currently recorded as Unknown in the WCMC Plants Database. Both species are relatively widespread and are not restricted to China. *Cymbidium kanran* and *Cymbidium sinense* were noted to be heavily traded in the first review of significant trade in CITES Appendix II species, which also noted that *C. sinense* has been cultivated in China for centuries (Oldfield, 1991). The conservation status of *Dendrobium nobile* is recorded as Unknown in the WCMC Plants Database both nationally for China and globally. The species is recorded to be threatened in Bhutan and India.

5.3 Hungary

Hungary reports its annual trade on permits issued, these are input into the WCMC *CITES Trade Database* by the staff of WCMC. For the years 1990-1993, the only wild plant trade reported by Hungary is for the export of bulbs to the Netherlands; 200000 *Galanthus nivalis* in 1992 and 120000 in 1993. The Netherlands also submits its annual report in the form of permits, but only permits which have been used. In 1992, the Netherlands sent WCMC used permits for 100000 *Galanthus nivalis*. The Netherlands 1993 plant permits are not available at the time of writing.

The export of wild bulbs from Hungary to the Netherlands was noted in the 1980s with species exported including *Cyclamen purpurascens*, *Galanthus* spp. (8000 bulbs in 1986/1987) and *Leucojum vernum* (Oldfield, 1989). During the period 1990-1994, the only plant exports recorded from Hungary in the CITES trade data have been for *Galanthus nivalis*. At present no information is available on the conservation status of this species in Hungary from the WCMC Plants Database.

5.4 Japan

During the period 1983-1989, Japan was the second largest exporter of CITES plants after the Netherlands. A significant proportion of the plant exports were reported at family level (for example 94% of live orchids) and a relatively low proportion of plants were recorded in trade as artificially propagated (Oldfield, 1991). In annual reports for 1990 and 1991, Japan did not record a source for their plant exports; these included a variety of cacti, orchids and cycads, mainly destined for the United States of America. Since 1992, Japan has included a source for all the plants exported, the vast majority of which are reported as artificially propagated. Japan's 1994 export data is compiled from permits issued and it indicates that all trade in Appendix II plants, in this year, were of artificially propagated origin. The Management Authority of Japan did not respond to the questionnaire circulated for Phase I of the review of CITES plant reporting.

The only plants reported to be wild for which Japan has reported issuing export permits for were 61 dried plants of *Cyathea* spp. to the Philippines in 1993. However, some importing countries have reported additional wild trade. In 1991 Spain reported importing 5000 wild *Cycas revoluta*, France reported importing 820 Orchidaceae spp. and Canada reported importing 3600 live *Bletia* spp. in 1992. It is possible that the plants reported by Canada were incorrectly identified, as this genus is confined to tropical America and the West Indies; *Bletilla striata*, on the other hand does occur in east Asia. Canada's plant import data is compiled on permits issued and foreign export permits forwarded by customs, although these are not always forwarded. There is no indication in France's annual reports as how their data tables are compiled but Spain's latest report is based on permits used.

It would appear from the CITES trade data that at present Japan is not a major exporter of wild CITES plants. Improvements in reporting since 1992 have helped to clarify the situation.

5.5 Madagascar

The main destination countries for orchids and succulents exported from Madagascar are Germany, Japan, the Netherlands, France, and the United States of America. Source codes were not recorded in the Madagascar reports until 1993; in this year all plant exports recorded in their annual report were reported to be wild. From 1990-1993, Madagascar reported no trade in artificially propagated plants to the above destination countries, however, a few thousand artificially propagated orchids species were reported by Germany in 1991.

Trade between Madagascar and Germany

Trade in orchids between Madagascar and Germany has declined since 1990, when Germany reported importing 17723 live plants and Madagascar reported issuing permits for 17007. In 1991, Germany reported importing 5907 and Madagascar reported exporting 4650 orchids. Of the 5907 reported by Germany, 3775 were recorded as artificially propagated, the main genera being *Aerangis*, *Aeranthes*, *Angraecum*, *Jumellea* and *Neobathiea* and 2132 plants of the same genera had no recorded source. Thus, Germany reported importing an additional 1257 orchids in this year and an additional 716 in 1990. On checking the German data as far back as 1988, it appears that Germany has not reported any plants imported as being wild. Where plants are wild, the source code has been omitted. It should be noted that Madagascar has very limited facilities for the artificial propagation of orchids.

The German Management Authority has stated that the source was left blank in all cases if the plants were not arti-

ficially propagated because of old computer hardware and software, which has been used up to 31/12/95. The new computer system will implement all requirements of Resolution Conf. 9.4 in the future, from the 1996 annual report onwards (Stertz, *in litt.* 1996).

In 1992, Madagascar reported issuing permits for only 74 orchids to Germany. These were not reported by Germany.

The orchid trade is practically non-existent in 1993 and the few specimens reported by Madagascar were not recorded by Germany.

The succulents exported to Germany from Madagascar during the period 1990-1994 have mainly been *Euphorbia* spp. Table 18 shows details of the *Euphorbia* trade over a longer period to show trends in trade reporting.

Table 18. Summary of trade in *Euphorbia* from Madagascar to Germany 1987-1993

Year	Imports reported by Germany/ Permits used	Exports reported by Madagascar/ Permits issued	The volume reported by MG in comparison with the DE figures	
			Over	Under
1987	Total specimens 20088	Total specimens 20067		- 21
Main species <i>E. alluaudii</i> and <i>E. enterophora</i>	0 0	10000 10000		
Reported as <i>Euphorbia</i> spp.	20088	0		
1988	Total specimens 32590	Total specimens 29227		- 3363
Main species <i>E. cap-saintemariensis</i> <i>E. tulearensis</i> <i>E. milii</i> <i>E. primlifolia</i>	18000 0 6000 4000	0 18000 6000 4000	Note: the same quantity (18000) was reported for different species	
Reported as <i>Euphorbia</i> spp.	30	530		
1989	Total specimens 7886	Total specimens 7703		- 183
Main species <i>E. decaryi</i> <i>E. guillauminiana</i> <i>E. viguieri</i>	2500 1040 1257	2500 980 773		
Reported as <i>Euphorbia</i> spp.	0	311		
1990	Total specimens 10829	Total specimens 12105	+ 1276	
Main species <i>E. lophogona</i>	10000	10000		
Reported as <i>Euphorbia</i> spp.	30	141		
1991	Total specimens 34091	Total specimens 33630		- 461
Main species <i>E. lophogona</i>	30000	30000		
Reported as <i>Euphorbia</i> spp.	378	255		
1992	Total specimens 1082	Total specimens 128145	+ 127063	
Main species <i>E. lophogona</i>	30	102002*		
Reported as <i>Euphorbia</i> spp.	490	13497		
1993	Total specimens 51938	Total specimens 62540	+ 10602	
Main species <i>E. lophogona</i>	49800	26000		
Reported as <i>Euphorbia</i> spp.	1080	27067		
Total 1987-93	158504	293417	+ 138941 (1990-1993)	- 4028 (1987-1989)

* 62000 of these were described as cuttings in Madagascar's Annual Report

As can be seen in Table 18, there are three notable changes in reporting since 1990. Firstly, there has been an increase in the number of specimens being reported as *Euphorbia* spp., approximately 27000 being reported this way by Madagascar in 1993; compared to 141 in 1990. Secondly, the correlation in the quantities of *Euphorbia* reported as exports and imports, which had been fairly good from 1987-1991, suddenly shows no correlation as of 1992 and 1993. Thirdly, for most years from 1987-1991 (except

for 1990) Germany reported importing greater numbers of *Euphorbia* than Madagascar reported exporting. In more recent years, 1992 and 1993, the reverse is true, with Madagascar issuing permits for 137665 more *Euphorbia* than were imported by Germany.

In summary, recent reports submitted by Germany and Madagascar showed diminished correlation in terms of the volume of succulents reported, and an increase in the number of plants not being identified to species level.

