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Analyses of Proposals to Amend the CITES Appendices

Submitted to the
Eleventh Meeting of Conference of the Parties
Nairobi, Kenya, 10-20 April, 2000

Prepared by
IUCN Species Survival Commission
TRAFFIC Network

February 2000

IUCN - The World Conservation Union

Production of the *IUCN Analyses of the 2000 CITES Appendix Amendment Proposals* was made possible through the support of:

The CITES Trust Fund
The Commission of the European Union
The Government of Japan
Federal Agency for Nature conservation, Germany
Department of Nature Management, Netherlands
Canadian Wildlife Service
Federal Veterinary Office, Switzerland

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The Species Survival Commission (SSC) is one of six volunteer commissions of IUCN. The SSC's mission is to conserve biological diversity by developing and executing programmes to study, save, restore and wisely manage species and their habitats. A volunteer network comprising nearly of 7,000 scientists, field researchers, government officials and conservation leaders from 179 countries, the SSC membership is an unmatched source of information about biological diversity and its conservation. As such, SSC members provide technical and scientific counsel and conservation projects throughout the world and serve as resources to governments, international conventions and conservation organizations. The SSC works primarily through its specialists groups, most of which represent particular plant or animal groups that are threatened with extinction, or are of special importance to human welfare. A few groups deal with cross-cutting species conservation issues, such as veterinary medicine, conservation breeding, re-introducing species to their former ranges, invasive species and sustainable use of wildlife.

The TRAFFIC Network is a joint programme of IUCN and The World Wide Fund for Nature (WWF) and comprises of 21 offices worldwide. TRAFFIC works in close co-operation with the CITES Secretariat and others to help ensure that the trade in wild plants and animals is at sustainable levels and in accordance with national laws and international treaties.

Citation: IUCN Species Survival Commission and TRAFFIC Network. 2000. *IUCN Analyses of Proposals to amend the CITES Appendices*. Prepared by IUCN Species Survival Commission and the TRAFFIC Network for the Eleventh Meeting of the Conference of the Parties to CITES. IUCN-The World Conservation Union, Gland, Switzerland.

INTRODUCTION

If CITES (The Convention on International Trade in Endangered Species of Wild Fauna and Flora) is to remain a credible instrument for conserving species affected by trade, the decisions of the Parties must be based on the best available scientific and technical information. Recognising this, IUCN's Species Survival Commission (SSC) and the TRAFFIC Network have undertaken to provide technical reviews of the CITES Appendix amendment proposals. SSC has collected information on the status and biology of species from the Specialist Group network and broader scientific community, and TRAFFIC has focused on the analysis of the trade and use components of the proposals, drawing on its own information sources, as well as the CITES trade database managed by the World Conservation Monitoring Centre (WCMC). The resulting document is, like any collaborative document, uneven. It does, however, bring together a broad range of expertise, which we are confident will be of assistance in the discussions of the proposals.

The Analyses aim to provide as objective an assessment as possible of the amendment proposal against the requirements of the Convention as laid out in the listing criteria elaborated in Resolution Conf. 9.24 and other resolutions and decisions.

The review was conducted within three months to comply with the needs of the Parties for information well before the COP. Following the deadline for Parties' submission of amendment proposals (15 November 1999), over 700 reviewers were contacted and asked to respond within one month. Over 350 replies were received, 47% within one month, a further 42% within two months and the remainder in the final weeks.

Analysis of the proposal and the relevant background information contained in its supporting statement (SS) is provided in a tabular format. The tables were designed to focus attention on the biological and trade criteria and the precautionary measures of Resolution Conf. 9.24. Selected information from the SS pertinent to a particular criterion is included in the central column of the table. As the title suggests, the adjacent column labelled "Additional information", contains information culled from the literature and reviewers and provides some reviewer assessments. The information in the tables has then been distilled into summary form, presented at the start of each analysis.

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

Fold out summaries of the CITES listing criteria and the IUCN Red List categories and criteria are provided as annexes to this document. It should be emphasised that the numerical guidelines in Resolution Conf 9.24, Annex 5, are not thresholds and may not be appropriate for all species.

References to source material are provided wherever possible; in some cases, these sources have been consulted directly; in others, they have been cited by reviewers to support their statements. Where information is not referenced, it should be assumed that the source is IUCN or TRAFFIC. The assessments expressed in this publication do not necessarily reflect those of IUCN or the TRAFFIC Network, nor the reviewers as a body. The conservation status of animals should be assumed to come from the 1996 IUCN Red List of Threatened Animals (Baillie and Groombridge, 1997), unless indicated otherwise.

As far as we are aware, this is the first time that a broad range of proposals has been analysed explicitly against the criteria of Resolution Conf. 9.24. The exercise has highlighted a number of issues that will be of importance to CITES as it continues to evolve. Among these are: the very variable interpretations that can be put on the more general precautionary measures; the relative ease of assessing (and often, of meeting) the Appendix I criteria compared to the Appendix II criteria; the tendency to apply the numerical guidelines as thresholds; the absence of specific criteria for assessing proposals to amend export quotas; and the difficulty of dealing with wide-ranging species, in which the status of some populations may be perceived to be very different from the status of the species as a whole.

ACKNOWLEDGEMENTS AND CREDITS

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

The staff members of the TRAFFIC Network, who assisted in the review of proposals and compiled trade and use accounts, deserve special recognition for the contribution they have made to this document. In addition, staff of the World Conservation Monitoring Centre have assisted in providing information from the CITES database as well as bibliographic and other reference material. We are particularly grateful to John Caldwell, Mary Cordiner, Gerardo Fragoso, Harriet Gillett and Jonathan Harwood. We would also like to thank the Spanish translator Jorge Rabinovich and the French translators Daniele and Richard Devitre.

The analyses team was made up of: Neville Ash, Angela Barden, Clare FitzGibbon, Mandy Haywood, Craig Hilton-Taylor, Martin Jenkins and Alison Rosser. Teresa Mulliken and Stephen Nash at TRAFFIC and David Brackett, Susan Olivares and Simon Stuart at IUCN/SSC provided valuable input. Anna Knee and Sue Mainka of IUCN/SSC gave much needed support in the final stages. The principal writers were Clare FitzGibbon (TRAFFIC), Martin Jenkins and Alison Rosser (IUCN/SSC), who accept responsibility for the contents.

LIST OF ANALYSES

Deletion of *Ceropegia* spp. from Appendix II. Proponent: Swiss Confederation.

Summary: The genus *Ceropegia* (commonly known as Lantern Flowers) comprises over 200 species distributed over most of Africa, Madagascar, the Arabian Peninsula, the Indian Subcontinent, the Far East and into the northern part of Australia. They occur in a wide range of habitats from equatorial forest to semi-desert, but are not found in true deserts. They are erect or twining perennial herbs. The rootstock is often a cluster of fleshy (fusiform) roots, a discoid tuber, occasionally an elongated tuber or rhizome, or only has fibrous roots. The stems range from herbaceous to extremely succulent. The genus has been included in CITES Appendix II since 1979. A small number of species are widely grown with some, such as *C. linearis* and its varieties, being popular indoor plants. Most international trade (both volume and number of transactions) is in artificially propagated plants produced in Europe, North America and South Africa. This trade is largely comprised of unnamed taxa, but 46 taxa (17%) are listed in the CITES Annual Reports. The records also do not indicate any preference for tuberous species (18 tuberous taxa, 16 fleshy-rooted and nine fibrous). The CITES Annual Reports indicate 110 cases where the source was not given as artificially propagated, of these 15 were recorded as wild-collected, only three of which were of named species (*C. armandii*, *C. dimorpha*, *C. razafinratsirana* - all from Madagascar). Reports from other sources suggest wild-collected trade in a further seven species (*C. arenaria*, *C. carnosa*, *C. conrathi*, *C. decidua* ssp. *pretoriensis*, *C. fortuita*, *C. imbricata*, *C. stentiae* - all except one, from South Africa). CITES Annual Report data indicates 12 cases of illegal trade from 1979-1989, in most cases this material is unnamed. There are also indications that some trade in wild-collected plants is not reported. When traded as tubers, *Ceropegia* species cannot be distinguished from species of *Brachystelma*, a closely related genus. *Brachystelma* is not included in the Appendices and there is significant demand for this genus in international trade. *Ceropegia* is protected by national legislation in only a few range States. More than half of the taxa are threatened to some degree, with at least one species having become extinct. The major threats are habitat loss and harvesting of tubers for local consumption as food and medicine. This proposal has been submitted under Resolution Conf. 9.24 on the basis that there is very little international trade in the genus. The Plants Committee has endorsed this proposal**.**

Analysis: Following Resolution Conf. 9.24, it does not appear that the genus meets the criteria for inclusion in Appendix II, as very few taxa appear to be subject to unsustainable levels of harvest for international trade. It is alleged that some species may be subject to unrecorded trade, but the level or impact of this is unknown. There is evidence that species endemic to Madagascar are in trade and may meet the criteria for inclusion in Appendix II on the basis that harvesting for international trade may be having a detrimental impact on the species (these include *C. albisepta*, *C. armandii*, *C. bosseri*, *C. dimorpha*, *C. hofstaetteri*, *C. leroyi*, *C. racemosa* ssp *glabra*, *C. razafindratsirana*, *C. saxatilis*, *C. scabra*, *C. simoneae*, *C. stephanotis*, *C. striata* and *C. viridis*). Although many species in the genus may meet biological criterion A or B for inclusion in Appendix I on the basis of a restricted range and apparently small population size, there is little indication that they meet the trade criterion for inclusion in Appendix I. In cases of uncertainty, Resolution Conf. 9.24 Annex 4A recommends that Parties act in the best interest of the conservation of the species.

	Supporting Statement (SS)	**Additional information**
Taxonomy	*Ceropegia* are in the family Asclepiadaceae, and are closely related to the genera *Riocreuxia* and *Brachystelma*. In recent years some species named as *Ceropegia* have been transferred to other genera, and in a few cases *vice versa*. The very wide distribution of the genus has led to a large number of publications by taxonomists working on floras of limited areas. As a result there is a major problem of dense synonymy. *Index Kewensis* lists 480 validly published names. The last full revision of the genus was in 1957. Since then a number of new species have been described and in parts of the world, like Tanzania in East Africa, there are a number of undescribed taxa waiting to be named. A safe estimate of the number of	Asclepiadaceae are considered to part of the Apocynaceae and the latter is now accepted as the family name (Sennblad and Bremer, 1996). Since the monograph of the genus by Huber (1957) there have been a number of regional revisions, the taxonomic conclusions of which are not all reflected in the annex to the SS. A revised annex including all the known taxonomic changes is available. There are 107 changes to the annex including 37 taxa placed into synonymy, seven transferred to other genera, and the addition of 16 new infra-specific taxa and 18 new species. Following these changes, there are 220 species and approximately 49 infra-specific

	Supporting Statement (SS)	Additional information
	species is around 200. For the taxa of *Ceropegia* listed in the Annex to the proposal, nomenclature as used by WCMC (Checklist of CITES Species) has been adapted in places to comply with standard nomenclature used in various other works.	taxa currently accepted under *Ceropegia*. The genus is under revision for the *Flora of Tropical East Africa* and at least eight taxa will be placed into synonymy while six new species will be described (Masinde, 2000). The generic limits of *Ceropegia* are not well defined as evidenced by the regular transfer of taxa between *Brachystelma*, *Ceropegia*, and *Riocreuxia*. Bruyns (2000) and Rowley (1987) say that *Ceropegia* and *Brachystelma* are very closely related and may well be congeneric, as the only feature separating them is a less developed floral tube in *Brachystelma* (Dyer, 1980, 1983).
Range	Distributed from the Spanish Canary Islands in the west, over central, southern and northern but not Mediterranean- Africa, through Madagascar and Arabia to India and southeastern Asia and northern Australia. *Ceropegia* occurs in more than 50 countries, including Angola, Australia, Bangladesh, Benin, Bhutan, Burkina Faso, Botswana, Cameroon, Central African Republic, Chad, China, Democratic Republic of the Congo, Eritrea, Ethiopia, Ghana, Guinea-Bissau, Guinea, India, Indonesia, Ivory Coast, Kenya, Lesotho, Liberia, Madagascar, Malawi, Malaysia, Mali, Mozambique, Myanmar, Namibia, Nepal, Niger, Nigeria, Pakistan, Papua New Guinea, Philippines, Saudi Arabia, Senegal, Sierra Leone, Somalia, South Africa, Sudan, Spain, Sri Lanka, Tanzania, Thailand, China, Togo, Uganda, Yemen, Zambia and Zimbabwe.	*Ceropegia* is recorded from 58 range States. The following are additions to the list: Comoros, Congo, Djibouti, Lao PDR, Oman, Rwanda, Swaziland and Vietnam. There are no records of *Ceropegia* in Lesotho (Arnold and De Wet, 1993). Occurrence in Spain refers to the Canary Islands.
IUCN global category	See annex to the proposal.	141 taxa have a threatened status (52%), of these 136 were assessed under the pre-1994 IUCN Red List Categories: Ex 1, Ex/E 1, E 24, V, 4, R 53, I 14 and K 39. Five taxa have been assessed under the 1994 Categories: EN 2 and VU 3.
Biological and trade criteria for retention in Appendix II		
B) Harvesting for international trade has, or may have, detrimental impact on population i) exceeds sustainable yield ii) reduces population to potentially threatened level	More than 98% of trade recorded between 1979 and 1998 is in artificially propagated plants, with significant trade mostly limited to not more than five to ten species. Most recorded trade is not as 'entire live plants', but as rooted stem cuttings. There is no trade at all in most of the species. When tubers are used, in the vast majority of cases this is for local consumption. No illegal trade has been recorded. Growers tend to use vegetative multiplication techniques, thereby ensuring a consistent crop. Generally stem cuttings root well, and most of the international trade is based on that technique. Meristem culture is also increasingly being used, especially in the past five years.	Many *Ceropegia* species are highly restricted in their distributions and found as scattered individuals or in small groups, and cannot sustain regular collection (Dyer, 1983; Masinde, 2000; Venter, 2000). Jenkins (1993) reported *C. woodii*, *C. armandii* and *C. volubilis* were widely available in the horticultural trade in Europe from artificially propagated stock grown primarily in Europe, North America and to a small extent in South Africa (CITES Annual Report data). These taxa along with some others like *C. radicans* (Newton and Chan, 1998) appear to fit the description 'super-market plants'. Other species are less commonly seen, but the genus does attract some collector interest. The CITES Annual Report data records only 46 named taxa (17%) in international trade, most trade is in unnamed specimens. Jenkins (1993) concluded that, as most climbing species are