Trade between Madagascar and France

The main orchid species exported to France are of the genera *Aerangis* and *Angraecum*. France has reported all the orchids imported from Madagascar to family level. The quantities of orchids reported by Madagascar and France do not correlate over this period. In 1990, Madagascar reported exporting 862 orchids to France whereas France reported importing 444. The following year, Madagascar reported exporting 669, and France reported importing 636. In 1992, Madagascar reported exporting 2954 and France reported importing 943 in the same year. In 1993, Madagascan orchid exports to France were reported as 1022 and corresponding imports were reported as 117. In 1990, Madagascar only reported four specimens to family level, this has increased to 225 specimens in 1993. France

has been reporting the source of these plants as wild since 1991, two years prior to Madagascar reporting them as wild.

Madagascan exports of succulents to France have declined over the period 1990-1993. Euphorbias and Pachypodiums are the main succulents exported. As can be seen in Table 19, Madagascar, over this period has consistently reported issuing permits for greater quantities of succulents than France has reported. In 1990, of the total 807 succulent plants for which permits were issued for export to France, Madagascar described 219 specimens at genus level (120 *Ceropegia* spp., 80 *Didierea* spp. and 19 *Pachypodium* spp.). The 83 plants reported as imports by France in 1990 were all Didiereaceae spp. Madagascar, in their 1991-1993 annual reports, reported a decreased number of specimens to genus level, 79 specimens compared with 219 in 1990, a significant improvement.

Table 19. Summary of total trade in live Succulents from Madagascar to France 1990-1993

Year	Imports reported by France/ Permits used or issued is unknown	Exports reported by Madagascar/Permits issued	The volume reported by MG in comparison with the FR figures
1990	83	807	+ 724
1991	0	283	+ 283
1992	86	224	+ 138
1993	0	179	+ 179
Total: 1990-93	169	1493	+ 1324

Trade between Madagascar and Japan

The majority of plants imported by Japan from Madagascar are orchids. In 1990, Japan issued permits to import 510 live artificially propagated orchids which were not reported by Madagascar. From 1991 onwards, Japan recorded all orchids imported from Madagascar to be wild.

As can be seen from Table 20, over the period 1990-1993, the quantity of orchids for which Madagascan permits were issued for export to Japan increased from 2468 in 1990 to

7173 in 1993. In 1990 and 1991 Japan issued permits for a greater number of imports than Madagascar issued export permits for. After 1991 the opposite is true. Coupled with the increase in volume, the number of orchids reported to genus level has also increased. In 1992, Japan reported 1370 more plants than Madagascar to genus level, of these, 1638 were *Aerangis* and 686 were *Angraecum*; Madagascar correspondingly reported 2204 *Aerangis* and 1620 *Angraecum* to species level.

Table 20. Permits issued by Madagascar for the export of wild orchids, and those not identified to be of artificially propagated origin, to Japan 1990-1993

Year	Imports reported by Japan/ Permits issued	Exports reported by Madagascar/ Permits issued	The volume reported by MG in comparison with the JP figures	
			Over	Under
1990	2516	2468	+48	
	All Orchidaceae hybrid	76 Orchidaceae hybrid 256 reported to genus level		
1991	474	43	+431	
	21 reported to genus level			
1992	3559	6617		-3058
	300 Orchidaceae spp. 349 Orchid hybrids 2503 reported to genus level (9 genera)	1133 reported to genus level (16 genera)		
1993	4515	7173		-2658
	2 Orchidaceae spp. 589 reported to genus level (8 genera)	4 Orchidaceae spp. 1133 reported to genus level (16 genera)		
Total 1990-93	11064	16301	+479	-5716

The succulents Japan most commonly imports from Madagascar are Euphorbias and Pachypodiums. Over the period 1990-1993, the volume of trade has been inconsistent, the number of specimens reported to genus level has grown and there is no correlation between the total quanti-

ties reported. Japan reported the source of all the plants as wild and Madagascar reported the plants exported in 1993 as wild, prior to this their annual report did not include a source code.

Table 21. Trade in Succulents from Madagascar to Japan reported at generic level

Year	Import permits issued by Japan		Export permits issued by Madagascar	
	Number of specimens	Number reported to genus level	Number of specimens	Number reported to genus level
1990	184	160 <i>Euphorbia</i> spp.	388	10 <i>Euphorbia</i> spp.
1991	8	–	439	56 <i>Euphorbia</i> spp.
1992	0	–	134	4 <i>Rhipsalis</i> spp.
1993	871	200 <i>Pachypodium</i> spp. 100 <i>Alluaudia</i> spp. 249 <i>Euphorbia</i> spp.	1085	200 <i>Pachypodium</i> spp. 100 <i>Didierea</i> spp. 154 <i>Euphorbia</i> spp.

Conservation implications

The annual average number of *Euphorbia* spp. recorded at generic level and reported to be exported during the period 1990-1994 is 8340. This is of concern given that a number of Madagascan succulent *Euphorbia* spp. are included in Appendix I of the Convention. Of the named species in trade *Euphorbia lophogona* with an annual average trade of 25607 between 1990-1994 has a conservation category recorded as Unknown in the WCMC Plants Database, *Euphorbia millottii* with an annual average trade of 2838 between 1990-1994 has a conservation category recorded as Rare in the WCMC Plants Database and *Euphorbia viguieri* with an annual average trade of 1233 during the same period has a c conservation category of Not Threatened.

The recorded trade in wild orchids exported from Madagascar increased dramatically at the end of the last decade and appears to have declined significantly in recent years. As pointed out by Jenkins, 1994, of the approximate 50000 Madagascan orchids recorded in CITES trade statis-

tics between 1983 and 1991, 85% were exported by Madagascar in the years 1989-1991, with an average of 14,000 in trade annually, compared with an average of less than 1500 for the years 1983-1988. The peak year was 1990, with more than 20,000 plants exported. Orchids are usually collected within the country by specialist orchid-hunters who either supply exporters directly or may attempt small-scale propagation by division. There are no commercial propagation facilities in Madagascar for raising orchids from seed or by meristem culture (Jenkins and Rakotomanampison, 1994).

The orchid species for which average annual trade exceeds 100 during the period 1990-1994 are listed in Table 22. Information on the conservation status of Madagascan orchids is extremely limited, partly because around 50% of Malagasy species are known from only one collection (Du Puy, *pers. comm.* 1995). As pointed out by Jenkins and Rakotomanampison, 1994, it is, therefore, difficult to estimate the effect that collection, particularly for the export market, has on wild populations.

Table 22. Wild Madagascan Orchids in trade 1990-1994 (species for which average annual trade is over 100 specimens)

Species	Average in trade	Distribution and conservation status
<i>Aerangis citrata</i>	451	Very common in Madagascar, from Fort-Dauphin in the southeast to the northwestern region (Alt. up to 1500 m.)
<i>Aerangis fastuosa</i>	411	Endemic to Eastern Madagascar, where it grows in the area transitional from eastern coastal plain to central plateau.
<i>Aerangis fuscata</i>	134	North east coastal areas of Madagascar at fairly low altitudes.
<i>Aerangis hyaloides</i>	249	Eastern Madagascar
<i>Aerangis modesta</i>	110	Eastern, central, northern, and northwestern Madagascar (altitude 100-1200 m).
<i>Aerangis punctata</i>	170	
<i>Aerangis stylosa</i>	122	Quite widely distributed in Madagascar, mainly in eastern and eastern-central areas (alt. 0-1400 m.); also in Comoros
<i>Aeranthus henricii</i>	181	Endemic to Madagascar; known from the Analamaitso Forest and Manongarivo Massif (altitude c. 1000 m.)
<i>Angraecum ramosum</i>	129	A species complex – taxonomy uncertain
<i>Angraecum scottianum</i>	127	Comoros
<i>Jumellea teretifolia</i>	103	Madagascar, western slopes of mountains (altitude 1300 to 1500 m)
<i>Neobathiea filicornu</i>	224	Central Madagascar (altitude around 1500 m)
<i>Phaius humblotii</i>	158	Madagascar, wet semi-deciduous tropical forest

Source: *Distribution and conservation status – Hillerman and Holst, A.W. (1986)*

5.6 Philippines

The main destination countries of plants from the Philippines, over the period 1990-1994, are Japan, Germany and the United States of America. The Philippine annual report is based on permits issued, as are the Japanese annual reports. The reports for Germany and the United States of America are based on permits used. All three of these destination countries submit their CITES plant import data to WCMC in an electronic format, thus all trade reported in artificially propagated plants is also available (where annual reports have been received). Practically all plants exported by the Philippines from 1991-1994 were orchids.

As can be seen from Table 23 the source of plants from the Philippines was poorly recorded in 1991. The source of plants was well reported in 1992 except for Germany who only gave a source for two species.

It appears from the trade statistics that the export of wild orchids from the Philippines has been replaced with artificially propagated ones. The Philippine Management Authority, in their response to the questionnaire circulated in Phase I, stated that the collection and trade of wild orchids has been prohibited since 1991 and that a preliminary inventory of nurseries was in process.

Table 23. The source of plants reported in trade from the Philippines to the major importers 1991-1994

Importer	Importer details	Philippine export details
1991		
Germany	All but 3 species reported as artificially propagated	No source recorded for most plants. Some trade in small quantities of art. prop for personal use to the former German Democratic Republic.
Japan	No source recorded	
United States of America	All were reported as having an 'unknown' source	
1992		
Germany	No source recorded for all but two species, the latter were artificially propagated	The vast majority reported as wild. Small quantities of art. prop. plants for personal and commercial use
Japan	89% reported as wild (18339) 11% artificially propagated (2368)	93% reported as wild (30616) 7% artificially propagated (2332)
United States of America	72% reported as wild (9632) 39% artificially propagated (5170) 1% seized specimens + specimens of 'unknown' source	61% reported as wild (4470) 39% artificially propagated plants (2890)
1993		
Germany	All plants reported as artificially propagated	All plants reported as artificially propagated
Japan		
United States of America	No data	
1994		
Germany	No data	All plants reported as artificially propagated
Japan	All reported as artificially propagated	
United States of America	No data	

Conservation implications

In total over 40 species of wild orchids are recorded as exported from the Philippines during the period 1990-1994. Based on a review of available information on the conservation status of these species there do not generally appear to be significant conservation problems with the export of Philippine orchids. The most heavily traded species exported from the wild is, however, *Amsiella philippinensis*. It is currently proposed that this monotypic genus be included in the Philippines national list of endangered species (Madulid *in litt.* 1996). The levels of trade in *Phalaenopsis schilleriana* and *P. stuartiana* also warrant closer attention.

5.7 Thailand

Thailand is the world's major producer of CITES-listed plants, exporting a wide range of orchids. In 1994, although there was a substantial trade in wild-collected plant specimens, this only represents about 2% of total plant exports.

At the Sixth Meeting of the CITES Plants Committee, June 1995, Mr Thitprasert informed the Committee that a new law had been adopted prohibiting the export of wild-collected specimens. However, in order to give the nurseries sufficient time to initiate artificial propagation of the specimens concerned, this law would not enter force until 1998.

The preface to Thailand's 1993 and 1994 annual report states that the information contained in the report was collected from import permits, certificates and export permits from two international airport plant Quarantine Stations, the Export Plant Quarantine Service and Plant Introduction and lastly from the Conservation of Wild Flora Sub-division. It would appear that Thai trade from 1993 onwards is compiled on the basis of permits used, however, the 1991 report was based on permits issued and the 1992 report does not specify how the data was compiled. Thailand has not reported a purpose code in any of the annual reports analysed (1990-1994).

The main importers of wild orchids from Thailand are shown in Table 24. Japan has consistently been the major destination for Thai wild orchids over the period 1991-1994 followed by the United States of America.

Table 24. Average annual gross imports 1991-1994 of live orchids from Thailand indicated to be of wild origin or having an unidentified source

Japan	323969
United States of America	93655
Taiwan, Province of China	30186
Republic of Korea*	21212
Canada	20715
Netherlands	13701
Germany	9944
China~	8750
Korea. DPR.#	7650
France	3463
Hong Kong	1542
~ China imported only two plants in 1991, the remaining 35000 were imported in 1993. No exports of wild plants to China were recorded by Thailand in 1993, it is therefore possible that these were artificially propagated plants	
* The Republic of Korea acceded CITES on June 9, 1993, which entered into force in October of the same year	
# Approximately 90% of the Democratic People's Republic of Korea orchid imports occurred in 1993	

In 1991, Thailand reported exporting many plants without specifying the source in their annual report, but by 1992 all plants were recorded as either artificially propagated or wild.

Thai annual reports contain useful summaries of plant exports, giving details of the quantities of wild and artificially propagated orchids exported annually and the percentage of each, plus a summary of trade to the major importers for that year. However, the volumes described in the summary section do not always match those given in the Thai annual report itself and thus the CITES Comparative Tabulations produced from the WCMC *CITES Trade Database* is also not consistent with the Thai annual report summary. For example, a Comparative Tabulation of 1993 exports of wild plants from Thailand (all species) to the United States of America, shows that Thailand reported exporting 51561 wild plants to the United States of America. However, the preface in the Thai 1993 annual report gives a figure of 33543, a difference of 18108.

The Thai Management Authority was contacted and the discrepancies were pointed out. In response, the Management Authority informed WCMC, that in having examined the report and the summary section they discovered a computation error. The errors were caused by a conventional method used in summing up the figures. They are now reviewing and reconstructing the summary section with the Excel programme (Thitiprasert, *in litt.* 1996).

Table 25. Comparison of reported trade in live wild plants (the majority of which are orchids) and those not reported as artificially propagated, from Thailand to the major importers 1991-1994

Country	Reported by importers		Reported by Thailand	
All species 1991				
Canada	432	wild	24 6681	Wild no source
France	1726	wild	6 296	Wild no source
Germany	1910	no source	3177 37	no source wild
Hong Kong	0	–	1503	Appendix I, no source
Japan	354233 25870 192	Wild no source flasks no source	1526 428110	Wild no source
Republic of Korea	no data	–	5910	no source
Netherlands	24491	wild	63 38016	Wild no source
Taiwan, Province of China	non-CITES	–	23065	no source
United States of America	101322 1091 102 67 3	Wild seized specimens unknown source roots, wild roots, source unknown	237 87286	Wild no source
All species 1992				
Canada	0	–	16188	wild
Dominican Republic	16270	no source	0	–
France	132	wild	6525	wild
Germany	9718	no source	9153	wild
Hong Kong	0	–	1278	wild

Country	Reported by importers		Reported by Thailand	
Japan	214417 3700	Wild no source	208984	wild
Republic of Korea	no data	–	67928	wild
Netherlands	2311	wild	1830	wild
Taiwan, Province of China	non-CITES	–	12201	wild
United States of America	116766 250	Wild roots, wild	94915	wild
All species 1993				
Canada	no data	–	21705	wild
China	35000	wild	0	–
Dominican Republic	58470 26	no source Appendix I, no source	0	–
France	3664	wild	968	wild
Germany	15643	no source	11961	wild
Hong Kong	no data	–	2029	wild
Japan	301523 40877 12142	Wild no source roots, wild	178745	wild
Republic of Korea	incomplete data	–	11010	wild
People's Democratic Republic of Korea	non-CITES	–	28100	wild
Netherlands	no data	–	3662	wild
Taiwan, Province of China	non-CITES	–	29784	wild
United States of America	no data	–	51651	wild
Just orchids 1994				
Canada	no data	–	38263	wild
Dominican Republic	27	wild	341	wild
France	no data	–	1940	wild
Germany	no data	–	11080	wild
Hong Kong	no data	–	1260	wild
Japan	279433 11473 18700	Wild no source roots, wild	305729	wild
People's Democratic Republic of Korea	non-CITES	–	2500	wild
Netherlands	no data	–	10754	wild
Taiwan, Province of China	non-CITES	–	55797	wild
United States of America	no data	–	76486	wild

Trade in Orchids between Thailand and Japan

Table 26 gives a summary of the number of plants reported in trade between Thailand and Japan from 1991 to 1994. The quantities of plants given are for those orchids which

were not reported to have been artificially propagated. As can be seen, from 1992 to 1994 Thailand reported the source of all plants recorded in trade. Japan has, however, continued to import plants from Thailand without specifying a source – 3700 in 1992, 40877 in 1993 and 11473 in 1994.