	Supporting Statement (SS)	Additional information
		relatively easy to propagate from stem cuttings (Shirley, 1995), wild-collection was unlikely to be a cause for concern. Two cases involving *C. insignis* and *C. stentiae* were reported where plants were collected from the wild by nurserymen to serve as stock plants for seed production (Venter, 2000). Seed or seedlings, derived from these mother plants are traded internationally (Venter, 2000). Some Ceropegias are difficult to maintain in cultivation and tuberous forms are very susceptible to rot (Rowley, 1987). As a result new stock plants have to be collected from the wild regularly (Shirley, 1995; Venter, 2000). Such cases are few and are largely a domestic rather than international regulation matter. Jenkins (1993) cautioned that caudex-rooted forms from South Africa were sought after and traded as wild-collected plants, an observation supported by the survey done by Newton and Chan (1998). However, from the CITES Annual Report data there is no clear preference for trade in tuberous species over fusiform ones (18 versus 16 taxa). Given the similarity between *Ceropegia* and *Brachystelma* and especially that the tubers of species in both genera are indistinguishable (Bruyns 2000, Dyer, 1983), there may be undetected illegal trade. Illegal trade in succulents and caudiciforms from South Africa occurs through the postal system and is impossible to monitor or regulate (Newton and Chan, 1998). It is unlikely that the discovery of the alkaloid Cerpegin in *C. juncea* and other tuberous species (Adibatti *et al*., 1991) will stimulate a major bio-prospecting exercise. The quantity of tubers required to obtain commercial quantities would be extremely difficult to obtain given the ecology of most species. However, tubers or derivatives may already be in international trade under another name if 'Soma' is widely used in Ayurvedic medicine. Similarly, tubers of *Ceropegia tricantha*, and possibly other species are used in traditional Chinese medicine (Ping-tao *et al*., 1995**)** and these too may be traded internationally under a different name. There are no reports from India or China about either species being affected by harvesting for the international markets (Nayar and Sastry, 1988; Ping-tao *et al*., 1995). Concern about trade in Madagascan species prompted a recommendation in the IUCN/SSC Cactus and Succulent Action Plan that all Madagascan species be transferred to Appendix I (Oldfield, 1997). The recent CITES Annual Report data provide some support for this concern. There is evidence that trade in wild-collected live plants is not always reported (Peckover, 1998; Collenette, 1999; Craven, 1999; Masinde, 2000; Venter, 2000). The extent of this unreported trade is unknown, but it is likely to be small given the low volumes of reported trade in artificially propagated

	Supporting Statement (SS)	Additional information
		plants, wild-collected plants and illegal exports. In addition, most species are very difficult to find and collect in large quantities as they are inconspicuous, grow in other thorny shrubs and individuals are widely scattered, so any impact will be negligible (Newton and Chan, 1998).
A) Trade regulation needed to prevent future inclusion in Appendix I	Trade has no impact.	Illegal trade has been recorded (CITES Annual Report data, 1979-1998; Peckover 1998; Collenette, 1999; Craven, 1999; Masinde, 2000; Venter, 2000), but the extent is unknown, so the impacts of such trade cannot be fully assessed.
Criteria for inclusion in Appendix I		
Trade	Trade is limited to artificially propagated specimens and has no impact on wild populations.	CITES Annual Report data for 1979-1998, indicates 199 records of exports of plants from ten range States. Although the majority of these exports have been of artificially propagated specimens, a small number of exports of wild-collected plants have been recorded from South Africa (seven records), Madagascar (39 records) and Kenya (two records). There were 12 reported cases of illegal trade (86 plants) between 1979 and 1998, five of which involved exports from range States. The largest of these exports was of 40 plants (*Ceropegia* spp.) from Kenya to Belgium in 1990 and 20 plants (*Ceropegia* spp.) from South Africa to the Netherlands in 1997. Fifteen exports of wild-collected plants were reported, all of these except for two, were from Madagascar (111 plants). Both Kenyan exports were of wild collected material (46 plants) to a botanical garden in Germany. The Madagascan exports included two for scientific purposes, seven for personal purposes and four cases of commercial trade. Most of the cases involving illegal export or wild-collected plants involved very small numbers of specimens.
Biological criteria		While some taxa have very extensive ranges and some occur in very large numbers, the majority have very fragmented or highly restricted distributions with low population densities (Masinde, 2000). Many taxa are found just as a few individuals or are known only from the type collections (Masinde, 2000). A number of the small populations are in decline primarily due to habitat loss, harvesting by local communities and in a few instances to over-collection for trade. However, Bruyns (1985) and Peckover (1993, 1998) both report that based on extensive fieldwork, many taxa are more common than indicated by herbarium records and would therefore not meet the criteria for inclusion on Appendix I.

	Supporting Statement (SS)	Additional information
Other information		
Threats	Any disturbance to the habitat is said to result in rapid population declines. In India, habitat destruction and collecting of tubers for local consumption are reported to be the major threats.	Habitat loss (due to agricultural activities, deforestation, afforestation, expanding urbanisation, river flooding, etc.), and plants being grazed by livestock are recorded as key threats (Collenette, 1999; Downs, 2000; Gilbert, 2000; Masinde, 2000; Newton, 2000). On the Canary Islands, some species populations have declined due to collecting for local, private and hotel gardens (Bramwell, 1997). A major threat to the tuberous taxa of *Ceropegia* in Africa, the Indian Subcontinent and Far East is over-harvesting of tubers and occasionally the fusiform roots (e.g. *C. nilotica*) for local consumption (Babu, et al., 1997; Dyer, 1983; Hargreaves, 1990; Peters, *et al.,* 1992; Ping-tao, *et al.,* 1995). The tubers are also used for medicinal purposes e.g. *C. stenantha* is used to treat stomach ache (Kokwaro, 1976) and as a lucky charm (Gelfand, *et al.,* 1985). *Ceropegia juncea* is reported to be the source of 'Soma', a plant drug of the Ayurvedic system of medicine with a wide variety of uses (see Adibatti *et al.,* 1991). Adibatti *et al.* (1991) have isolated a new pyridine alkaloid (Cerpegin) from *C. juncea* which shows a number of promising pharmacological properties and no negative side-effects. They reported promising tranquillising, hypotensive and local anaesthetic activities. The alkaloid Cerpegin is probably present in all tuberous species, which may explain the intense use of tubers across the entire distribution range. *Ceropegia tricantha* tubers are also reportedly used in Chinese medicine (Ping-tao *et al*., 1995**).**
Conservation, management and legislation	As a national protection measure in India all *Ceropegia* species are included in the negative list of export and import.	All species of *Ceropegia* are protected by the provincial nature conservation ordinances in South Africa and are also declared protected in Namibia and Swaziland (see Hilton-Taylor, 1997). However, enforcement is problematic (Hilton-Taylor, 1997; Newton and Chan, 1998). There is no additional legislation to protect *Ceropegia* in any East African country (Masinde, 2000).
Similar species	The retention of *Ceropegia* spp. in Appendix II would not enhance control of other listed species.	*Ceropegia* tubers are not readily distinguishable from those of *Brachystelma* (Bruyns, 2000; Dyer, 1983). Although *Brachystelma* is not currently included in the Appendices, there is concern over trade levels in this genus (Newton and Chan, 1998). It may be that some *Ceropegia* species are being traded under the name *Brachystelma* to circumvent CITES regulations. At least 62 *Ceropegia* taxa have discoid tubers identical to those of *Brachystelma*, while a further 46 taxa have tubers of various forms. Of the remaining taxa, 43 have unknown rootstocks, 21 have fibrous roots and 97 have fusiform roots.

Reviewers: P. Bruyns, P. Craven, P. Downs, M. Gilbert, E. van Jararsveld, P. Masinde, L. Newton, S. Oldfield, D. Plowes, TRAFFIC East/Southern Africa - South Africa, F. Venter.

Doc. No.: 11.02

Deletion of *Frerea indica* from Appendix II. Proponent: Swiss Confederation

Summary: *Frerea indica* is a small (10-15 cm) perennial succulent plant, with attractive star-shaped crimson flowers that are borne singly or in pairs. It grows on rock crevices of hill cliffs. The only species in the genus, it is endemic to a small hilly area in the Western Ghats of India. Recent studies indicate that the natural distribution is restricted to a small range, with populations being found in no more than six localities. The species is critically endangered, with only around 600 individuals left in the wild. It is threatened with extinction by habitat degradation and some local collection and it was included in CITES Appendix II in 1979. Since 1982 the only reported trade has been in artificially propagated specimens traded between non-range States There does not appear to be any international demand for wild plants. The low price of plants from nurseries suggests that existing demand can be met by artificial propagation. The species is offered for sale by succulent nurseries in the US for around USD4. The species is very easily propagated from stem cuttings, and succulents are generally easy to rear from seeds. Although seed set in the wild may be impaired by lack of pollinators, artificial pollination is likely to circumvent this problem in cultivation. There is no local or national legislation protecting the species, but wild plants and parts are currently prohibited from export. No monitoring or conservation measures for this species appear to be in place. This proposal has been endorsed by the Plants Committee.

Analysis: Following Resolution Conf. 9.24, the species has been proposed for removal from the Appendices on the basis that there is no international trade. Although the critically endangered status of the species shows that it would meet the biological criteria for inclusion in Appendix I, the fact that there is no sign of demand for international trade in wild specimens suggests that the species does not meet the criteria for inclusion in Appendix II. However, wild populations are few in number and small in size, and any international trade in wild specimens could threaten the species with extinction. The precautionary measures (Resolution Conf. 9.24 Annex 4A) recommend that Parties act in the best interests of the conservation of the species if there is any doubt about the impact of trade.

	Supporting Statement (SS)	**Additional information**
Range	India : Western Ghats of Maharastra State	
IUCN Global Category	E	Critically Endangered (Ahmedullah, 1999)
Biological criteria		
A) Small wild population	The species is represented by a few individuals but the SS notes confusion over whether it is 250 populations or individuals. There is mention that the species may be more common than generally thought.	Sastry (2000) contends from personal observations some years ago, that there cannot be 250 populations. The five or six remaining populations comprise 70 to 90 individuals at each location, so the total population is likely to be less than 600 individuals, although a population of 40 to 50 individuals was found in the Ahmadnagar area (Ahmedullah, 2000).
B) Restricted area of distribution	The species is limited to six localities in Maharashtra State at an altitudinal range of 750 to 1350 m, on southeast or northwest facing slopes.	The species is endemic to a narrow range in the districts of Pune, Satar and Ahmadnagar (see Ahmedulah, 1999; Jagtap & Singh, 1999; Yadav, 1998, Tetali, *et al.,* 1997). The area of distribution is about 500 km^2, whilst the area of occupancy is less than 10 km^2 (Ahmedullah, 2000).
C) Decline in number of wild individuals	The population is small but shows no tendency to decline.	The population is estimated to have declined by over 80% during the last ten years, largely due to degradation of the natural habitat (Ahmedullah, 2000).
Trade criteria		
The species is or may be affected by trade	Since 1982, 1 016 artificially propagated specimens have been recorded in trade between non-range states. The species is not thought to be threatened by trade as the plant is easy	No additional information provided on international trade, but the species is collected locally by plant enthusiasts (Ahmedullah, 2000). Sastry (2000) questions where the stock for the artificial propagation came

	Supporting Statement (SS)	Additional information
	to propagate.	from and contends that there may be illegal trade. Specimens are offered for sale on the internet for around USD4.
Precautionary measures		
B4: Likeliness of qualifying for inclusion in the Appendices in the near future.	There is unlikely to be any demand in international trade, as the species can be easily propagated.	
Other information		
Threats	The following threats have been recorded: fire; grazing and natural calamities. Although the species could make a good indoor plant, there is no evidence of collection from the wild for international trade.	In addition to the threats mentioned in the SS, Ahmedullah (2000) notes shifting agriculture as a source of habitat degradation. Sastry (2000) notes that caterpillars are a natural predator and that the plant does not set seed easily, possibly due to a lack of pollinators (Ahmedullah and Nayar, 1987).
Conservation, management and legislation	No information is available on the national legal status. The species has been included in CITES Appendix II since 1979**,** marked with Annotation #1, to exclude seeds, pollen, tissue culture and cut flowers of artificially propagated plants from the Appendix II listing. There is no monitoring or other form of management**.**	There is no specific legislation enacted for protection of the species at the national level. However, the species is mentioned in Notification No. 24 of 1998 from the Ministry of Foreign Trade. This prohibits the export of plants, plant portions, their derivatives and extracts obtained from the wild, except the formulations made from them.
Similar species	The species is similar to *Caralluma fimbriata*, which is not included in the CITES Appendices.	
Other comments		Ahmedullah (2000) notes that the species is not in international trade and so the proposal seems valid, but he calls for the following points to be carefully considered: the species is a narrow endemic on the verge of extinction; it is not protected by any local or national legislation; it is taxonomically unique, being of a monotypic genus; it is over-collected from the wild for national use; its natural habitat is under severe threat. Sastry (2000) recommends that the species be maintained in Appendix II.

Reviewers: M. Ahmedullah, A. R. K. Sastry, TRAFFIC India.

Deletion of *Byblis* spp. from Appendix II. Proponent: Australia.

Summary: *Byblis* is a small genus of carnivorous plants known from Australia and Indonesia (Irian Jaya) and expected to occur in Papua New Guinea. The genus has been included in Appendix II since 1979. Formerly considered to comprise two species, recent revision indicates that there are at least five species, probably six and perhaps more. One, *Byblis gigantea,* may have a persistent rootstock; the remainder are believed to be annuals or very short-lived perennials. None of the currently described species is considered rare or threatened, although the southern form of *B. gigantea,* which may constitute a separate species, is apparently very localised. The species are cultivated by carnivorous plant enthusiasts within Australia and elsewhere, and have no other reported use in domestic or international trade. They are reportedly relatively straightforward to raise from seed or by tissue culture. In Australia small quantities of seed are harvested each year from State lands under permit. There is no record of any legal international trade in wild-collected plants, although the supporting statement refers to unsubstantiated reports of illegal collection of cuttings or wild plants by overseas collectors in Australia. The Plants Committee has endorsed this proposal.

Analysis: There is no currently documented harvest from the wild of plants of any of the species for international trade. In view of the very short-lived nature of most if not all species, such harvest for the horticultural trade would appear very unlikely. International and domestic demand within Australia appears to be met by seed, or to a lesser extent from plants raised by tissue culture. Following Resolution Conf. 9.24, the genus does not therefore appear to meet the criteria for inclusion in Appendix II, nor are any of the currently recognized species considered to meet the biological criteria for inclusion in Appendix I at present or in the near future.