Table 26. Comparison of the reported trade in live wild plants and those with an unidentified source from Thailand to Japan 1991-1994

Year	Reported by Japan/Permits issued	Reported by Thailand/Permits used 1993 onwards
1991	354233 wild 25870 no source 192 flasks no source	1526 wild 428110 no source
1992	214417 wild 3700 no source	208984 wild
1993	301523 wild 40877 no source 12142 roots, wild	178745 wild
1994	279433 wild 11473 no source 18700 roots, wild	305729 wild

Note: The Japanese 1994 plant import data was incomplete at the time of analysis. As it arrived during editing, Table 26 above has been updated to incorporate the new information. Most of the text concerning trade in live orchids between Thailand and Japan however, is based on 1993 data.

No source was reported for the following quantity and species by Japan in 1993: 10 *Cattleya* spp., 40530 *Cymbidium tracyanum*, 40 *Dendrobium crocatum*, 63 *D. dracornis*, 50 *D. exile*, 48 *D. gratiosissimum*, 30 *D. lituiflorum*, 99 *D. primulinum* and seven *Vanda* spp.

The largest discrepancy in the quantities of orchids reported by Thailand and Japan (1991-1993) occurred in 1993. Japan reported issuing permits for the import of 301523 live wild orchids and Thailand used permits for 178745 orchids, a difference of 122778 plants. This discrepancy could be the result of Thailand reporting on permits used, whereas, the quantity reported by Japan was compiled from permits issued. An analysis of this trade reveals that the difference of 122778 orchids is largely due to the discrepancies shown in Table 27.

Table 27. Main orchid species for which there were discrepancies in reporting between Thailand and Japan in 1993

Orchid Species	Reported by Japan	Reported by Thailand
Orchidaceae hybrid	42546	0
<i>Ascocentrum ampullaceum</i>	15495	14321
<i>A. miniatum</i>	15625	9754
<i>Bulbophyllum tripudians</i>	2550	15
<i>Calanthe rosea</i>	16297	257
<i>Dendrobium</i> spp.	40530	0
<i>D. aggregatum</i>	19199	9090
<i>D. aphyllum</i>	2221	0
<i>D. bellatulum</i>	1657	732
<i>D. capillipes</i>	2559	0
<i>D. chrysotoxum</i>	16240	8956
<i>D. devonianum</i>	1924	381
<i>D. dracornis</i>	2388	911

Orchid Species	Reported by Japan	Reported by Thailand
<i>D. falconeri</i>	1117	235
<i>D. falmeri</i>	8360	5196
<i>D. findleyanum</i>	2049	1015
<i>D. gratiosissimum</i>	1251	817
<i>D. harveyanum</i>	1218	623
<i>D. lituiflorum</i>	812	10
<i>D. margaritaecum</i>	1451	611
<i>D. parishii</i>	7466	2097
<i>D. pendulum</i>	1518	743
<i>D. primulinum</i>	5284	3416
<i>D. secundum</i>	6005	609
<i>D. thysiflorum</i>	18556	10020
<i>D. tortile</i>	1352	752
<i>D. trigonopus</i>	2556	1649
<i>D. wardianum</i>	1330	707
<i>Doritis pulcherrima</i>	3938	1994
<i>Gastrochilus</i> spp.	1000	0
<i>Seidenfadenia mitrata</i>	2022	392
<i>Spathoglottis eburnea</i>	1200	0
<i>Vanda lilacina</i>	1600	38

Most of the plants recorded by Thailand in 1993 were reported to species level, notable exceptions were, 1371 *Bulbophyllum* spp., 148 *Chiloschista* spp., 109 *Dendrobium* spp., and 17900 *Habenaria* spp.

Most species in trade between the two Parties were reported in greater quantities by Japan than Thailand in 1993. However, there were some exceptions. Species for which Thailand reported exporting 50 or more additional plants are as follows (the number in brackets represent the additional quantity reported by Thailand): *Aerides falcatta* (57), *A. flabellata* (54), *Bulbophyllum* spp. (962), *B. patens* (62), *Coleogyne virescens* (199), *Dendrobium hercoglossum* (184), *D. quadrangulare* (541), *Gastrochilus dasypogon* (894). Some of these discrepancies, considering that

Thailand reports on permits used and Japan reports on permits issued may have been caused by non-standard reporting of taxonomic level, i.e., family, genus or species. With regard to trade in *Habenaria*, Thailand reported a total of 50875 live plants for this genera and Japan reported 28825 live and 12142 roots, giving a combined total of 40967.

Correlation in the volume of orchids reported by Thailand and Japan in 1994 is much closer, as can be seen in Table 26.

Conservation implications

The first review of significant trade in CITES Appendix II species (Oldfield, 1991) recommended that a survey of the Thai orchid trade be carried out including a review of the distribution and conservation status of the species reported in trade. Furthermore, in light of the general trade ban recommended at the time, the review recommended that the Thai Government be urged to develop measures to implement CITES for plants. Since 1991 major improvements in implementation have taken place. There is, however, still a lack of conservation status information for many heavily traded Thai orchid species. Over 213 species were exported by Thailand at an annual average of over 100 wild specimens between the years 1990-1994. For these species, national IUCN conservation categories are only available for 11 species as recorded in the WCMC Plants Database. In each case the status is recorded as Indeterminate. The source of this conservation status information is the *Thailand country study on biodiversity* (National Biodiversity Unit, 1992). An additional 12 species are recorded as Not Threatened at a global level, with status Unknown in Thailand.

Examples of heavily traded orchid species exported are listed in Table 28. The conservation status of these species in Thailand is not currently recorded in the WCMC Plants Database.

Table 28. Heavily traded Orchid species from Thailand in 1994 (Thai 1994 CITES annual report)

Species	Quantity exported	% wild collected*
<i>Pecteilis sagarikii</i>	55418	100%
<i>Ascocentrum ampullaceum</i>	39952	94%
<i>Dendrobium chrysotoxum</i>	39450	99%
<i>Dendrobium lindleyi</i>	19707	99%
<i>Habenaria rhodocheila</i>	46818	100%
<i>Ascocentrum miniatum</i>	23135	99%
<i>Dendrobium thysiflorum</i>	20569	88%

* to the nearest whole number

5.8 United States of America

The main wild species exported from the United States of America are ginseng (*Panax quinquefolius*) and insectivorous plants. The United States of America has been reporting the source of wild plants since 1991, prior to this no source was recorded in their annual reports. In the past, exports of native orchids have been recorded in annual report data, but there is no recorded data for these plants during the period of trade review.

Insectivorous plants

Trade in insectivorous plants was reported from the United States of America for the years 1992 and 1993. There was no reported trade in *Sarracenia* in 1990 or 1991. *Dionaea* was not listed in the appendices until 1992. As can be seen from Table 29, the main importers of wild-collected insectivorous plants from the United States of America are the Netherlands, Japan, Canada and Taiwan, Province of China (non-CITES). The Netherlands reports on permits used as does the United States of America, whereas Canada and Japan report on permits issued. The Canadian and Netherlands 1993 annual reports are not available at the time of writing.

Table 29. Comparison of reported trade in live wild *Sarracenia* and *Dionaea* from the United States of America to the main destination countries 1990-1994

Country of import	Species	Quantities reported by the importers	Reported source	Quantities reported by the US/ permits used	Reported source
1992					
Canada	<i>Dionaea muscipula</i>	0	–	4200	wild
Japan	<i>Sarracenia leucophylla</i>	7500	wild	7500	wild
Netherlands	<i>S. psittacina</i>	5000	wild	9000	wild
	<i>S. purpurea</i>	5000	wild	6000	wild
Taiwan, Province of China	<i>S. leucophylla</i>	non-CITES	–	6000	wild
1993					
Canada	<i>Dionaea muscipula</i>	no data	–	7000	wild
Netherlands	<i>Sarracenia psittacina</i>	no data	–	27500	wild
	<i>S. purpurea</i>	no data	–	25450	wild

The three species of *Sarracenia* included in Table are considered Safe/Low Risk at a global level but are threatened in various states (Simpson, 1994; WCMC Plants Database). In general, *Sarracenia* spp. are relatively easily propagated by seed or rhizome division, but as it takes from three to five years to produce plants suitable for sale it is more profitable

to sell wild material (Simpson, 1994). *Sarracenia leucophylla* is mainly traded as cut flowers sourced in the wild. The other *Sarracenia* species exported are available in trade in the United States of America as both wild and artificially propagated plants. The majority of plants of *S. purpurea* traded internationally now appear to be artificially

propagated as do most of the plants of *S. psittacina* on sale in Europe (Simpson, 1994).