	Supporting Statement (SS)	**Additional information**
Taxonomy	Five species are recognized: *Byblis aquatica, B. filifolia, B. gigantea, B. liniflora, B. rorida.* Further taxonomic work is required on populations on New Guinea.	The southern form of *B. gigantea* is to be recognized as a separate species (Conran, 1999).
Range	Australia and Indonesia (Irian Jaya); thought very likely to occur in Papua New Guinea.	
IUCN Global Category	None is listed.	
Biological and trade criteria for retention in Appendix II		
B) Harvesting for international trade has, or may have, detrimental impact on population i) exceeds sustainable yield **ii)** reduces population to potentially threatened level	All recorded international trade has been declared as in artificially propagated plants. There is limited legal harvest of seed in Australia, although it is not clear whether any of this is destined for international trade. There is no recorded harvest of plants from any range State for international trade. There are unsubstantiated reports of some illegal collection of seeds and plants or cuttings for international trade, but no indication that such collection, if it exists, has any significant impact on populations.	The very short-lived nature of most, if not all, species and the fact that techniques for raising them from seed have been well developed by hobbyists and specialist nurserymen (Slack, 1979; Meyers-Rice, 1999) would indicate that there is little incentive to collect wild plants for horticultural purposes.

	Supporting Statement (SS)	Additional information
A) Trade regulation needed to prevent future inclusion in Appendix I		There is no indication that any currently recognized species will meet the criteria for inclusion in Appendix I in the future as a result of international trade.
Retention in Appendix II to improve control of other listed species		
Specimens resemble other species and are difficult to distinguish, or most of taxon is already listed	No.	
Criteria for inclusion in Appendix I		
Trade	At least some species are in international trade, but all apparently as seed or as artificially propagated plants.	
Biological criteria	None of the currently recognized species is considered threatened.	Most species are likely to be even more widespread than currently thought as the areas where they have been recorded are generally little explored botanically (Dixon, 1999). The southern form of *B. gigantea* has a very limited distribution (Conran, 1999).
Other information		
Threats	Within Australia none of the currently recognized species is considered threatened at State or Federal level.	The southern form of *Byblis gigantea* has been added to the Priority Flora list for Western Australia, as in need of further study and survey work (Conran, 1999).
Conservation, management and legislation	Export permits from Australia are required for all specimens, whether artificially propagated or wild-collected. This will not change if the genus is deleted from the Appendices.	

Reviewers: J. Conran, K. Dixon, P. Mann, TRAFFIC Oceania.

Transfer of *Disocactus macdougalli* from Appendix I to Appendix II. Proponent: Switzerland

Summary: *Disocactus macdougalli* is a relatively small-flowered, epiphytic cactus endemic to Mexico, which was transferred from Appendix II (under the general listing of all Cactaceae) to Appendix I in 1983. The only trade reported by CITES since then is of two artificially propagated plants exported from the USA to Germany in 1989. Its only known role in international trade is as a cultivated ornamental plant; there appears to be little horticultural demand for the species, which was described as rare in cultivation in 1991 and was not found to be commercially available in Europe at that time. It is reportedly easy to propagate. It is officially classified in Mexico as Rare, although the supporting statement indicates that it is relatively abundant and not threatened. This proposal has been endorsed by the Plants Committee.

Analysis: There is insufficient information to determine whether the species meets the biological criteria for inclusion in Appendix I. Demand for the species in international trade appears negligible; any that exists can evidently be met with artificially propagated stock. Resolution Conf. 9.24, after second Resolves paragraph f, recommends that species of which all specimens in trade are artificially propagated should not be included in the Appendices if there is no probability of trade taking place in specimens of wild origin.

	Supporting Statement (SS)	**Additional information**
Taxonomy	Synonyms: *Lobeira macdougalli; Nopalxochia macdougalli*	
Range	Mexico: Region of Cerro Huitepec, Chiapas.	
IUCN Global Category		Classified as “Rare” by Mexican Secretary of the Environment, Natural Resources and Fish (SEMARNAP) in 1994, corresponding to pre-1994 IUCN category of “Rare” (Oldfield, 1997).
Biological criteria		
A) Small wild population	Described as “very viable and not rare at all”.	
i) Population or habitat decline	Said to be no evidence of decline.	
Trade criteria		
The species is, or may be, affected by trade	Stated to be not of interest to collectors and rarely propagated in nurseries, although easy to grow from seeds.	*Disocactus* spp. are said to be rapid growers and easily propagated by conventional means; it is said to be easier to obtain material by propagation than to collect it from the wild (Taylor, 1999). In general epiphytic cacti do not attract specialist hobbyist interest in the same way that many terrestrial cacti do (Jenkins, 1993), and they are reportedly rarely affected by trade (Taylor, 1999). In the early 1990s there was no evidence found of the species in trade in Europe (Jenkins, 1993).
Threats	None other than habitat destruction	
Conservation, management and legislation	Mexico does not permit the export of wild-collected plants	Government permits are required for the collection of any wild plants in Mexico; illegal removal of cacti and other succulents is an environmental crime (delito ambiental) under the Penal Code (Oldfield, 1997).

	Supporting Statement (SS)	Additional information
Similar species	None	Ten species in genus (Hunt, 1992); superficially similar to a number of these and other epiphytic cacti, particularly when not in flower.

Reviewers: N. Taylor; S. Oldfield, TRAFFIC North America.

Transfer of *Sclerocactus mariposensis* from Appendix I to Appendix II. Proponent: Switzerland

Summary: *Sclerocactus mariposensis* is a small, small-flowered, globular, terrestrial cactus found in the Chihuahua Desert region of northern Mexico and south-west Texas, USA. It was transferred from Appendix II (under the general listing of Cactaceae) to Appendix I (as *Echinomastus mariposensis*) in 1983. The species was listed as Threatened under the US Endangered Species Act (ESA) in 1979 and has been considered threatened in Mexico. Collection of live plants, apparently for the domestic horticultural trade, is known to have taken place from accessible locations in the USA. Recent detailed studies, however, indicate that the species has a wide distribution within the Chihuahua Desert, can occur at relatively high densities in suitable habitat and does not appear to be threatened. It is slow-growing but apparently reasonably straightforward to raise from seed (in which there is a steady but fairly low international trade) and is cultivated by cactus hobbyists outside the range States, notably in Europe. It is not highly sought-after, however, and there is no evidence of any current international demand for wild-collected specimens. Resolution Conf. 9.24 paragraph f after the second Resolves, recommends that species of which all specimens in trade have been artificially propagated should not be included in the Appendices if there is no probability of trade taking place in specimens of wild origin. The proposal is endorsed by the Plants Committeee.

Analysis: Recent information indicates that the species does not meet the biological criteria for inclusion in Appendix I. Recorded international trade in the species is confined to seeds and it is unlikely that there will be any demand in the foreseeable future for wild-collected specimens.

	Supporting Statement (SS)	**Additional information**
Taxonomy	Variously included in *Echinomastus, Neolloydia, Echinocactus* and *Pediocactus.*	The species should probably be maintained in *Echinomastus* (Anderson and Schmalzel, 1997).
Range	Central Coahuila (Mexico) to southwestern Texas (USA).	Further details in Anderson and Schmalzel (1997) and Barcenas Luna (1999).
IUCN Global Category		Classified as Vulnerable in 1997 (pre-1994 category) (Walter and Gillett, 1998).
Biological criteria		
A) Small wild population		Occurs at relatively high densities in suitable habitat within range (Anderson and Schmalzel, 1997).
Ii) Small sub-populations	Populations are variable in size.	
B) Restricted area of distribution	North-south extension of known range is approximately 350 km, indicating a substantial area of distribution.	Reported as apparently having a wide distribution in the northern Chihuahua Desert (Anderson and Schmalzel, 1997).
i) Fragmented or localised population	SS notes that apparent gaps in distribution are likely to be owing to lack of data. Populations are quite widely scattered.	
Iv) Decrease in distribution, population, habitat or reproductive potential	Habitat loss unlikely to be a problem.	
C) Decline in number of wild individuals		All populations studied in the USA in the mid-1990s were healthy and regenerating (Anderson and Schmalzel, 1997).

	Supporting Statement (SS)	Additional information
i) Ongoing or historic decline	Some populations reportedly depleted by collection.	
D) Status suggests inclusion in Appendix I within five years	No.	A detailed study conducted in the mid-1990s concluded that the species did not appear to be threatened (Anderson and Schmalzel, 1997).
Trade Criteria		
The species is, or may be, affected by trade		No evidence of international demand for wild-collected specimens (Jenkins, 1993). It is reportedly straightforward to raise from seed and not in great demand horticulturally (Powell, 2000). Artificially propagated plants are available in Europe for ca USD2.5-5 (TRAFFIC Europe, 2000); these prices indicate that the species is not held at a premium.
Precautionary Measures		
B2b: CoP satisfied with: i) Implementation of Article IV		There appears to be no international demand for wild-collected plants of this species.
Other Information		
Threats	Some populations have been heavily overcollected in the past; cattle-grazing may pose some threat.	Some populations may be threatened by mining and drilling, off-road vehicles and grazing (USFWS, 2000); the species does not, however, appear to be threatened overall (Anderson and Schmalzel, 1997).
Conservation, management and legislation	Protected under US Endangered Species Act in USA. Significant populations in USA on protected lands, notably in Big Bend National Park.	Protected by state legislation in Texas (USFWS, 2000). Government permits are required for the collection of any wild plants in Mexico; illegal removal of cacti and other succulents is an environmental crime (delito ambiental) under the Penal Code (Oldfield, 1997).
Similar species	Reportedly bears some resemblance to *Turbinicarpus beguinii* (Appendix I).	

Reviewers: T. Anderson, S. Oldfield, The Nature Conservancy / Association for Biodiversity Information, TRAFFIC North America.

Deletion of Western Australian Pitcher Plant *Cephalotus follicularis* from Appendix II. Proponent: Australia

Summary: The Western Australian Pitcher Plant *Cephalotus follicularis* is a small, attractive, terrestrial carnivorous plant that grows in south-western Australia. It is noted as widespread and abundant in suitable habitat, most of which is protected. It was included in Appendix II in 1979. The species is straightforward to propagate and is widely available as an ornamental plant or curiosity worldwide. Export from Australia, (the only range State and proponent of the proposal), will still be subject to national export permit control even if the species is removed from the Appendices. No international trade in wild-collected plants has been recorded under CITES since the species was listed, nor has any known legal collection of the species from government lands taken place in the past ten years. There are no regional variants of interest to collectors; this and its ease of propagation indicate that there is no incentive to collect plants from the wild, for either domestic horticultural use or international trade. This species is proposed for removal from Appendix II on the basis that there is no probability of trade taking place in specimens of wild origin as recommended under Resolution Conf. 9.24, paragraph f. The proposal is endorsed by the Plants Committee.

Analysis: Following Resolution Conf 9.24, the species would not appear to meet the criteria for inclusion in either Appendix I or Appendix II, nor is it foreseen to do so in the near future, as there is no recorded trade.

	Supporting Statement (SS)	**Additional information**
Range	Extreme south-west Australia, ranging over a distance of some 400 km from NW to SE.	
IUCN Global Category		Not listed.
Biological and trade criteria for retention in Appendix II		
B) Harvesting for international trade has, or may have, detrimental impact on population i) exceeds sustainable yield ii) reduces population to potentially threatened level	No evidence of any harvesting for domestic use or international trade. The species is widely propagated within Australia.	There are no regional variants of interest to collectors that might conceivably stimulate collection (Dixon, 2000). The species is widely propagated outside the range State (Jenkins, 1993; RHS, 1999).
A) Trade regulation needed to prevent future inclusion in Appendix I	See above.	

	Supporting Statement (SS)	Additional information
Retention in Appendix II to improve control of other listed species		
Specimens resemble other species and are difficult to distinguish, or most of taxon is already listed	No similar species.	
Criteria for inclusion in Appendix I		
Trade	No evidence of trade in wild-collected specimens.	
Biological criteria	Widespread and abundant within its range.	
Other Information		
Threats	Loss of wetlands on private lands has led to loss of some populations.	No further habitat loss is anticipated (Mann, 1999).
Conservation, management and legislation	Most populations are on protected Government land. A permit is required to collect the species from such lands. No such permit has been issued in the last ten years. Export of all specimens (including artificially propagated ones) is subject to control by export permit. This will be maintained if the species is removed from the Appendices.	

Reviewers: D. Cheal, K. Dixon; P. Mann, TRAFFIC Oceania.

Transfer of *Dudleya stolonifera* and *Dudleya traskiae* from Appendix I to Appendix II. Proponent: Switzerland.

Summary: *Dudleya stolonifera* and *D. traskiae* are two succulent plants from California, USA. *D. stolonifera* numbers around 8 000-10 000 individuals in six populations, two of which have been reduced by urban development, and is classified as Endangered (pre-1994 criteria) by IUCN and threatened under the US Endangered Species Act. *D. traskiae* is confined to a small (264 ha) island off the coast of California, where it is believed to number fewer than 100 indivdiuals. In 1970 the species was feared extinct but a few individuals were discovered in 1975. Its population is currently considered stable with no artificial threats to its existence. The species is classified as Endangered (pre-1994 criteria) by IUCN and endangered under the US Endangered Species Act. Both species were included in Appendix I in 1983. *Dudleya* spp., of which there are about 40, all in western North America, have attractive silvery leaves and are grown as ornamental plants both within the range State and elsewhere. Demand outside the range State appears low, however, and there is no evidence of a specialist collectors' market. No other species are listed in the Appendices. No trade in either *D. stolonifera* or *D. traskiae* has been recorded since they were listed. Wild-collected specimens of *D. stolonifera* have been seen in at least one nursery in California, and one colony has been presumed damaged by collecting, indicating that there is demand for the species within the range State. Most populations of this species occur on private land. *D. traskiae* has reportedly been historically collected, although there is no evidence of recent collection, or of the species in domestic trade. Its entire range is included within a national park to which access is controlled. A recovery plan has been developed for the species. This proposal has been endorsed by the Plants Committee.

Analysis: Following Resolution Conf. 9.24, it is unclear whether *D. stolonifera* meets the biological criteria for inclusion in Appendix I. Its population does not appear to be small, although it may have what would be considered a restricted area of distribution, fragmented into small or localised populations. There is insufficient information to tell whether the overall population is currently declining, although it appears that some historical decline has taken place. *D. traskiae* has a very restricted range, with a localised and extremely small population, so that it would seem to meet the biological criteria for inclusion in Appendix I. However, its population is apparently stable and its habitat is well protected. There is no evidence of any specific international demand for these species, nor for the presence of wild-collected plants of any *Dudleya* spp. in international trade. However, *Dudleya* species are in cultivation within and outside the range State, so that it is conceivable that these species may potentially enter trade. The precautionary measures in paragraph A, Annex 4 of Resolution Conf. 9.24 indicate that in cases of uncertainty, the Parties should act in the best interests of the conservation of the species.

	Supporting Statement (SS)	**Additional information**
Range	USA *D. stolonifera* is endemic to the San Joaquin Hills, California. *D. traskiae* is endemic to Santa Barbara Island, California.	
IUCN Global Category		*D. stolonifera*: E (pre-1994 criteria) (Walter and Gillett, 1998). *D. traskiae* E (pre-1994 criteria) (Walter and Gillett, 1998).
Biological criteria		
A) Small wild population	*D. stolonifera:* known from six populations that collectively contain up to 10 000 individuals. Four of the six populations contain 95% of the population. *D. traskiae:* reportedly numbers fewer than 100 individuals.	*Dudleya stolonifera.* Estimated to be 8 000 to10 000 individuals in total (USFWS, 2000a).
i) population or habitat decline	*D. stolonifera*: two populations reduced by urban development.	*D. stolonifera.* During the late 1970s a portion of one of the largest populations (Aliso Canyon) was reduced for construction of a hotel and

	Supporting Statement (SS)	Additional information
		restaurant (USFWS, 2000a). *D. traskiae.* Monitored populations were stable during 1985-1987. Since then the species was reported to be "flourishing" vegetatively although it is uncertain whether recruitment is occurring (USFWS, 2000b).
B) Restricted area of distribution		*D. stolonifera.* Habitat of the species is extremely restricted within its range but is generally stable owing to its rugged nature (USFWS, 2000a). *D. traskiae.* Santa Barbara Island covers 264 ha (USFWS, 2000b).
i) fragmented or localised population	*D. stolonifera.* Six known populations. *D. traskiae.* Known from ten locations.	
Iv) decrease in distribution, population, habitat or reproductive potential		See above.
C) Decline in number of wild individuals		*D. stolonifera.* See above. Generation time of the species is not known. *D. traskiae.* Overall trend appears to be one of stability, but numbers are low enough that extirpation of some populations is considered a continued threat (USFWS, 2000b).
Trade criteria		

	Supporting Statement (SS)	Additional information
The species is, or may be, affected by trade	No international trade in either wild-collected or artificially propagated plants of either species recorded since they were listed in 1983. Reported export of 2 641 artificially propagated specimens of *Dudleya* spp. from France to Switzerland in 1985. Nine specimens of *Dudleya* spp. exported from Mexico to USA, 1984-1990. *D. stolonifera.* Field-collected specimens have been found in a Southern Californian nursery and the species is likely to be harvested for private collections within the range State. All species of *Dudleya* are recorded as potentially interesting for collectors.	There are around 40 species of *Dudleya* found in western North America (Mabberley, 1990). Some are cultivated as ornamentals and are reported to be generally easy to cultivate (Innes, 1977). However, in Europe at least, there is apparently little demand for species, and there does not appear to be any specialist collectors' market. There would not, therefore, be expected to be international demand for wild-collected specimens (Jenkins, 1993). The genus is reportedly prized by collectors in the USA (USFWS, 2000a and b).
Other information		
Threats	*D. stolonifera.* Considered threatened under the US Endangered Species Act. Threats are identified as urban proximity, recreational activities, grazing, potential over-collecting, and competition from exotics. *D. traskiae.* Considered endangered under the US Endangered Species Act.	TNC/ABI (2000) note that relative to other pressures, collection appears to pose little threat to wild populations. *D. stolonifera.* One population has been damaged, with collection for the nursery trade highly suspected (USFWS, 2000a). *D. traskiae.* Reported that at present there are no artificial threats to the species' existence (USFWS, 2000b).
Conservation, management and legislation	*D. stolonifera.* Provided protection under its listing in the US Endangered Species Act. *D. traskiae* Provided protection under its listing in the US Endangered Species Act. The range of the species is wholly within a national park and is fully protected. A recovery plan has been developed.	*D. stolonifera.* One of four major populations and one minor population are within land designated as a preserve under the State of California's Natural Communities Planning area. The three other major populations of the species are on private land. Sporadic monitoring is carried out, but current management measures are generally passive (USFWS, 2000a). *D. traskiae.* Hiking is restricted on Santa Barbara Island, limiting access to populations of the plant (USFWS, 2000b).
Similar species		There are approximately 40 members of the genus. No other is currently listed in the Appendices.

	Supporting Statement (SS)	Additional information
Other comments		The US Fish and Wildlife Service (1998) notes that simply listing a plant species can precipitate commercial or scientific interest, both legal and illegal. This can threaten the species through unauthorized and uncontrolled collection for both commercial and scientific purposes. The listing of species as endangered or threatened publicises their rarity and may make them more susceptible to collection by researchers and curio seekers. Plants are particularly vulnerable to vandalism, and rare or listed plants may be viewed as targets by vandals who view their presence as a threat to future land use. State of California biologists are opposed to the downlisting (TNC/ABI, 2000).

Reviewers: The Nature Conservancy/Association for Biodiversity Information; TRAFFIC North America.

a) Change the current listings of Cyatheaceae spp. to *Cyathea* spp. (including *Alsophila*, *Nephelea*, *Sphaeropteris, Trichipteris*).
b) Change the current listing of Dicksoniaceae spp. to *Dicksonia* spp. (originating in the Americas only) and *Cibotium barometz*.
Proponent: Swiss Federation

Summary: All species of tree fern, in the families Cyatheaceae and Dicksoniaceae, are currently listed on Appendix II. The two families jointly contain around 650 species, with a predominantly tropical distribution. This proposal involves the complete removal of the following five genera of tree ferns from Appendix II: *Cnemidaria* (Family Cyatheaceae), consisting of approximately 23 species, found in Tropical America; *Calochlaena* (Family Dicksoniaceae), six species from Tropical Asia and Oceania; *Culcita* (Family Dicksoniaceae), seven species from Tropical America; *Cystodium* (Family Dicksoniaceae), one species from Tropical Asia and Oceania; *Thyrsopteris* (Family Dicksoniaceae), one species from Juan Fernandez Island. In addition, all of the species in the genus *Cibotium*, except for *Cibotium barometz* (ten species, Family Dicksoniaceae), and those species of *Dicksonia* not originating in the Americas will be removed. Significant trade in tree ferns takes place, but primarily in a limited number of species. Tree fern products (as substrate for orchid propagation, carvings, containers, poles, shredded fibre for horticultural growth media, and leaves for floral displays) account for much of the trade in Cyatheaceae and Dicksoniaceae, although there is also trade in live plants for horticultural purposes. Much of the CITES reported trade in tree ferns is only reported at the genus level. At its ninth meeting, the Plants Committee recommended that the current listing of tree ferns be amended as in the proposal, in order to remove from the Appendices those taxa that are not traded or in which the trade is well managed.

Analysis: Following Resolution Conf. 9.24, the available information suggests that none of the genera proposed for deletion from Appendix II meet the biological criteria for inclusion in Appendix I, although the status of most species is not well known. Due to the lack of reporting at the species level, analysing the trade in tree ferns is problematic. The only species proposed for removal from Appendix II which appear to be traded in significant quantities are *Calochlaena dubia*, *Dicksonia antarctica*, *D. fibrosa*, and *D. squarrosa*. All are common species, from Australia or New Zealand, and none are listed in the 1997 IUCN Red List of Threatened Plants. Commercial trade from Australia and New Zealand is thought to be well-regulated and sustainable. It appears unlikely therefore that any of the genera meet the criteria in Annex 2a for inclusion in Appendix II (i.e. there is no evidence that known, inferred or projected harvesting for international trade may be unsustainable nor that, unless international trade is regulated, the species will qualify for inclusion in Appendix I in the near future). *D. antarctica* is, however, exported in large quantities from Australia and currently has no legal protection in Tasmania, nor is a management programme in place. Although demand is reported for *Culcita macrocarpa*, considered to be endangered in Portugal and Vulnerable in Spain, there is no evidence of international trade in this species. With respect to the criteria in Annex 2b, identification of Tree Ferns is difficult, unless the country of origin is known, and therefore it could be argued that the genera may meet criterion A in Annex 2b (the specimens resemble those of a species included in Appendix II, such that a non-expert, with reasonable effort, is unlikely to be able to distinguish between them).

	Supporting Statement (SS)	**Additional information**
Taxonomy	The genus *Culcita* spp. is sometimes treated as a separate family, Culcitaceae. The genus *Thyrsopteris* spp. is sometimes treated as a separate family, Thyrsopteridaceae.	**Taxa proposed for removal from Appendix II**: *Cnemidaria* (Family Cyatheaceae): all species. *Calochlaena* (Family Dicksoniaceae): all species. *Cibotium*, all species except for *Cibotium barometz* (Family Dicksoniaceae); *Culcita* (Family Dicksoniaceae): all species. *Cystodium* (Family Dicksoniaceae); only one species in genus. *Dicksonia*: all species not originating in the Americas (WCMC, 2000): *D. antarctica, D. arborescens, D. archboldii, D. baudouini, D. blumei, D. brackenridgei, D. fibrosa, D. grandis, D. heironymi, D. lanata, D. lanigera, D. mollis, D. sciurus, D. squarrosa, D. thyrsopteroides, D. youngiae.* *Thyrsopteris* (Family Dicksoniaceae): only one species in genus.

	Supporting Statement (SS)	Additional information
		The families Lophosoriaceae and Metaxyaceae, both containing one species from tropical South America, have never been listed on Appendix II.
Range	Representatives of the families Cyatheaceae and Dicksoniaceae are found in all tropical regions. Some smaller genera have a more restricted continental distribution.	Range States are given for genera, except for species listed on the 1997 Red List of Threatened Plants or traded in significant quantities. ***Cnemidaria***: Bolivia, Brazil. Colombia, Cost Rica, Dominica, Ecuador, French Guiana, Guadeloupe, Guatemala, Martinique, Mexico, Montserrat, Panama, Peru, St Kitts-Nevis, St. Lucia, Venezuela, (*C. glandulosa*: Panama; *C. stolzeana*: Panama; *C. suprastrigosa*: Panama; *C. tryoniana*: Colombia; *C. varians*: Panama). ***Calochlaena***: Australia, Fiji, Indonesia**,** Malaysia, New Caledonia, Papua New Guinea, Philippines, Samoa, Solomon Island, Vanuatu*, (C. dubia*: Australia). ***Cibotium* (not *C. barometz*)**: Costa Rica, El Salvador, Guatemala, Honduras, Indonesia, Malaysia, Mexico, Philippines, United States. ***Culcita***: American Samoa, Argentina, Australia, Bolivia, Brazil, Columbia, Costa Rica, Cuba, Dominica, Ecuador, El Salvador, Fiji, French Guiana, Guatemala, Guyana, Honduras, Haiti, Indonesia, Jamaica, Malaysia, Mexico, New Caledonia, Panama, Papua New Guinea, Peru, Philippines, Portugal, Samoa, Solomon Islands, Spain, Vanuatu, Venezuela. ***Cystodium***: Indonesia, Papua New Guinea, Solomon Islands. ***Dicksonia* (not originating in the Americas)**: American Samoa, Australia, Fiji, Indonesia, Papua New Guinea, New Caledonia, New Zealand, Philippines, Samoa, Solomon Islands, St Helena, Vanuatu, *(D. antarctica*: Australia; *D. fibrosa*: New Zealand; *D. squarrosa*: New Zealand). ***Thyrsopteris***: Chile.
IUCN Global Category		The following species are listed in the 1997 Red List of Threatened Plants (Walter and Gillett, 1998). ***Cnemidaria***: *C. glandulosa* (Rare), *C. stolzeana* (Vulnerable), *C. suprastrigosa* (Rare), *C. tryoniana* (Rare), *C. varians* (Rare). ***Calochlaena*:** No species is listed on the Red List. ***Cibotium* (not *C. barometz*)**: *C. cumingii* (Indeterminate). ***Culcita***: No species is listed on the Red List. ***Cystodium***: Not listed on the Red List. ***Dicksonia* (not originating in Americas)**: No species not originating in the Americas is listed on the Red List. ***Thyrsopteris***: *T. elegans* (Vulnerable).
Biological criteria		
A) Small wild population		Little data is currently available on the population size and distribution of tree ferns. In addition to the listings in the 1997 Red List of Threatened Plants, additional data on the status of particular species at the country level is available (WCMC, 2000).

	Supporting Statement (SS)	Additional information
		Cnemidaria: *C. choricarpa*: Vulnerable in Panama; *C. horrida*: Rare in Costa Rica and Ecuador; *C. mutica*: Vulnerable in Costa Rica. ***Cibotium***: *C. regale*: Rare in Costa Rica, Vulnerable in El Salvador, Endangered in Mexico; *C. schiedei*: Endangered in Mexico. ***Culcita***: *C. macrocarpa*: Endangered in Portugal, Vulnerable in Spain. ***Dicksonia***: *D. brackenridgei*: Rare in Solomon Islands; *D. archboldii* Vulnerable in Solomon Islands; *D. sciurus*: Rare in Solomon Islands. ***Thyrsopteris***: *T. elegans* (V), endemic to Juan Fernandez Islands.
Trade criteria		
The species is or may be affected by trade	Although about 60 species of Cyatheaceae and Dicksoniaceae have appeared in international trade, most are traded in small quantities, usually for scientific purposes. Of the species proposed for removal from Appendix II, only *Calochlaena dubia*, *Dicksonia antarctica*, *D. fibrosa*, and *D. squarrosa* are traded in significant quantities. Commercial trade in tree ferns from Australia and New Zealand is well regulated. Stems of *Cyathea* and *Dicksonia* are used as substrate for orchid propagation. *Cibotium barometz* (not proposed for removal) is used for medicinal purposes. Tree ferns of the genera *Cyathea* and *Dicksonia* are relatively easy to propagate although this is not currently happening on a very large scale. *Cibotium barometz* is not currently in cultivation on a commercial scale. The taxa which are thought to be negatively affected by trade will be maintained on Appendix II. Illegal shipments have been seized previously, but there is no information on recent illegal trade in tree ferns.	General: Live tree ferns plants are in demand for the horticultural market, particularly in Europe, the USA and Japan. The levels of international trade reported at species level are generally low, the highest in 1998 being *D. antarctica*. Tree ferns are easily cultivated artificially and much of the trade in live plants from Australia and New Zealand is supplied with artificially propagated specimens (approximately 70% in Australia and 78% in New Zealand, Oldfield, 1995). Generally collection levels of plants from the wild are unlikely to cause concern, the only exception being *D. sellowiana*, not proposed for removal from Appendix II (Oldfield, 1995) and *D. antarctica* (see below). Substantial international trade in tree fern products exists, mainly to the USA, Japan and Europe. Most of these products derive from the wild. Reported trade (from CITES Annual Report data 1988 to 1998, unless specified otherwise): ***Cnemidaria***: Recorded exports in this genus total a mere 31 items (comprising live plants, flowers and specimens) for the period 1988-1998. According to Buchner and Dietrich (1996), this genus comprises tree ferns that are rarely more than 0.5 m tall, which are of no commercial value. Some trade may be included in the very large volume of trade reported at family level, Cyatheaceae. ***Calochlaena***: *C. dubia*: Leaves and stems of this species are exported in large quantities from Australia. ***Cibotium* (not *C. barometz*)**: Little trade recorded for species other than C. barometz. Australia exports artificially propagated *C. cumingii* (listed as I on 1997 Red List of Threatened Plants). *C. cumingii* (I) occurs inTaiwan, a major exporter of both tree ferns and tree fern products (Oldfield, 1995), but no exports of this species from Taiwan were recorded between1988 and1998. A significant internal trade in this genus occurs between Hawaii and mainland USA (Oldfield, 1995). ***Culcita***: Little trade recorded between 1988 and 1998. An increasing demand for *C. macrocarpa* is reported for horticultural purposes, and for the sale of trinkets in Portugal (Jermy, 2000), but no exports of this species