According to Groves, 1993, a significantly greater number of the pitchers of *Sarracenia* spp. are cut in the wild for export, with for example an estimated one million cut for export in 1991 and export quotas set for 3.5 million pitchers during 1991-1992. The trade has apparently declined rapidly since that time for a variety of reasons including excessive supply bringing the prices down (Groves, *in litt.* 1996).

The conservation status of *Dionaea muscipula* is currently recorded as Rare in the WCMC Plants Database. Although this species is commonly propagated commercially, wild collection still occurs for international trade. Confiscations of wild *Dionaea muscipula* have been reported in the TRAFFIC United States of America Bulletin.

Panax quinquefolius

According to Fuller (1991) United States of America exports of *Panax quinquefolius* increased from less than 250,000 lbs in the early 1970s to around 1,700,000 lbs in 1987. Increasing demand during this period was met through increased production of cultivated varieties to provide a more secure supply for oriental markets. Less than 10 percent was reported to be of wild origin in 1987, according to the US CITES annual report (Fuller, 1991). Annual exports for the period 1990-1994 averaged approximately 1,323,300 lbs, 65 percent of which was reportedly artificially propagated and 29 percent reported as source unknown. Table 30 describes the trade in *Panax quinquefolius* from the United States of America to the main destination countries. Most of the importers listed report on permits issued, the United States of America has reported on permits used for some years now.

Table 30. Comparison of reported trade in roots of *Panax quinquefolius* (excluding material reported as artificially propagated) from the United States of America to the main destination countries 1990-1993

Country of import	Quantities reported by the importers	Reported source	Quantities reported by the US/permits used	Reported source
1990				
Canada	4 kg (8.8 lbs)	no source	8341 lbs	no source
Hong Kong	46858 kg (103321 lbs)	wild	1726337 lbs	no source
Taiwan, Province of China	–	–	121451 lbs	no source
Malaysia	0	–	33146 lbs	no source
Singapore	24563 lbs	no source	25716 lbs	no source
1991				
Hong Kong	47012 kg (103661 lbs)	wild	104137 lbs	wild
Singapore	4878 lbs	no source	8489 lbs	wild
Taiwan, Province of China	non-CITES	–	5237 lbs	wild
1992				
Canada	0	–	355 lbs	wild
Hong Kong	59318 kg (130796 lbs) 444	wild wild	126764 lbs	wild
Singapore	12325 lbs 118 kg (260 lbs)	no source wild	7973 lbs	wild
Taiwan, Province of China	non-CITES	–	6182 lbs	wild
1993				
Canada	no data	–	585 lbs	wild
Hong Kong	no data	–	109568 lbs	wild
Malaysia	0	–	60 lbs	wild
Singapore	9305 lbs	no source	9945 lbs	wild
Taiwan, Province of China	non-CITES	–	8768 lbs	wild
Conversion factors: lbs to kg multiply by 0.4536 kg to lbs multiply by 2.2050				

Hong Kong has been the largest direct importer of *Panax quinquefolius* over the period 1990-1994. Hong Kong uses the unit of measure kg to report the volume and the United States of America uses lbs. When the volumes are converted to equal units, discrepancies arise. Both the United States of America and Hong Kong report on permits used thus the weights should match. The differences in the weights are as follows. In 1990 and 1991 an additional 1623016 and 476 lbs were reported by the United States of America. In 1992, an additional 4032 lbs were reported by Hong Kong.

From the two years of data available for trade in *P. quinquefolius* between Canada and the United States of America (1990 and 1992), there appears to be little correlation. Canada reported issuing import permits for 8.8 lbs of roots in 1990 compared to 8341 lbs for which permits were used by the United States of America. In 1992 Canada did not report any American ginseng imports although the United States of America reported exporting 355 lbs.

The total weight of *P. quinquefolius* reported by Singapore from 1990-1993 is 51331 lbs, this correlated fairly well with the 52123 lbs reported by the United States of America, even though Singapore reports on permits issued rather than actual trade. During this period, only 260 lbs were reported as wild by Singapore, the remainder were given no source.

In 1994, Singapore reported importing artificially propagated ginseng from the United States of America and Canada plus American ginseng re-exported from Hong Kong. The United States of America and Hong Kong 1993 and 1994 annual reports are not available for comparison.

6. Discussion

Reporting on trade is a primary requirement of CITES Parties and is one which is clearly not currently being adequately met for plants. There have been frequent calls for improved reporting of the plant trade with recommendations for the reporting of trade at species level and for parties to distinguish in their annual reports between plant specimens of wild and of artificially propagated origin. The scale of international trade in artificially propagated CITES plants, with some countries exporting large quantities of Appendix II cacti and orchids, for example, does add to the complexity of reporting accurately the CITES plant trade. From a conservation point of view accurate reporting of the wild plant trade is of most importance so that monitoring of the impact on wild populations is facilitated. The development of the Significant Trade Review for CITES plants is currently hindered by the paucity of reliable data on trade in wild plants of Appendix II species.

It is clear from analysis of CITES trade data that data are, however, commonly incomplete or inaccurate for wild plants. One of the main reasons for this is the lack of reporting of the source of material by both importing and exporting countries. Of the total plant trade records reported by Parties in 1994, 93% records contained a source code. In 1990, only 74% contained a source. It is encouraging to see this significant improvement.

It would seem particularly important that countries exporting native wild plants endeavour to ensure that the source of such plants is accurately recorded on permits and in CITES annual reports. As far as possible the accuracy of the recording of source should be checked. Importing countries should also be encouraged to pay greater attention to checking and reporting the source of plant material imported.

There is now sufficient information on CITES plants in trade for CITES Authorities to be particularly vigilant about certain groups of plants exported from particular countries which are likely to be wild-collected and this information should be made available to enforcement agencies. Schippmann,

1994, for example, has recommended that, *EU countries should examine what steps can be taken to ensure that export documents for wild-collected plants contain the name of the species and refuse those that do not bear such information. The correct source – either "wild" or "artificially propagated" – should be documented. EU member states should compile a list of those plant groups in which there is a likelihood of trade in wild-collected specimens. These specimens should be regularly inspected on entry into and in transit through the EU*". Similar recommendations should be extended to all major

CITES plant importing countries and would lead to significant improvements of the reporting of the CITES plant trade.

From this particular study it is apparent that aspects of the CITES wild plant trade which require particularly close monitoring include the import of timber species which is currently poorly reported for example by European countries, export and import of orchids from Belize, China, and Thailand, and succulents and orchids exported from Madagascar. These have been identified because of the relatively high volume of the trade and the particular problems highlighted in the text. In addition other groups of wild plants in trade need continued vigilance even though the level of trade is not apparent from the CITES trade statistics for the period 1990-1994, or they have not been reviewed in this particular study. Mexican cacti for example, are a plant group for which there have been problems of illegal trade and likewise wild succulent plants from Southern Africa which do not show up in the CITES reported trade data. The trade in cycads may warrant closer review, focusing on data for Appendix I as well as Appendix II species to see if problems in reporting and thus enforcement can be detected. The tree fern trade continues to need monitoring particularly at the level of species in trade. The trade in wild bulbs needs continued attention especially as new countries of export are supplying the international market.