	Supporting Statement (SS)	Additional information
		have been reported between 1988 and 1998 (WCMC, 1999). ***Cystodium***: No trade recorded between 1988 and 1998. ***Dicksonia* (not originating in Americas)**: Substantial trade exists, mostly in live plants and products of *D. antarctica* from Australia, and *D. squarrosa* and *D. fibrosa* from New Zealand. Many of the live plants are artificially propagated, although there is also well-regulated collection of wild plants (Oldfield, 1995). An increasing international trade in tree fern fibre mix for the horticultural market in the United Kingdom, USA and Australia, is developing, primarily derived from wild-grown *D. squarrosa* (Oldfield, 1995). The tree ferns are extracted from forests prior to logging (Oldfield, 1995). No other species proposed for removal from Appendix II is currently traded in significant quantities. ***Thyrsopteris***: No trade reported to species level. Illegal trade: A shipment of 20 m^3 of *Dicksonia* originating in Brazil was confiscated in the Netherlands on 7 April 1994, due to lack of a CITES import permit (Anon., 1994).
Precautionary measures		
B4: Likeliness of qualifying for inclusion in the Appendices in the near future.		The available information suggests that it is unlikely that any of the species proposed for removal from Appendix II will qualify for inclusion in the near future. The only species about which there appears to be concern is *D. antarctica*, which is traded in large quantities from Australia. This species is not legally protected in Tasmania and no approved management programme is in place (although one is planned). It has been estimated that there are around 120 million plants with about 29 million available for harvesting, which is permitted on both crown and private land (Oldfield, 1995). According to Oldfield (1995), a Tree Fern Management Plan drawn up in 1989 states that *Dicksonia* is adequately represented within Tasmania's Protected Areas. The Management Plan contains voluntary harvesting guidelines. The annual quota for the species harvested on State Forest land is 235 000 stems, while the overall preferred harvest set for crown and private land is 500 000 stems (Anon., 1990, cited in Oldfield, 1995). The quota is regulated by a licensing system administered by the Forestry Commission. Given that Tree Ferns are thought to grow slowly and are likely to take at least 10-15 years to mature (Anon., 1990, cited in Oldfield, 1995), offtake rates appear high. *D. antarctica* is the only Australia tree fern species annotated as a 2(a) species under CITES, ie listed because it is a species threatened by trade (Leigh and Boden, 1979, cited in Oldfield, 1995).The other species are annotated as 2(b) because of their similarity in appearance to threatened species in trade.
Other Information		
Threats	Species may be threatened locally, mainly because of habitat destruction.	Habitat loss, clearance for agricultural land, and over-harvesting are threats in some areas.

	Supporting Statement (SS)	Additional information
Conservation, management and legislation	Many range States afford varying national levels of protection. Forest management includes the harvesting of tree ferns, and is apparently well regulated in Australia and New Zealand.	*Dicksonia antarctica* and *Calochlaena dubia* are listed under Schedule 2 of the Wildlife Protection (Regulation of Exports and Imports) Act, 1982. The harvest and export of these species can be granted under section 10 of the Act under 'Approved Management Plans' which is subject to the approval of a management program relating to the protection, conservation or management of the species. Tasmania is the only state in Australia where *D. antarctica* is not legally protected. There are no regulations for the harvesting of Tree ferns in Tasmania. A Federally approved management programme exists in Victoria (Australia) and there are anecdotal reports of illegally harvested Tasmanian Tree Ferns entering into the Victoria harvested stock; these reports have not, however, been substantiated (TRAFFIC Oceania, 2000). A tagging system is in operation in Victoria. Tasmania aims to prepare a management and permitting system, consistent with that in Victoria, by September 2000 (TRAFFIC Oceania, 2000). Permits are required in New Zealand for collection of tree ferns from the wild (Oldfield, 1995).
Similar species		Species identification of Tree Ferns is not easy and even generic recognition of *Cyathea* can be difficult when plants are young, without stems and fertile leaves (Jermy, 2000). However, identification is normally possible when the origin of the specimens is known (Kiehn, 2000). *Dicksonia*, *Cibotium* and *Culcita* have long silky hairs around the stem growing point, distinguishing them from other ferns.

Reviewers: D. Barrington, D. Conant, C. Jermy, M. Kiehn, B. MacBryde, H. Navarrete, S. Oldfield, TRAFFIC East/Southern Africa, R. Valencia.

Deletion of *Shortia galacifolia* from Appendix II. Proponent: Switzerland.

Summary: *Shortia galacifolia* (Oconee-bells) is a small, moisture and shade-loving perennial plant confined to a part of the southern Appalachian Mountains in eastern USA. It has been included in CITES Appendix II since 1983. Five other members of the genus occur in east Asia and are not included in the Appendices. *Shortia* spp. have attractive foliage and flowers and are in cultivation. There is reportedly a reasonable demand for *S. galacifolia* within the range State, particularly within its natural range; in the past at least some of this has evidently been met with wild-collected stock. The species appears to be very little grown outside its natural range although it is in cultivation in Europe. No international trade, either in wild-collected or artificially propagated stock, has been reported since the species was listed. The species is not listed under the US Endangered Species Act but is considered a "Federal Species of Concern" by the US Fish and Wildlife Service. It is classified as Vulnerable (pre-1994 criteria) by IUCN, having reportedly lost populations in the past owing to collection for horticultural purposes and habitat loss through dam construction and house-building. This species is proposed for removal from the Appendices on the basis that there is no probability of trade taking place in wild specimens, as recommended under Resolution Conf. 9.24. The proposal has been endorsed by the Plants Committee.

Analysis: The species evidently does not meet the criteria for inclusion in Appendix II, nor is it likely to do so in the near future; there is no reported international trade, so that such trade cannot be having an impact on wild populations. The species is not closely related to, nor does it resemble, any other species in the Appendices, so that it does not qualify for inclusion for lookalike reasons. The small range of the species and a number of identified threats means that it could meet the biological criteria for inclusion in Appendix I, although its reported numerical abundance may work against this. However, the species does not appear to meet the trade criteria for inclusion in Appendix I, nor is it likely to do so in the near future. Any demand (which appears to be negligible) for the species outside the range State would appear to be capable of being met by artificially propagated plants.

	Supporting Statement (SS)	**Additional information**
Taxonomy		*Sherwoodia galacifolia* (Torr. & Gray) House is a synonym (Neilsen, 2000).
Range	USA :endemic to a relatively small part of the Appalachian Mountains.	Further details provided by USFWS (2000).
IUCN Global Category	VU (pre-1994 criteria) (Walter and Gillett, 1984).	
Biological and trade criteria for retention in Appendix II		
B) Harvesting for international trade has, or may have, detrimental impact on population i) exceeds sustainable yield ii) reduces population to potentially threatened level	No international trade in wild-collected specimens was recorded for 1994-1997. The species is easily propagated by seeds and cuttings and fairly widely cultivated within the range State.	No international trade has been reported since the species was first listed. Opinions vary as to ease of propagation (TRAFFIC North America, 2000). The species is in cultivation in Europe but is not widely offered for sale (RHS, 1999) and is evidently little in demand.

	Supporting Statement (SS)	Additional information
A) Trade regulation needed to prevent future inclusion in Appendix I	No international trade.	No projected international demand for wild-collected specimens.
Retention in Appendix II to improve control of other listed species		
Specimens resemble other species and are difficult to distinguish, or most of taxon is already listed	Not applicable.	No similar species are included in the Appendices. Five other members of the genus, at least some of which are in cultivation (RHS, 1999), occur in east Asia and are not listed in the Appendices. The species is superficially similar to the at least partially sympatric *Galax aphylla*, which is also not listed in the Appendices.
Criteria for inclusion in Appendix I		
Trade		The species is not in international trade, nor projected to be.
Biological criteria	The species has a relatively narrow range, and has reportedly lost some populations in the past owing to habitat loss and collection but is apparently abundant at its remaining sites.	
Other Information		
Threats	Housing development, dam building, and horticultural collection in the past.	
Conservation, management and legislation		The species is listed by the US Fish and Wildlife Service as a “Federal Species of Concern” and both subspecies are designated “sensitive” by the US Forest Service (TRAFFIC North America, 2000). The species is listed as endangered in Georgia. The nominate subspecies is listed as endangered in North Carolina, although propagated material can be traded or sold under specific regulations (USFWS, 2000).
Other comments		Amoroso (2000) notes that “Special Concern” species can be offered to qualified propagators under permit, and cautions against removal from Appendix II.

Reviewers: J. Amoroso, TRAFFIC North America.

Deletion of *Lewisia cotyledon, L. maguirei* and *L. serrata* from Appendix II. Proponent: Swiss Confederation.

Summary: *Lewisia* is a genus of around 20 species of small, usually alpine plants with leaves in rosettes and often attractive flowers, confined to western North America. Several species and a range of hybrids and selected strains (chiefly of *L. cotyledon*) are grown as ornamental plants; the species are generally grown only by alpine plant specialists, although the hybrids and selected strains are much more widely cultivated. Four species confined to the USA – *L. cotyledon, L. maguirei, L. serrata* and *L. tweedyi* – were included in Appendix II in 1983. *L. tweedyi* was removed from the Appendices in 1997. All reported international trade in *L. cotyledon* has been in artificially propagated plants. No international trade at all has been recorded in either *L. maguirei* or *L. serrata* since the species were first listed. *L. serrata* is available in trade in Europe as artificially propagated plants; demand is apparently very low and the species is easy to raise from seed. *L. maguirei* is believed not to be in cultivation. None of the three species is listed as Endangered or Threatened under the US Endangered Species Act. *L. cotyledon* is regarded as apparently secure, with some factors causing some concern, by the California Department of Fish and Game. *L. serrata* is a US Fish and Wildlife Service Species of Concern, a US Forest Service Sensitive Species and is classified as Vulnerable (pre-1994 criteria) by IUCN. *L. maguirei* has a highly restricted, although inaccessible range; it is not apparently listed as a species of concern by any US State or Federal agency but is classified as Endangered (pre-1994 criteria) by IUCN. Collection of *L. cotyledon* for the domestic horticultural trade is known to have taken place in the past and plants from one colony of *L. serrata* appear to have been recently (illegally) collected, presumably for local horticultural purposes. The proposal aims to delete *Lewisia cotyledon*, *L. maguirei* and *L. serrata* from Appendix II on the basis that there is no international trade in the species, as recommended by Resolution Conf. 9.24 after second RESOLVES, paragraph f. The Plants Committee has endorsed this proposal.

Analysis: Following Resolution Conf. 9.24, *Lewisia cotyledon* does not appear to meet the biological criteria for inclusion in Appendix I nor any of the criteria for inclusion in Appendix II (i.e. there is no evidence that known, inferred or projected harvesting for international trade may be unsustainable nor that, unless international trade is regulated, the species will qualify for inclusion in Appendix I in the near future, nor that the species should be maintained in Appendix II for lookalike reasons, other than as related to the two other species in this proposal). In the absence of any recorded international trade in *L. maguirei* and *L. serrata* since 1981 and in view of the apparently very limited demand for these species outside the range State these two species do not appear to meet the criteria for inclusion in Appendix II. However, in view of their restricted ranges *Lewisia maguirei* and, arguably, *L. serrata* may meet the biological criteria for inclusion in Appendix I although neither is regarded within the range State as currently under threat. There is no evidence that either species is, or may be, affected by international trade in wild-collected specimens, although *Lewisia* species are in cultivation, so that it is conceivable that these species might enter trade. The precautionary measures in paragraph A, Annex 4 of Resolution Conf. 9.24 indicate that in cases of uncertainty, the Parties should act in the best interests of the conservation of the species.

	Supporting Statement (SS)	**Additional information**
Range	All three species are confined to small areas of western USA	
IUCN global category	*L. cotyledon*: nt (pre-1994 category). *L. maguirei:* E(pre-1994 category) *L. serrata*: Vu (pre-1994 category)	

	Supporting Statement (SS)	Additional information
Biological and trade criteria for retention in Appendix II		
B) Harvesting for international trade has, or may have, detrimental impact on population i) exceeds sustainable yield ii) reduces population to potentially threatened level	International trade in *L. cotyledon* as reported in the WCMC CITES database is entirely in propagated plants. No international trade in *L. maguirei* or *L. serrata* has been reported by CITES Parties since the species were listed in 1983.	*L. cotyledon* is very widely available in North America and Europe as a cultivated ornamental, almost invariably as hybrids or selected strains, propagated by seed or tissue culture (Baulk, 2000; Nicholls, 2000; McMahan, 2000). Wild-type plants of this species are considered to have very low horticultural interest, other than to speciality collectors (Baulk, 2000; McMahan, 2000); there is no current documented demand for wild plants of this species. *L. serratula* is in cultivation in Europe. Demand for the species is very low and confined to alpine plant specialists. Of three nurseries known to sell the species in the United Kingdom (almost certainly the largest single market for alpine plants in Europe), one sells approximately ten specimens annually, another 25-50, all artificially propagated (Baulk, 2000, Nicholls, 2000). The species is reportedly easy to grow from seed but short-lived (three to four years) (Baulk, 2000). There is no current documented international demand for wild plants of this species. *L. maguirei* is believed not to be in cultivation (Mostul, 2000). It is said to have a very short flowering period and to be difficult to cultivate (Baulk, 2000, Mostul, 2000); any demand will be expected to be confined to specialist collectors of *Lewisia* sp. and thus be very low (Nicholls, 2000). There seems very little likelihood of any significant future international demand for wild-collected plants of any of the three species.
Retention in Appendix II to improve control of other listed species		
Specimens resemble other species and are difficult to distinguish, or most of taxon is already listed		*L. serrata* is very similar to, and often confused with, *L. cantelovii*, a species not listed in the CITES Appendices (van Zuuk, 2000).
Criteria for inclusion in Appendix I		
Trade		Although there are no records of international trade, since 1992, the US has issued two “findings” for *L. cotyledon* for specimens from the wild or grown from wild collected seeds and an application in 1994 to export wild specimens of *L. maguirei* (USFWS, 2000d).

	Supporting Statement (SS)	Additional information
Biological criteria	*L. cotyledon* is ranked as globally secure. L. maguirei *is protected from most threats because of its high altitude habitat.* L. serrata *has a restricted distribution with a relatively small number of localities.*	*L. maguirei* is known from eight sites above 2200 m altitude within an 8 km radius in eastern Nye Country, Nevada (USFWS, 2000b). Monitoring results of the extant populations of *L. serrata* in Eldorado and Tahoe National Forests indicate that they are currently stable (USFWS, 2000c).
Other Information		
Threats	*L. cotyledon* - timber harvesting and road building. The species is considered apparently secure overall. *L. maguirei* - mining and development. *L. serrata* - mining, timber harvest, development, horticultural collecting and small hydroelectric power projects.	Van Zuuk (2000) reports an observed 80% decline in one population of *Lewisia serrata* which may have been due to poaching.
Conservation, management and legislation		Many populations of *L. cotyledon* occur within protected areas (USFWS, 2000a). Most populations of *L. serrata* occur on National Forest System Lands (USFWS, 2000c).

Reviewers: A. Bradley, L. McMahon, TRAFFIC North America, K. van Zuuk.

Deletion of *Darlingtonia californica* from Appendix II. Proponent: Switzerland.

Summary: *Darlingtonia californica* is a terrestrial carnivorous plant that occurs in the wild in a relatively small area of the western USA where it is locally common. It has been included in Appendix II since 1981. As with most carnivorous plants, the species has horticultural appeal as a novelty and amongst carnivorous plant hobbyists and is offered for sale in both Europe and North America. It is, however, difficult to grow successfully and demand therefore remains limited. The small number of transactions reported by CITES since the species was listed have all been declared as artificially propagated plants. There is believed to have been some wild-collection of plants but those offered for sale outside the range State appear to be artificially propagated, either by tissue culture, seed or offsets. There is no evidence of any international trade in wild-collected plants. The US Fish and Wildlife Service report the species as classified as apparently secure, although factors exist to cause some concern. It is not currently listed as threatened by IUCN. The proposal aims to delete *Darlingtonia californica* from Appendix II on the basis that there is no probability of trade taking place in specimens of wild origin, as recommended under Resolution Conf. 9.24 paragraph f after the second RESOLVES. The Plants Committee has endorsed this proposal.

Analysis: Following Resolution Conf. 9.24, the apparent absence of any recorded international trade in wild-collected plants indicates that the species does not meet the criteria for inclusion in Appendix II under Annex 2a, nor is it likely to do so in the near future. There is some similarity between this species and *Sarracenia* spp. (Appendix I/II) but the two may be distinguished by a non-expert with reasonable effort, so that the species does not appear to qualify for inclusion in Appendix II for lookalike reasons. The species does not appear to meet the biological criteria for inclusion in Appendix I nor does it appear likely to do so in the near future.

	Supporting Statement (SS)	**Additional information**
Taxonomy		*Chrysamphora californica* is a synonym (Mellichamp, 2000).
Range	Western USA	
IUCN Global Category	Not listed	
Biological and trade criteria for retention in Appendix II		
B) Harvesting for international trade has, or may have, detrimental impact on population i) exceeds sustainable yield ii) reduces population to potentially threatened level	No evidence of international trade in wild-collected specimens. The limited demand in Europe appears to be satisfied by artificially propagated plants (mainly from tissue culture).	Wild collected plants are reportedly too fragile for the horticultural trade (TRAFFIC North America, 2000). The US has reportedly recently turned down one application for export of plants of unknown origin (USFWS, 2000a).

	Supporting Statement (SS)	Additional information
A) Trade regulation needed to prevent future inclusion in Appendix I		The species is not particularly easy to maintain in cultivation and demand for it is low (Jenkins, 1993; Mellichamp, 2000). International demand appears to be satisfied by artificially propagated specimens (Jenkins, 1993). There is no evidence that this situation will change.
Retention in Appendix II to improve control of other listed species		
Specimens resemble other species and are difficult to distinguish, or most of taxon is already listed		The species bears a superficial resemblance to some *Sarracenia* species (Appendix I/II) but is straightforward to distinguish (Slack, 1979).
Criteria for inclusion in Appendix I		
Trade	All recorded international trade is in artificially propagated specimens.	There is international demand for the species, although all such demand at present appears to be met with artificially propagated specimens.
Biological criteria	Locally abundant.	At least one population with over half a million plants was recorded in 1980 (USFWS, 2000b). The species is classified as rare, but regarded as too common to qualify as threatened or endangered by the Oregon Natural Heritage Program (Kaye, 2000). It is known from 100-200 sites in California and 50 – approximately 100 in Oregon (USFWS, 2000b). The species is reportedly now known to be more common than once thought (McMahan, 2000). It is regarded as stable under the Oregon Natural Heritage Program (Kaye, 2000).
Other Information		
Threats	Succession, habitat alteration and overcollecting in some areas have led to the species being less plentiful than it once was. Many populations are inaccessible and apparently have few threats to their survival.	Not currently regarded as threatened. Most damage to the species and its habitat may be caused by off-road vehicular traffic, mining operations and other human activities unrelated to harvest (TNC/ABI, 2000). Accounts of the past few years suggest there has not been much collection activity, though collecting for horticultural purposes may persist in isolated cases (TNC/ABI, 2000). The species is listed by the US Fish and Wildlife Service as apparently secure, although factors exist to cause some concern (USFWS, 2000b).
Conservation, management and legislation	Some locations are protected.	The species is protected in Oregon under the state's Wildflower Law, which restricts collection of the species within a certain distance from public roads and highways and on public lands. Collection on private lands requires the written consent of the landowners. The law is not publicly well known and is probably not widely enforced (TRAFFIC North America, 2000).

	Supporting Statement (SS)	Additional information
Other comments		MacMahan (2000) believes that the species is not likely to be threatened extensively by collecting but that the potential exists and that therefore monitoring is still appropriate. Bradley (2000) supports the removal of the species from the Appendices.

Reviewers: A. Bradley, L. MacMahan, T.L. Mellichamp, The Nature Conservancy, TRAFFIC North America.

Maintenance of the Nile Crocodile *Crocodylus niloticus* in Appendix II subject to an annual export quota of not more than 1 600 wild specimens (including hunting trophies). Proponent: United Republic of Tanzania.

Summary: The Nile Crocodile is a large, slow-growing and long-lived predatory reptile, with a high fecundity, that inhabits the waterways and wetlands of Africa. It is widely distributed across the continent, and has recovered remarkably from heavy hunting pressure during the last century. The Nile Crocodile is a serious threat to human life and livestock in areas where it is abundant. The species was included in Appendix I in 1973. Since then 11 national populations have been transferred to Appendix II. The Tanzanian population was transferred to Appendix II for ranching purposes, subject to an annual export quota in 1985. In 1989, Tanzania was granted its first quota for export of wild-collected skins to generate income for the ranching programme. In 1991, the population was transferred outright to Appendix II and since then an export quota for wild skins has been endorsed that has varied in size over the years, but a quota of 100 hunting trophies has remained constant. By CoP 10 it was recognised that the ranching programme was not working, but that Tanzania has a problem with human-crocodile conflict, and an export quota for wild specimens was approved under the Precautionary Measures of Resolution Conf. 9.24. Surveys show that the population has generally remained stable in much of its range within Tanzania. The proposed harvest will be taken outside national parks, and is expected to generate incentives to encourage local communities to tolerate crocodilians. According to data in the SS, which is likely to be an overestimate, Tanzania only exceeded its quota in 1992 and 1994. As the Supporting Statement points out, the current application is to review that quota; not to assess the criteria for inclusion in Appendix II, as that requirement has already been satisfied.

Analysis: Survey information presented by Tanzania suggests that the crocodile population is at least stable and possibly increasing in some areas. The majority of the population occurs in protected areas and Tanzania argues that without the type of management of wild crocodiles described in the SS, crocodiles are likely to be forced to retreat further into protected areas and inaccessible habitat. Reviewers concur that the proposed quota is probably conservative in relation to the national population, but that progress must be seen in implementing the proposed harvest controls and monitoring mechanisms of the proposed management scheme. This includes appropriate safeguards and has been developed in consultation with the IUCN SSC Crocodile Specialist Group.

	Supporting Statement	**Additional information**
Taxonomy	Adequate	Suggestions for subspecific listing of *C. niloticus* await adequate genetic and morphological studies (Ross, 1999; Webb, 2000).
Range	Within Tanzania the species is widely distributed, it occurs in almost all National Parks (NP), except Kilimanjaro NP, Arusha, NP and Lake Manyara NP, and in almost all Game Reserves.	Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Congo, Côte d'Ivoire, Dem. Rep. Congo, Egypt, Eritrea, Ethiopia, Equatorial Guinea, Gabon, Gambia, Ghana, Guinea, Guinea Bisseau, Kenya, Liberia, Madagascar, Malawi, Mali, Mozambique, Mauritania, Namibia, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Somalia, South Africa, Sudan, Swaziland, Tanzania, Togo, Uganda, Zambia, Zimbabwe.
IUCN Global Category		Lower Risk least concern, possibly locally threatened (Ross, 1998).
Biological parameters		
Biological status	Nile Crocodiles are found in all but three national parks and almost all game reserves in Tanzania where protected areas cover 15% of the country.	The species is widely distributed in Africa, abundant in most of southern Africa, but rare and declining in much of West Africa (Ross, 1998). Woodward (1999) notes that the Tanzanian population is fragmented

	Supporting Statement	Additional information
	The national population was estimated to number 74 000 in 1985. The survey report (Annex 1) presents strong evidence that density in the Selous, and Rufiji, is stable if not increasing. The SS notes a decreased density in Ugalla and the Malagarasi area in 1996 and an increase by 1999. However it is not clear that these were significant changes.	and that in future, protected areas are likely to be the only secure habitat, but that this will not be affected by the current proposal, (Abercrombie (2000) generally concurs). He comments that population status and trend data were not clearly presented in the SS and that the densities in 1999 appeared to be less than in 1996. Whilst Ross (1999) notes that the national population estimate is not recent, he concludes that it is probably adequate to evaluate the status as "abundant and widespread"; Webb (2000) concurs that the population is probably stable or bigger than in 1988. Survey data indicate that populations are stable or increasing in protected areas and possibly declining in some unprotected areas. Densities are high in the Rufiji and Kilombero areas (Ross, 1999).
Trade criteria		
Use and trade	Apparently, there is no use of crocodile products at the national level, although the national management plan allows the harvest of eggs and hatchlings, sport hunting and cropping for export. During the period, 1987-1998, wild harvest exports only reached the quota in 1990 and 1996 but exceeded the quota in 1992 and 1994. During the period from 1990-1998 sport hunting exports only reached the quota of 100 in 1997. Ranching has not been successful in Tanzania, the five remaining ranches hold only 150 crocodiles, but Tanzania is attempting to attract international investment.	Ross (1999) notes other national uses in neighbouring states concluding that these are unlikely to affect the Tanzanian populations. The current annual global volume of legal trade in this species is around 95 000-100 000 skins, so the production proposed by Tanzania is insignificant (Ross, 1999). Webb (2000) notes that illegal trade is not a major issue. The data presented in the SS differ from both importing nations' data and official Tanzanian export data reported in CITES Annual Reports. Overall, the SS data is greater than the other data sources. According to Annual Report data, gross export volumes of skins from Tanzania declined from 2 316 in 1988 to 348 in 1993 before rising again to 1 304 in 1996. During 1988-98, 18 countries recorded crocodile skin imports from Tanzania. France, the largest importer, had gross imports totalling 9 182 skins during 1988-98 (TRAFFIC East Southern Africa, 2000).
Actual or potential trade impacts	The proposed quota will not adversely affect the population, but is expected to provide the local communities with an incentive to tolerate crocodiles, as long as proposed regulations are in place to regulate and monitor wild harvest.	The suggested quota is unlikely to present any threat to the national population, although, much of the proposed management and conservation procedures remains conjecture and dependant on implementation of management regulations (Ross,1999). The need for Tanzania to demonstrate adequate safeguards was stressed at the IUCN/SSC Crocodile Specialist Group (CSG) meeting in January 2000 (Broad, 2000). Recognising the trend towards increasing take from the wild and that such management should be approached with extreme caution, the Group has developed a policy requiring conservative quotas, and ongoing effective monitoring and feedback mechanisms to stop or reduce harvesting if necessary.
Proposed utilisation based on the export quota	Tanzania's quotas agreed by previous CoPs: 1987–2 000 wild specimens +100 trophies for 1987, 1988, 1989; 1989–1 100 wild specimens for 1990,1991; 1992 – 500 for 1992, 300 for 1993, 1994; 1994–1 100 wild specimens for 1995, 1996, 1997; 1997–1 100 wild specimens for 1989,	Ross (1999) concludes that the level of harvest proposed is very cautious, given the apparent size of the national population and the proposed regulatory structure. Scrutiny of international exports and population monitoring will allow identification of any problems.

	Supporting Statement	Additional information
	1999, 2000. PROPOSED ANNUAL HARVEST OF 1 600 WILD SPECIMENS. No harvest will take place in National Parks. In the proposed harvest areas annual surveys will be conducted and quotas set at a maximum of 5% of the population estimates. However, quotas may be increased to reduce a local "problem" population. Minimum size limits will be set for the harvest and a closed season instituted from 1 January to 30 June. Skins will be tagged according to Resolution Conf. 9.22. Hunting permits are now being issued for more specific areas, and ranchers will have to demonstrate performance before receiving further permits. Quotas for wild harvest will also be issued to authorised associations and villages.	Proposed regulations are based on advice from CSG, regarding controls implemented in other countries with wild harvest (Ross, 1999).
Other Information		
Threats	Illegal killing and human-crocodile conflict. Fluctuating water levels.	Revenge killing following attacks on humans/stock (Ross, 1999).
Conservation, management and legislation	Community involvement/benefit is planned to be an integral part of the management system and increased participation will be encouraged at all levels, including the transfer of 25% of game fees to the local community. Population monitoring will be conducted by annual spotlight surveys in harvested areas in conjunction with the biennial aerial surveys. Crocodiles are protected under the Wildlife Conservation Act of 1974 and its subsequent amendments and supplements.	Ross (1999) comments that crocodile population monitoring in 1990-1999 although a little uneven, has been adequate to indicate national and watershed trends. He recommends that monitoring could be improved by considering population size structure as an index of harvest effects, Webb (2000) and Abercrombie (2000) concur. In some areas occupied by people there may be a legitimate goal to eliminate larger size classes to ensure human security. Effective protection in NPs will ensure population survival (Ross, 1999). It is well recognised that the ranching component of the Policy and Management Plan for Crocodiles has not proved successful. Further, the review of this Plan is now several years overdue. EC Reg. No. 338/97, Annex B, includes the Tanzanian Nile Crocodile.
Similar species	The African Slender-snouted crocodile *Crocodylus cataphractus* also occurs in the Lake Tanganika region, but is legally protected from harvest. Skins are of lower value and unlikely to be mixed with *C. niloticus* skins.	
Other comments	Six Annexes of the SS cover: 1999 survey results; report on the numbers and distribution of problem animal incidents; excerpts from the Wildlife Policy of Tanzania; The Policy and Management Plan for the Nile Crocodile in Tanzania; A report to the CITES Secretariat on Tanzania crocodile management for 1995 and 1996; and draft regulations for control of wild harvest of problem crocodiles in Tanzania.	Woodward (1999) questions the rationale that the wild harvest aids conservation, as ranchers have taken the majority of the harvest and will continue to get preference for hunting licenses. He recommends that all licenses go to local communities/landowners, so they can lease out hunting privileges to others, creating a greater stakeholder incentive.