One of the main reasons why the reporting of trade in plants is apparently inaccurate is the method of compiling data on the basis of permits issued whether or not these are subsequently used. As has been noted throughout this report it is frequently difficult to relate corresponding export and import data because of the differential way in which data is compiled at a national level. For trade in wild plants it is particularly important for data to be compiled from the permits used and returned to the Management Authorities so that reporting reflects actual trade. The current resolution covering annual reports and the monitoring of trade, Resolution Conf 9.4, does not urge or recommend Parties to report on the basis of used permits. It is recognized that this would require a system whereby consignments are checked to ensure correct permit details and that the corrected permits be returned to the Management Authorities. It is also recognized that some Management Authorities are experiencing resource problems and that some countries will require assistance in setting up such a system.

Analysis of CITES trade data for plants can help both to identify problems in implementation of the Convention and to identify actual or potential conservation problems faced by the species in trade. Unfortunately for many CITES Appendix II species there is insufficient information on the conservation status of the species in the wild. It is therefore difficult to assess the impact of levels of trade. This report has highlighted the particular deficiency of conservation status information for many of the orchid species which are sourced from the wild for international trade. This is an area which should be urgently addressed both by pooling information which may be available from the literature, unpublished information in botanical institutions and by a co-ordinated programme of field research.

7. Elements for an Action Programme to Improve CITES Trade Reporting for Plants

General recommendations

1. It is recommended that Parties should concentrate their efforts on reporting accurately and fully the trade in wild plants of Appendix II species. The Secretariat should request countries to pay particular attention to reporting trade in wild plants and to report on problems in doing so. Parties should endeavour to check actual plants in the consignment against the paperwork. Importing Parties should contact the country of export if insufficient information is given in the export documentation.
2. The Secretariat should encourage exporting countries to base their reports on permits used rather than permits issued for all wild plants. This will involve checking and collecting export documentation at the exit ports.
3. Where nursery registration schemes or multiple export permit systems are in place for nurseries, annual returns from the nurseries should be considered an acceptable basis for reporting trade in artificially propagated Appendix II plants. This should ease the burden of reporting for artificially propagated material and will allow more resources to be channelled into reporting the wild plant trade.
4. The development of guidelines for standard computer software for reporting the plant trade, incorporating the plant names given in CITES standard references and checklists, should be further considered as part of the Standard CITES Database initiative which began in 1994.
5. The Secretariat should take steps to resolve the specific plant trade reporting problems between trading partners identified by the project, including those outlined in this report.
6. The following amendment to Notification No. 788 (Guidelines for the preparation and submission of CITES annual reports) is recommended:

Recommend that the following units: "box", "carton", "cans", "bags", and "cases" be accompanied by a unit of weight, preferably kilograms.

7.1 Exporting country annual reporting recommendations

- | | |
|---------|---|
| Belize | Recommend that Belize reports wild plants to species level and bases its annual report data for plants on permits used |
| China | Recommend that China, for wild plant trade conducted with the following countries, bases its annual report on permits used: Hong Kong, Japan, the Republic of Korea, Malaysia, Singapore, Thailand, the United States of America. |
| Ecuador | Recommend that Ecuador include a statement in its annual report describing how the data has been compiled. If Ecuador bases its annual report data on permits issued, it is recommended that in the future Ecuador reports on used permits in order to harmonize their annual report data with the main importing Parties: the United States of America and Germany. Other destination countries, Japan and Colombia, report on permits issued. |
| Ghana | Recommend that for timber exports, Ghana states in annual reports whether the information is based on permits issued or used.

Recommend the use of standard source codes as set down in Notification to the Parties No. 788 |

- | | |
|--------------------------|---|
| Hungary | Recommend that Hungary records which permits have been used, submits such permits to WCMC, and indicates on all the permits whether they have been used or not. |
| Japan | Recommend that Japan should base its annual report data for wild plants on permits used

Recommend that Japan report the purpose of the transactions |
| Madagascar | As three of the five major destination countries (Germany, Japan, the Netherlands, France, the United States of America) for wild plants from Madagascar report on permits used, recommend that Madagascar bases annual report data for trade in wild plants to these countries on permits used.

Recommend Madagascar to report to species level for all plant exports |
| Mexico | Recommend Mexico specifies if the permits have been used or not and sends WCMC permits which record real trade. |
| United States of America | Recommend that the United States of America, submit its annual CITES plant data to WCMC in a more timely manner |

7.2 Importing country annual reporting recommendations

- | | |
|--------------------------|---|
| Colombia | Recommend that Colombia report on permits used when importing wild plants from Ecuador. |
| France | Recommend that France specifies in its CITES annual report whether the information is based on used permits or permits issued. It is recommended that in the future France reports on used permits.

Recommend France reports its plant imports from Madagascar to species level. Many of the plants are already reported to species level on Madagascan permits. |
| Italy | Recommend the use of standard purpose codes as set down in Notification to the Parties No. 788. Specifically, there are problems with their non-standard reporting of <i>Pericopsis elata</i> timber imports. |
| Japan | Recommend that Japan reports on permits used and reports all wild plant imports to species level.

Recommend that Japan concentrates on reporting the source of all plants imported from Thailand |
| Mexico | Recommend that Mexico report on permits used when importing wild plants from Ecuador. |
| Netherlands | Recommend that the Netherlands submits its permits for the import and export of wild plants in a more timely manner. |
| United Kingdom | Recommend that the United Kingdom report <i>Pericopsis elata</i> imports in m ³ to harmonize with reporting by Cameroon. |
| United States of America | Recommend that the United States of America cease to use the term 'shipment' as a description. |

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Annex 1

Terms of Reference

- Project title**
Review and improvement of national reporting for trade in plants listed in the Appendices of CITES
- Date of submission**
September 1994
- Project executants**
Tim Johnson, Sara Oldfield, Lorraine Collins
- Timetable**
Phase I: November 1994–June 1995
Phase II: July 1995–May 1996
Phase III: May–November 1996
- Objectives**
 - To review the trade data for plants listed in the Appendices of CITES in order to analyze the current deficiencies in data collection and reporting.
 - To identify specific problems of lack of reporting by country and by plant group and to ascertain the reasons for this lack of reporting.
 - To develop an action programme to improve the standard of reporting for plants, addressing specific problems identified by the trade data review and highlighting countries where the provision of technical and financial assistance may be required.
- Justification**

Background. All CITES Parties are required to submit annual reports to the Secretariat providing information on the levels of trade in CITES listed species. The standard of reporting on plant species is generally poor. This has been discussed at various Meetings of the Conference of the Parties and was highlighted in the report presented to the Eighth Meeting of the Conference of the Parties on Significant Trade in Appendix II Species – Plants (Doc. 8.31). This report included a recommendation that: *all countries should be urged to report trade at species level and to prevent delays in reporting. Parties which do not report the plant trade at all should be encouraged to do so through the provision of technical and financial assistance to set up reporting systems.*

The results of the enquiries will be incorporated into a draft report for discussion by the Plants Committee. The report will include recommendations of standard procedures for the collection of CITES plant trade data.

Importance. The provision of data on levels of trade in CITES-listed species is a basic requirement of Parties to the Convention. The continuing poor quality of reporting for plant species both reflects inadequacies in implementation and hinders attempts to improve implementation through international efforts. Although attention has frequently been drawn to poor reporting for plants no analysis has yet been undertaken of the reasons for this. Such an analysis is essential to plan strategies for the improvement of reporting.

7. Execution

The project will be carried out in three phases. The first phase will involve an analysis of plant trade data as reported by the Parties to CITES. The second phase will be the implementation of an action programme based on the findings of Phase I. The details of this, and executants, will be developed by the Plants Committee in association with the CITES Secretariat and WCMC. Input from WCMC in Phase 2 is expected to involve expertise on systems analysis, data base development and applications. The third phase will involve an updated review of trade data prepared for discussion at CoP10.

Activities

Phase I. An analysis of the reporting of plant trade in CITES annual reports will be carried out based on the reports themselves, and tabulations of plant trade data prepared from the CITES database. Information will be compiled to identify the major plant groups reported by each party, to compare import and export data, and to highlight shortcomings in the reporting of data. Where

possible CITES data will be compared with other sources of data on the plant trade.