Reviewers: C. L. Abercrombie**,** P. Ross, TRAFFIC East Southern Africa, Tanzania, A. Woodward, G. Webb.

Transfer of the Indian Pangolin *Manis crassicaudata*, the Malayan Pangolin *M. javanica* and the Chinese Pangolin *M. pentadactyla* from Appendix II to Appendix I. Proponent: India, Nepal, Sri Lanka, USA.

Summary: The Indian Pangolin *M. crassicauda*, Malayan Pangolin *M. javanica* and Chinese Pangolin *M. pentadactya* are solitary, nocturnal termite- and ant-eating mammals from south, south-east and east Asia. They are believed to reach maturity at 2 years and may live up to 13 years. Females give birth to generally a single young after a gestation period variously estimated at two to three months or over four months. All three species were included in Appendix II in 1975, and have been subject to ongoing Significant Trade reviews under the provisions of Resolution Conf. 8.9 and Decision 10.19. In this fourth phase of the Animals Committee Significant Trade review, *M. javanica* was included in category d i), indicating that the overall population or the population in a particular range State is being adversely affected by international trade. *M. pentadactya* was included in category d i) or d ii), indicating that the Animals Committee did not consider there was sufficient information to make a decision on whether trade might be a problem. *M. crassicauda* was included in category d iii), suggesting that levels of trade are evidently not a problem. The Animals Committee has not yet made recommendations for any of the species in any range States. It is extremely difficult to census pangolins and there are no population estimates. Pangolins in Asia are intensively used for their skin, meat and scales (which are used for medicinal purposes) and are evidently subject to extremely heavy collection pressure in many parts of their range. All species are used locally in most or all of the countries where they occur. *M. javanica* and *M. pentadactyla* are both traded internationally in considerable quantity. Observations in mainland east and southeast Asia indicate that there is very heavy unofficial or at least unrecorded cross-border trade in pangolins and pangolin products, particularly into China. *M. pentadactyla* and *M. javanica* have overlapping ranges in continental southeast Asia and are difficult to distinguish in trade.

Analysis: Following Resolution Conf. 9.24, all three species are actually or potentially in trade and thereby meet the trade criteria for inclusion in Appendix I. None of the three species has a restricted distribution nor is any likely to have a small population, and are therefore unlikely to meet criteria A or B of Resolution Conf. 9.24, Annex 1. However, current levels and patterns of exploitation indicate that both *M. javanica* and *M. pentadactyla* are likely to have suffered a decline, and may be projected to continue suffering a decline, consistent with the guidelines in Annex 5 for inclusion in Appendix I under criterion C. In cases of uncertainty regarding either the status or impact of trade on a species, Annex 4a of Resolution Conf. 9.24 recommends the Parties to act in the best interests of the conservation of the species.

	Supporting Statement (SS)	**Additional information**
Range	*M. crassicaudata*: Indian subcontinent from eastern Pakistan through much of India, Bangladesh and Sri Lanka. Possibly also Myanmar and extreme western China. *M. javanica*: tropical south-east Asia, in much of Indonesia, Malaysia, the Philippines (Palawan Province), Cambodia, Vietnam, Lao PDR, much of Thailand and southern Myanmar. Possibly also Bangladesh and southwest China. *M. pentadactyla:* Himalayan foothills of Nepal, Bhutan and northern India. Myanmar and northern Indo-China. Through southern China to Hainan and Taiwan.	
IUCN Global Category	*M. crassicaudata* : LR(nt) *M. javanica* : LR(nt) *M. pentadactyla* : LR(nt)	

	Supporting Statement (SS)	Additional information
Biological criteria		
A) Small wild population	Virtually no information is available on population levels of any of the Asian pangolins. They are rarely observed, and not seen regularly enough to even allow assessments of population densities.	Levels of trade over recent years suggest that population sizes are unlikely to be small.
B) Restricted area of distribution	All three species have widespread ranges.	The species do not appear to meet the guidelines for a restricted distribution.
C) Decline in number of wild individuals	Heavy declines are cited for all three species across their ranges, due to both hunting and habitat loss.	Reviewers generally concur that there have been declines in the populations of all three species.
i) ongoing or historic decline	Declines are reported for *M. crassicaudata* in India and for *M. pentadactyla* in India, Taiwan and Nepal. *M. javanica* is also reported to have declined in Lao PDR, to as little as 1 to 5% of the levels 20 years ago.	Fellowes and Lau (2000) report heavy declines of *M. pentadactyla* in southern China.
Ii) inferred or projected decline	Pangolins are heavily exploited throughout Asia. Pangolin meat is highly favoured as a local source of protein and skins are used to manufacture leather goods. Scales are used whole, or in powdered form, for preparing traditional medicines. It is likely that several tens of thousands of individuals have been traded annually in the 1990s, and it is also possible that illegal trade is considerably greater than declared trade. Pangolins are the most heavily traded animal in Lao PDR, with *M. javanica* out-numbering *M. pentadactyla*. There have been major increases in the price of pangolin scales in China recently, indicating a shortage of supply, although pangolin is still eaten in many rural areas, and is widely available in urban food markets and restaurants in Lao PDR and parts of China. Loss of suitable habitat has occurred over much of the range of the Asian Pangolins.	Vardon (2000) comments that population trends have not been quantified, except for Lao PDR (by Duckworth *et al*., 1999). He also mentions that as there are no data on population size, it is impossible to determine the sustainability of current rates of harvest, whether for local or international demand. However, Fellowes and Lau (2000) comment that the current level of exploitation is likely to be unsustainable as exemplified by the crash of *M. pentadactyla* popuations in China. Evidence suggests that the origin of the animals in trade has shifted, as populations have become depleted (WCMC *et al*, 1999). CITES Annual Report data indicate that until the mid-1980s, most trade was declared as originating in Thailand, Indonesia or Malaysia, and therefore comprised largely *M. javanica*. It now seems that most recorded trade originates in Lao PDR and comprises both *M. javanica* and *M. pentadactyla*, although as mentioned in the SS, it appears to be primarily the former. Thailand, Indonesia and Malaysia have all now classified pangolins as protected species, implying concerns about their status in these countries, and have stopped exports (WCMC *et al*., 1999).
D) Status suggests inclusion in Appendix I within five years	The SS suggests that declines are likely to continue over the next five years. Demand is likely to remain high for both local consumption and trade.	
Trade criteria		
The species is, or may be, affected by trade	International trade in pangolin products generally involves skin and scales, although there is also evidence of considerable cross-border trade in pangolins for meat in East and Southeast Asia. According to CITES trade data, the major exporters of *M. javanica* have	Yu (1999) comments that legal international trade is small compared with illegal cross-border trade and domestic consumption of some these species.

	Supporting Statement (SS)	Additional information
	been Indonesia, Lao PDR, Malaysia, Singapore and Thailand, each of which declared exports of over 10 000 skins or 10 000 kg of skins or scales between 1991 to 1996. The vast majority of exports were from Lao PDR. Malaysia also exported around 7 500 kg of scales in the same period, which may account for around 5 000 individual animals. The vast majority of trade in *M. pentadactyla* has been in derivatives (probably scales) from China. There has also been a smaller trade in skins, and a few live animals. No trade in *M. crassicaudata* has been reported by CITES Parties in the period 1984-1996, nor has any trade in *Manis* spp., specified or otherwise, been reported by any of the four definite range States of *M. crassicaudata* since 1991. Observations in mainland Southeast Asia indicate a large amount of unrecorded, presumably illegal cross-border trade in pangolins and pangolin products. Estimates are given of at least 400 pangolins per week smuggled into China from Vietnam. If illegal trade figures are correct, this would dwarf trade CITES recorded data. Illegal trade has also been reported from India to Nepal, presumably involving *M. crassicaudata*.	
Other information		
Threats	Threats to all three species include rapid loss and deterioration of available habitat and hunting for local use and for international trade in skins, scales and meat. Pangolins are subject to heavy collection pressure in many parts of their ranges, and this is probably the principle factor affecting these species.	Fellowes and Lau (2000) concur that hunting is now a more pressing threat than habitat destruction. WCMC *et al.* (1999) report that *M. pentadactyla* is able to adapt to secondary forest and other modified habitats. It is highly unlikely therefore to be threatened at present by habitat conversion or modification.
Conservation, management and legislation	Lao PDR is the only Asian pangolin range State not yet a Party to CITES. Pangolins are protected in Bangladesh, India, Indonesia, Malaysia, Myanmar, Pakistan, Philippines, Sri Lanka and Singapore. The legal protection afforded to the species in Lao PDR, Vietnam, Brunei, Cambodia is uncertain. *M. crassicaudata* is the only species legally protected in all countries in which it definitely occurs.	
Captive breeding	Pangolins are difficult to maintain and are rarely kept in captivity, mainly due to their specialised diet.	
Similar species	Most observations of Pangolins in Asia do not distinguish reliably between the three Asian species. Because several countries have populations of both *M. javanica* and *M. pentadactyla*, and because China evidently imports both species, it is often impossible to determine which species is referred to in both local use and export.	

Reviewers: S. Anan, J. Fellowes, M. Lau, C. Santiapillai, TRAFFIC East Asia, M. Vardon, J. Yu.

Transfer of Black Sea Bottlenose Dolphin *Tursiops truncatus ponticus* from Appendix II to Appendix I. Proponents: Georgia and the United States of America.

Summary: The Black Sea Bottlenose Dolphin is a geographically distinct population of the widespread Bottlenose Dolphin *Tursiops truncatus*, which occurs worldwide in tropical and temperate waters. However, individuals are not readily distinguishable from those of other populations, and although there is general agreement that the animals in the Black Sea constitute a separate management stock, there is debate over whether the population constitutes a valid subspecies. Bottlenose Dolphins are the most common cetacean held in captivity. Females mature slowly (reaching sexual maturity at an average of 12 years), bear single calves, have inter-birth intervals of around two years, and longevity possibly up to 30 years. Identified global threats are hunting, bycatch and habitat degradation, but the species is considered adaptable in its feeding habits and relatively tolerant of human disturbance. It is classified by IUCN as Data Deficient. There are no data on current population levels or trends for the Black Sea population, although it is believed to have declined in the past few decades. The species as a whole was listed in Appendix II in 1979, and there are currently no populations or subspecies listed in Appendix I. Apart from CITES, the most relevant international agreement covering the Black Sea population is ACCOBAMS (Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area), which will require Parties to prohibit any deliberate taking of cetaceans. Of the Black Sea States, this agreement has so far only been ratified by Bulgaria, and has not yet come into force. Commercial dolphin hunting is already banned in the Russian Federation, Georgia, Bulgaria, Romania and Turkey. The main threats appear to arise from habitat degradation, fishery bycatch, disturbance from ship traffic and live capture. The species is recorded in international trade. Since 1990, CITES Annual Report data show international trade in 57 individuals of *T. truncatus* from Black Sea range States (Turkey is the only Black Sea range State to have a non-Black Sea population of the species), compared with a worldwide trade of over 400 individuals. International trade is largely confined to specimens for the aquarium business and seems to be relatively limited, although reviewers note that CITES Annual Report data are likely to under-report this trade. All range States are now Parties, and so reporting and implementation of Article IV may be expected to improve. Reviewers generally note the lack of quantitative information available on the status of the stock, but concur that the stock is threatened and that a precautionary approach and better trade controls are needed. The proposal seeks to transfer the Black Sea Bottlenose Dolphin from Appendix II to Appendix I in accordance with Article II, Res. Conf. 9.24, Annex 1 criteria B iii), B iv) and C ii).

Analysis: Following Resolution Conf. 9.24, there is insufficient information to determine whether the population meets the biological criteria for inclusion in Appendix I. The current size of the population is unknown, and although the area of the Black Sea would suggest that the population does not meet the criteria for a restricted area of distribution (criteria B), the distribution of the population within the Black Sea is uncertain. There is also insufficient information to assess criteria C and D. The majority of offtake from this population appears to be domestic, although there is some international trade, mainly for the aquarium business, and as such the population meets the trade criteria for inclusion in Appendix I. In cases of uncertainty regarding either the status or impact of trade on a species, Annex 4a of Resolution Conf. 9.24 recommends the Parties to act in the best interests of the conservation of the species. However, the inclusion of the Black Sea population in Appendix I would result in a geographically defined split-listing for the species *Tursiops truncatus*. Resolution Conf. 9.24, Annex 3 specifically states that “Taxonomic names below the species level should not be used in the Appendices unless the taxon in question is highly distinctive and the use of the name would not give rise to enforcement problems”. The Black Sea population is not easily distinguishable from other populations, and as Turkey is also likely to have non-Black Sea populations, enforcement of the split-listing would be difficult.

	Supporting Statement (SS)	**Additional information**
Taxonomy	The Black Sea Bottlenose Dolphin *Tursiops truncatus ponticus* is regarded as a subspecies of the more widespread Bottlenose Dolphin *T. truncatus*.	Although the majority of reviewers agreed that the Black Sea population is a reasonably well defined management unit or stock (N di Sciara, 1999; Read, 1999; Reeves, 1999; Hammond, 2000; Wells, 2000), the subspecies designation is not generally accepted (e.g. Rice, 1998).

	Supporting Statement (SS)	Additional information
		Taxonomy of the entire genus *Tursiops* is in flux.
Range	Endemic to the Black Sea, and isolated from populations of Bottlenose Dolphins in the Mediterranean and other waters. The species occurs within the marine territories of Bulgaria, Georgia, Romania, Russia, Turkey and Ukraine.	Reviewers generally concur with the SS; however, Birkun (2000) notes that Bottlenose Dolphins are present in the Bosphorus and Dardanelles Straits and the Marmora Sea and that there is no clear evidence to confirm that the Black Sea population is completely isolated from the adjacent Mediterranean population.
IUCN global category	The species as a whole is considered Data Deficient.	The basis for this listing was two-fold: (1) uncertainty about systematics and taxonomy, and (2) concern that although not always well documented in quantitative terms, many local or regional populations are thought to be depleted or rapidly declining because of direct killing, fishery bycatch, and habitat degradation (including major disease outbreaks possibly related to pollution) (Reeves, 2000).
Biological criteria		
A) Small wild population	Current population size and status are unknown.	Reviewers generally concur with the SS.
i) population or habitat decline	Historic declines in both population and quality of habitat have been inferred from harvest data.	Reviewers generally concur with the SS.
B) Restricted area of distribution	Population is endemic to the Black Sea.	Total area of the Black Sea is 461 000 km^2. However, preferred habitat is believed to be inshore waters, free from human disturbance. Habitat degradation is likely to have reduced the area of occupancy, although there is little direct evidence to support this (Reeves, 2000). Birkun (2000) notes that Bottlenose Dolphins occur widely on the Black Sea continental shelf and that although groups may remain for periods of days to months in specific areas along the Crimean and Caucasian coasts, there is no evidence of resident communities of dolphins. In parts of its range where it has been more comprehensively studied, the species has been found to frequently occur in discrete locally resident communities (Wilson *et al*., 1997; Wells and Scott, 1999).
i) fragmented or localised population	The SS states that the habitat of the population is a narrow strip close to the shore. Due to the polluted nature of sections of the inshore waters, there may be some fragmentation of the population.	Reviewers generally concur with the SS, although there is some uncertainty over whether the population consists of a single sub-population (Birkun, 2000; Read, 1999) or discrete inshore and offshore populations (Simmonds, 2000).
iii) high vulnerability due to biology or behaviour	Bottlenose Dolphins have a low reproductive potential due to the slow maturing of females, single offspring and long inter-birth intervals.	Bottlenose Dolphins are well known for their flexible feeding habits and their ability to adapt to human activities (Shane, 1990). However, large contaminant loads may affect reproductive performance and increase the species' susceptibility to disease (O'Shea, 1999). Assuming that the animals do not migrate from the Black Sea, its enclosed nature would mean that they are constantly exposed to its poor environmental conditions (Wells, 2000).