This analysis will be followed by specific enquiries to individual CITES Management Authorities on procedures and problems in data collection and reporting of the plant trade.

The results of the enquiries will be incorporated into a draft report for discussion by the Plants Committee. The report will include recommendations for follow-up activities and will make recommendations for the development of standard procedures for the collection of CITES plant trade data.

Phase II. Activities and workplan for Phase II will be drafted during Phase I of the project for discussion by the Plants Committee.

Phase III. Preparation of an updated analysis of CITES trade data for plants.

Workplan

Following analysis of plant data included in the CITES annual reports, letters of enquiry will be drafted for circulation to Management Authorities. The analysis and responses to enquiries will form the basis for a draft report with recommendations for follow-up action.

Outputs

Phase I. A draft report will be prepared for the Plants Committee meeting with recommended activities for improving data collection and reporting on the CITES plant trade. The report will include appropriate tabulations of trade data.

Annex 2

Dear Sir/Madam

Re: Review and improvement of national reporting in plants listed in the appendices of CITES

The World Conservation Monitoring Centre, on behalf of the CITES Secretariat, has been requested to carry out a study on the *Review and Improvement of National Reporting in Plants Listed in the Appendices of CITES*. We believe it is necessary to involve Management Authorities in this review process, in order to determine the obstacles and restraints that are encountered by individual Parties. Furthermore, we wish to encourage Parties to express their views on how plant reporting might be improved.

The questions are not designed for one word answers and we encourage you to express your answers as fully as possible. As a Management Authority, you may well be aware of certain problems that we have not addressed. At the end of the questionnaire is a section for any other comments or issues you would like to raise.

The objective of this exercise is not to single out Parties that do not report well the trade in plants, but to discover the underlying causes of reporting problems and to find ways of addressing them. In addition, it will be beneficial for us to determine which systems for reporting trade in plants works well and to share this information.

Could you please return the attached questionnaire by the end of May 1995, in order for the information to be incorporated into this review. If for some reason it is not possible to meet this deadline could you please nonetheless send your response as soon as possible afterwards. All questionnaires should be sent to:

Ms Lorraine Collins
WCMC (Wildlife Trade Monitoring Unit)
219 Huntingdon Road, Cambridge, CB3 0DL
United Kingdom

During the course of this review we may wish to contact you again, in the meanwhile may I take this opportunity to thank you for your time and effort. I look forward to your reply.

Yours faithfully

Lorraine Collins
Research Officer
Species – Wildlife Trade Monitoring Unit
email lorraine.collins@wcmc.org.uk

CITES Plant Reporting Questionnaire

Please specify your country _____

- 1a) Are plants imported into your country?
- 1b) Are plants exported from your country?
- 2a) Does your country submit annual reports to the CITES Secretariat on trade in plants?
- 2b) If yes, please identify the major groups of CITES-listed plants imported and exported:
Imports:
Exports:
- 3) What is the basis for your annual report?
 - a) permits issued
 - b) permits used
 - c) other (please specify)
- 4) At what taxonomic level is the plant trade reported?
For example:
Family level e.g. Orchidaceae, Cactaceae etc.
Genus level e.g. *Dendrobium* spp., *Ferocactus* spp.
Species level e.g. *Dendrobium farmeri*, *Ferocactus wislizeni*
- 4b) If you report by genus or family, do you nonetheless have information on trade in each species within the higher taxon but in order to present the data in a more concise way combine the numbers (i.e. to sum it) and represent the trade at genus level or family level, i.e.
142 *Dendrobium farmeri* imported
203 *Dendrobium keithii* imported
In your annual report would this be shown as 345 *Dendrobium* spp.?
or
142 *Dendrobium farmeri*
203 *Dendrobium keithii*
100 *Aerangis citrata*
130 *Aeranthes henrici*
In your annual report would this be shown as 575 Orchidaceae spp.?
- 4c) If you report by genus or family but possess information on the trade in each species is there any reason why you could not, in future annual reports, report the trade by species?
- 5a) Does your report...
 - a) include the details of each shipment?
e.g. one permit is issued for the import of 14 *Cymbidium goeringii* from the Netherlands
one permit is issued for the import of 23 *Cymbidium goeringii* from the Netherlands
one permit is issued for the import of 16 *Cymbidium goeringii* from the Netherlands
 - b) summarize the trade in each taxon with each country?
e.g. the above shipments would be shown as 53 *Cymbidium goeringii* imported from the Netherlands
- 5b) If your report summarizes the trade with each country, is there any reason why you could not, in future annual reports, report the trade shipment-by-shipment?
- 6a) Do you report the source of all the plants in trade, i.e. artificially propagated, of wild origin or of other origin?
- 6b) If you do not report the source in each case, is there any reason why this could not be done in future annual reports?
- 7) Trade with Non-Parties
Do you attempt to identify the species of plants imported when they are not specified on the export document?
- 8a) Do you use the units and descriptions of specimens indicated in Notification to the Parties No. 788?
- 8b) If not, do you see any difficulties in using the suggested units and terms?
- 9) When authorizing the import of plants, do you accept the documentation without examining the plants in the shipment?
- 10a) Are the enforcement agents in your country aware that some timber species are subject to CITES controls?
- 10b) Have you encountered any specific problems relating to the reporting of timber products?
- 11) Do you carry out routine checks of CITES plant material in trade in order to improve enforcement, avoid authorizing trade in wild plants wrongly declared as artificially propagated, and also improve the accuracy of information in annual reports?

- 12) Do you compile information on nurseries involved in the CITES export trade?
If yes, please specify.
- 13a) Do you have adequate personnel to compile data on plant trade?
- 13b) Is one person in your Management Authority specifically designated with responsibility for dealing with implementation of CITES for plants?
If yes, please give name.
- 14) In general what are your working practices for the collection of data on the plant trade?
- 15) Please express any views you have on how reporting on plant trade might be improved.
- 16) Any other comments?

Annex 3

Responses to the questionnaire on CITES Plant Reporting

Africa

Algeria
Ascension Islands (Saint Helena) (GB colony)
Benin
Burundi
Equatorial Guinea
Eritrea
Guinea
Guyana
Mauritius
Morocco
Sierra Leone
South Africa

Asia

Brunei Darussalam
China
Hong Kong
Malaysia (Peninsular)
Philippines
Singapore
Thailand

Central And South America, Caribbean

Bermuda (GB colony)
Brazil
Chile
Colombia
Costa Rica
Dominican Republic
Mexico
Peru

Europe

Belgium
Cyprus
Czech Republic
Denmark
Estonia
Germany
Greenland (DK)
Jersey (GB)
Malta
Norway
Portugal
Spain
Sweden
Switzerland
United Kingdom

North America

Canada
United States of America

Oceania

Australia
New Caledonia (French colony)
New Zealand
Papua New Guinea
Vanuatu

Annex 4

Contribution to the CITES Significant Plant Trade development process

The first CITES Significant Plant Trade Study was undertaken by WCMC in 1991. The review involved developing special programmes to produce a series of plant data outputs from the CITES Trade Database maintained on a WANG computer. The outputs were:

- Data Table 1. World net trade volumes of all species in Appendix II from 1983 to 1989. Essentially a reference table giving the average annual level of trade for every Appendix II plant species included in CITES annual reports for the seven year period.
- Data Table 2. Trade in the species with the highest average trade volumes. Species with an annual average trade of over 1000.
- Data Table 3. Trends in trade volume for the major Appendix II plant groups giving total quantities in trade for each year and, for live plants, the percentage reported as propagated.

- Data Table 4. Sources of trade. For each major plant group, the average annual trade from each country of origin was given. For live plants, the total trade declared as artificially propagated was expressed as a percentage of the total live trade.
- Data Table 5. Total net plant trade for all plant groups combined, for each reported source country over the period 1983-89.
- Data Table 6. Detailed analysis of major source countries. For each of the six main source countries with an annual average net trade of over one million plants, the net annual trade in each plant taxon was given. For live plants only the total net imports reported as artificially propagated was also given.

These data tables were reviewed by experts at a Workshop held at the Royal Botanic Gardens, Kew on 8-9 September 1991. Participants at the Workshop included representatives

from SSC Specialist Groups for Cacti and Succulents, Orchids, Cycads; TRAFFIC; WCMC and the Royal Botanic Gardens, Kew.

The expert review of the statistical information on Appendix II plants contributed to the development of recommendations for consideration at the Eighth Meeting of the Conference of the Parties. These recommendations were approved and have formed the basis for subsequent Significant Plant Trade activities.

Since December 1992, the CITES trade data have been maintained in the WCMC *CITES Trade Database* (an INGRES database) designed to allow easier manipulation of the data. The two main types of output are Comparative Tabulations and Gross/Net trade figures. Despite the easier procedures for outputting data, interpretation of the outputs still requires an understanding of the data maintained within the Database, data limitations resulting, for example, from problems identified in Phase 1 of the *Review and improvement of national reporting for trade in plants listed in the Appendices of CITES 1990-1992*; and the form of data presentation. These considerations need to be taken into account in further development of the CITES Significant Plant Trade review process.

At the Sixth meeting of Plants Committee, June 1995, discussions were held on the development of the CITES Significant Plant Trade process and the potential involvement of a wider range of experts in the review of the CITES plant trade data. An informal working group, was formed initially involving members of SSC Plant Specialist Groups, the SSC Plants Officer and botanists from WCMC and Royal Botanic Gardens, Kew.

Questions addressed by the Working Group included the range of CITES plant trade data to be reviewed, the selection and form of data to be presented to experts for review, and the questions to be addressed by reviewers. It was agreed that a feasibility exercise should be undertaken to test the response to outputs from the WCMC *CITES Trade Database* for selected plant groups and an associated questionnaire on the data outputs developed by SSC.

WCMC provided the following outputs for initial review by the Working Group.

i) CITES Annual Report datasets

- Printout 1. Comparative tabulation of world trade in Cycads 1991-1993 and attachment showing the options available in the WCMC *CITES Trade Database* for data field selection
- Printout 2. Gross and net trade in Cycads 1993 and an attachment showing data selection options
- Printout 3. Net exports by country of export for Cycads 1991-1993 and attachment showing data selection options
- Additional printouts: Net exports of plants from Madagascar 1991-1992
- Net exports of plants from Mexico 1991-1992

ii) User Guide to CITES annual report data (WCMC) – which introduces the two main types of output, **Comparative Tabulation** or **Gross/Net Trade**, and describes the codes used in these printouts.

iii) Explanatory document – **Tailoring outputs from the WCMC CITES Trade Database** (WCMC) which explains the range of data which can be incorporated into a printout and the options available for meeting particular user needs

Based on the comments received in the initial review process, the **best approach** in supplying data for wider review was considered to be:

a) To use the gross/net trade output format as in Printout 2 subtotalled on taxon, term and unit, plus an additional column for country of origin. A brief interpretation of the subtotals and totals shown would be included in an updated version of the WCMC User Guide to CITES annual report data.

plus

b) A net export output format as in Printout 3 giving three separate breakdowns of net exports for each of the three source categories (artificially propagated; wild; and no source and source unknown), with an additional column for country of origin in order to show re-exports. The procedure adopted to create the three subsets, is to create a single query for all of the plants and to create three separate subsets from it: – artificially propagated (1), wild (2), no source given plus source unknown (3). The net trade programmes can then be run on these subsets, specifying the taxon to be included in the net trade output.

Subsequently WCMC provided the following for test review by experts:

Cycads

- Introductory Notes
- Availability of annual report data- annual report status 1989-1994
 - Ordered by Year
 - Ordered by Country
- Gross and Net trade in Appendix II Cycadaceae 1989-1994
- Net exports of wild reported Appendix II Cycadaceae in trade 1989-1994
- Net exports of artificially propagated Appendix II Cycadaceae 1989-1994
- Net exports of Appendix II Cycadaceae not including: wild or artificially propagated 1989-1994. (This includes Cycads reported as 'source unknown', with no source at all, pre-convention if any and confiscated specimens).

Dendrobium

- Introductory notes
- Availability of annual report data- annual report status 1989-1994
 - Ordered by Year
 - Ordered by Country
- Gross and Net trade in Appendix II Dendrobium 1993
- Net exports of wild reported Appendix II Dendrobium in trade 1989-1994
- Net exports of artificially propagated Appendix II Dendrobium 1989-1994
- Net exports of Appendix II Dendrobium: not including wild or artificially propagated 1989-1994. (This includes Dendrobium specimens reported as 'source unknown', with no source at all, pre-convention if any and confiscated specimens).
- Net exports of Appendix II Dendrobium which have been confiscated (these have been derived from the previous printout)

These outputs from the WCMC *CITES Trade Database* were sent to experts for review with the questionnaire developed by SSC (TRAFFIC International independently sent a questionnaire to TRAFFIC East/Southern Africa). The questionnaire was divided into three sections; Part A asked questions on the CITES annual report data; Part B asked reviewers to summarize the effects of the levels of

international trade on the taxa concerned through a categorization process; and Part C asked for supplementary information to justify the categorization. The questionnaire was sent to 26 experts and the responses, focusing on Part A are summarized below.

Response to the expert review process

Reviewers	Number sent questionnaires	Responses
Cycad Specialist Group	12	6
Cycad experts (non-CSG)	4	1
TRAFFIC East/Southern Africa		1
Dendrobium experts- Kew Panel of Experts for Orchid Checklist	9	3

Eight of the reviewers commented on the cycad trade data. Most felt that the CITES trade data for *Cycas* provided an accurate overall reflection of the total international trade. Several reviewers commented, however, that *Cycas* exports from China are seriously under-represented in the trade data, one major trade route being from China to Taiwan, Province of China. Another reviewer commented that South African exports of *Cycas* which are artificially propagated would add to the overall international trade levels.

For *Dendrobium* the response rate was lower, with one expert returning the questionnaire and two others commenting by letter on the trade data and supply of additional information. In relation to the accuracy of trade data, one reviewer commented that more imports into the United States, Germany, Brazil, United Kingdom and Hong Kong would be expected but no additional sources of data to supplement the CITES annual report data were known. Another reviewer commented on the likely inaccuracy of the data on artificially propagated plants exported from Thailand during the years 1989 to 1993.

Summary of responses to the Significant Trade in Plants questionnaire (Part A topics)

Questionnaire (Part A) Topics	No. of reviewers commenting
Completeness of Reported Trade as a reflection of total international trade	8 (generally stating that the trade data appear to give an accurate reflection)
Accuracy of Reported Trade: Country of Origin/Export	10 (the main comments provided were on export countries where the taxa traded were non-native)
Accuracy of Reported Trade: Specimen/Product	5 (comments on units of measurement, inappropriate terms and under-reporting of seed)
Accuracy of Reported Trade: Source (artificially propagated/wild)	7 (most commented on the difficulty of obtaining reliable information or making a realistic assessment)
Legality of reported trade and control regimes	4
Comments on plant names and synonymy	4

The feasibility exercise has been useful in assessing the level of interest in reviewing the CITES trade data and the supplementary information which may be available from experts both on the actual trade and the impact of international trade on wild plant populations. With regard to the management of CITES trade data the exercise has been useful in:

- i) identifying ways in which the outputs from the WCMC *CITES Trade Database* could be made more user friendly to species experts unfamiliar with the processes by which the outputs are selected and generated.
- ii) identifying modifications which could be made to the WCMC *CITES Trade Database* in order to produce a wider range of standard outputs, for example, being able to sub-total data in comparative tabulations by

taxon or country. Based on the comments received in the expert review process, WCMC is investigating the possibilities for implementation of these modifications.

- iii) highlighting further developments to the WCMC *CITES Trade Database* which could increase the facility to pre-select data highlighting problems of CITES implementation or species of conservation concern because of their conservation status in the wild or sharp increases in trade. An automatic early warning system could be created to look at CITES infractions, for example quotas exceeded, and trends (percentage increase and decrease) in trade. Additional fields could be added for IUCN threat categories and tagging of species previously analysed during the significant plant trade process.