	Supporting Statement (SS)	Additional information
iv) decrease in distribution, population, habitat or reproductive potential	Habitat degradation is evident, from riverine and marine pollution, and there has been a decrease in prey species due to over-fishing. There has been an inferred decrease in the number of individuals over the last 20 years as suggested by harvest figures. The original population was possibly as high as 1.5 – 2 million. Increased immuno-suppression and presence of infectious agents, from industrial and sewage pollution, are reported to have increased the population's vulnerability to other stresses, and to have caused widespread mortality.	While acknowledging that there is limited evidence to establish a direct link between habitat degradation, including depletion of fish stocks, and a decline in the dolphin population, reviewers generally consider the reasoning in the SS to be scientifically plausible (Birkun, 2000; Reeves, 2000).
C) Decline in number of wild individuals	Although there are no recent population estimates, and there has been no direct population monitoring, the present population is inferred to be depleted.	Reviewers generally agree that the best available information is presented in the proposal, although insufficient evidence is presented to allow the inferred decline to be quantified in terms of the CITES numerical guidelines.
ii) inferred or projected decline	The population is inferred to have declined on the basis of the well-recognised decrease in the quality of the habitat, unsustainable levels of historic exploitation and threats from extrinsic factors, including introduced species (such as the comb jelly *Mnemiopsis leidyi*) and the effects of pathogens, toxins and pollutants.	Reviewers generally agree that it is likely that the population has declined, although many note the lack of direct evidence for this decline, which does not allow the assessment of this criterion under the CITES numerical guidelines.
Trade criteria		
The taxon or population is, or may be, affected by trade	The majority of international trade appears to be for the commercial supply of aquariums. The SS states that 25-50 individuals were removed from the Black Sea annually by Russia, Ukraine, Bulgaria and Romania, to replace animals dying in domestic and international oceanaria. The current volume of trade is largely unknown, although at least 43 individuals were subject to international trade between 1990 and 1997.	Reviewers generally concur that the taxon is affected by trade (Read, 1999; Reeves, 2000; Simmonds, 2000). TRAFFIC Europe (2000) comment that according to the official trade records, trade appears to be extremely low (less than six live individuals from this population per year from 1990-97). However, several reviewers comment that the CITES Annual Report data are likely to be an under-estimate of the actual numbers of individuals in trade (Read, 1999; Reeves, 2000; Simmonds, 2000). CITES Annual Report data suffer from a lack of information provided by range States. They show limited international trade, totalling 57 live specimens of *T. truncatus* since 1990. However, Romania and Georgia have not submitted Annual Reports since acceding to CITES in 1994 and 1996 respectively, and Ukraine is not yet a party to CITES (but see below). There is a demand for captive Bottlenose Dolphins to supply burgeoning swim-with-the-dolphins programmes around the world (Wells, 2000) and to supply oceanaria (Reeves, 2000). TRAFFIC Europe (2000) report a gradual increase in the worldwide trade of Bottlenose Dolphins over the

	Supporting Statement (SS)	Additional information
		last 20 years, with 64 live specimens traded in 1997. Birkun (2000) adds that in 1999 there were a small number of live specimens exported from Ukraine to Belarus and from Russia to Ukraine and Argentina. Reeves (2000) also reports that three live specimens were exported from Bulgaria to India in 1998 and died soon after arrival.
Other information		
Threats	The SS contains an extensive list of threats: pollution by contaminants; coastal development; disturbance from marine traffic; bycatch; over-fishing; impacts of introduced species such as the comb jelly; lack of food resources; disease and commercial exploitation.	Reviewers generally concur with the SS. Environmental degradation and incidental catches appear to be the main threats to the population (IWC 1992).
Conservation, management and legislation	There is currently no formal monitoring of population status, and there are no management plans for the population. The population is listed in Appendix II of the Convention on Migratory Species of Wild Animals (CMS). This lists migratory species which have an unfavourable conservation status and which require international agreements for their conservation and management. The population is also protected under Appendix II of the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention), which provides for the strict protection of fauna, and prohibits all forms of deliberate capture, keeping, and killing of the species. Both CMS and the Bern Convention are in force in all range States except Russia and Georgia. The Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS) is yet to be ratified by the majority of range States, but would require Parties to prohibit the deliberate taking of cetaceans from the Black Sea within their jurisdiction. ACCOBAMS is an agreement under the CMS. Commercial dolphin hunting was banned in 1966 by the former Soviet Union, Georgia, Bulgaria and Romania, and in 1993 by Turkey.	Ukraine acceded to CITES in December 1999. The Convention will come into force in Ukraine on the 29 March 2000, whereupon it will be in force in all range States of this population. Read (1999) comments that although current legal protection is afforded in most range States, it probably does not provide effective protection anywhere in the Black Sea, due to a lack of enforcement.
Similar species	It is not possible to visually distinguish this subspecies from other populations, but it is reasonable to assume that all Bottlenose Dolphins originating from the Black Sea are of this subspecies.	Although Bottlenose Dolphins living in the Black Sea are reportedly smaller than those found both in the Atlantic and Mediterranean (Rice, 1998), Read (1999) notes that distinguishing them definitively from other populations would require the use of genetic markers.
Captive breeding	The species breeds well in captivity, although only one aquarium outside the range States is known to have bred this subspecies.	Captive breeding of the species has increased and should reportedly soon meet the worldwide demand for captive dolphins (Wells, 2000).
Other comments	A number of range States were consulted during the preparation of the SS. Turkey, Bulgaria and Romania support inclusion of the species in Appendix I. Russia and Ukraine did not offer an opinion.	The majority of the reviewers agree that the case for the uplisting of the population is strong, and that the population is subject to a number of serious threats.

Reviewers: A.A. Birkun, P. Hammond, A.J. Read, R.R. Reeves, G. N. di Sciara, M. Simmonds, TRAFFIC Europe, R.S. Wells.

General Introduction to Whale Proposals

Introduction

Four proposals concerning the transfer of whale stocks from Appendix I to Appendix II are under consideration. Three proposals concern the Minke Whale *B. acutorostrata*, two submitted by Japan for the Okhotsk Sea-West Pacific and Southern Hemisphere stocks and one submitted by Norway, for the Northeast Atlantic and North Atlantic Central stocks. Japan has also submitted a proposal to downlist the Eastern Pacific stock of the Gray Whale *Eschrichtius robustus*. All proposals emphasise that the biological criteria (Annex I, Resolution Conf. 9.24) for Appendix I listing are not met for the proposed whale stocks, and that precautionary measures (Annex 4, Resolution Conf. 9.24) are fulfilled through national conservation and management measures and establishment of a trade control system based on DNA analysis techniques.

Reviewers of these proposals expressed a divergent range of views. Some reviewers support these proposals and others oppose the proposals. The whale reviewers requested the option to withdraw their names from the compiled document if they were uncomfortable with the compiled review. After correcting factual errors, four reviewers decided to have their names withdrawn.

The Gray Whale was included in Appendix I in 1975, while the Minke Whale (excepting the West Greenland stock) was included in Appendix I, effective 1 January 1986.

The following points may assist in consideration of these proposals:

- The Parties to CITES have recognised the function of the International Whaling Commission (IWC) with respect to whale harvesting (see CITES Article XIV.4, Resolutions Conf. 2.7, 2.8, 2.9, 3.13, 9.12). This was reaffirmed in 1997 when Parties voted not to repeal Resolution Conf. 2.9.
- The IWC accepted the Revised Management Procedure (RMP) for setting whaling quotas in 1994, but is maintaining zero quotas for commercial catches until the Revised Management Scheme (RMS) is adopted.
- Japan, Norway and Peru hold reservations on CITES Appendix I listings of *B. acutorostrata*. To be consistent with Annex 4 of Resolution Conf. 9.24, Japan and Norway must agree to remove their reservations on those stocks for which they have proposed transfer from Appendix I to Appendix II.
- Norway and the Russian Federation hold objections on the IWC moratorium on commercial whaling and Norway holds an objection on the IWC classification of the Northeast Atlantic stock of Minke Whales as a Protection stock.
- If one of more of these proposals was accepted, the change in listing would apply to all CITES Parties, not just the proponents.

CITES and IWC

The International Whaling Convention (IWC) was set up under the International Convention for the Regulation of Whaling (ICRW), in 1946. Its current membership is 40 countries. The Parties to CITES have recognised the function of the IWC with respect to harvests of whales, in accordance with CITES Article XIV 4, and various resolutions. Resolution Conf. 2.9 recommended that CITES Parties agree not to issue any import or export permit or certificate for introduction from the sea for primarily commercial purposes for any specimen of a species or stock protected from commercial whaling by the IWC. At present, all stocks excluding the West Greenland Minke Whale are so protected. Parties are encouraged to base all Appendix amendment decisions relating to whales on CITES scientific criteria, as laid out in Resolution Conf. 9.24 (see Doc. 11.15.1).

In the event of the transfer of the proposed Minke and Gray Whale stocks to Appendix II, any Party to CITES which is also a contracting State to the IWC is relieved of the CITES provisions with respect to trade (CITES Article XIV 4). The only requirement is the need for the Management Authority of the State of introduction to issue a certificate to the effect that the whale was taken in accordance with the provisions of the International Convention for the Regulation of Whaling (ICRW).

IWC and the Revised Management Procedure
Due to uncertainties over the precise status of various whale stocks, IWC introduced a temporary moratorium on whaling, effective in 1986. In 1994, the IWC accepted and endorsed the RMP for setting catch limits. The RMP aims to provide a precautionary method for determining sustainable catch limits for commercial whaling. The RMP, together with inspection and observer mechanisms and requirements for submission of catch data, would comprise the RMS. Until the RMS is adopted by IWC, the RMP cannot be implemented and the 1986 moratorium on commercial whaling remains in place. In 1999, the IWC adopted Resolution IWC/51/43, which states that the IWC has not completed necessary measures to ensure adequate management of commercial whaling. Until the RMS is implemented, the only management arrangements the IWC has in place to conform to the precautionary criteria specified in Resolution Conf. 9.24 are the zero catch limits under the moratorium on commercial whaling.

CITES reservations and IWC Objections
Reservations on the listing of Minke Whales in Appendix I, are held by Japan, Norway and Peru. These reservations have the effect that introduction from the sea into, or trade between these countries, and trade between these countries and non-CITES Parties is considered to be outside the Convention. Except for introduction from the sea by Japan, none of them, however, currently trade internationally under these reservations. Norway also holds objections on the IWC moratorium on commercial whaling, and on the IWC classification of the Northeast Atlantic stock of Minke Whales as a Protection stock: on this basis Norway resumed commercial takes of Minke Whales in the North Atlantic in 1993, but only from waters within its jurisdiction (TRAFFIC Europe, in prep). Japan harvests Minke Whales in the Antarctic, within the Southern Ocean Sanctuary, and the North Pacific for scientific purposes, hence these catches are exempt from IWC catch limits. Japan holds an objection on the IWC designation of the Southern Ocean Sanctuary. There is no information to indicate that Peru is engaged in commercial or scientific whaling at this time.

In accordance with Annex 4 of Resolution 9.24, no proposal for transfer of a species from Appendix I to Appendix II can be considered from a Party that has entered a reservation for the species in question, unless that Party agrees to remove the reservation within 90 days of the amendment being adopted.

Stocks vs. Biological Populations
The proposals are presented using the IWC definitions of stocks as per Resolution Conf. 9.24, Annex 3 regarding split-listing of species on the Appendices "For species outside the jurisdiction of any State, listing in the appendices should use the terms used in other relevant international agreements, if any, to define the population". In the case of whales, the IWC is the appropriate body to provide the terms for listing. However, within the IWC, stocks have been defined to meet the needs of that body, which are to manage commercial harvest. Thus, definitions of 'stocks' do not necessarily represent highly distinctive biological populations. stocks have often been defined by the IWC as areas where whaling took place (the case for North Pacific Minke Whales) or as regularly sized geographic units, rather than by reference to biological data. The Antarctic was divided into management areas for various species based only or primarily on Humpback Whale data. The Japanese scientific research whaling program for Antarctic Minke Whales has been justified, in part, as an effort to collect data that will allow better stock definition. Using the IWC defined stocks within the CITES framework may result in enforcement difficulties because it will be rare that individual whales or whale products can be identified to stock-origin; most stocks differ only in the frequency of either genetic markers or morphological traits.

Taxonomy of Minke Whales
CITES listings for cetaceans follow Wilson and Reeder (1993) which currently only recognises one Minke Whale species, *Balaenoptera acutorostrata*. There is a strong scientific consensus, however, for recognizing two well-defined species of Minke Whale (Rice, 1998). The larger, more abundant species, *B. bonaerensis* (Antarctic Minke Whale), occurs only in the Southern Hemisphere and is the principal target of Japanese scientific research whaling in the Antarctic. The smaller species, *B. acutorostrata* occurs as two, and possibly three, disjunct geographical populations. A recent review of the published evidence concluded that these should be called subspecies, as follows: *B.a. acutorostrata* in the North Atlantic, *B.a. scammoni* in the North Pacific, and *B.a.* subsp. (Dwarf Minke Whale) in the

Southern Hemisphere. The IWC Scientific Committee has recognized the need to distinguish *B. bonaerensis* and *B. acutorostrata* at the species level since 1990, and this distinction is reflected in the IWC Schedule which cites both species. Moreover, the IUCN Red List of Threatened Animals (IUCN, 1996) assigns separate designations to the two species. Clearly, this is an instance in which Wilson and Reeder (1993), the CITES authority for species listings, requires updating.

Management and Control Measures

None of the supporting statements takes into full account the fact that acceptance of one or more of these proposals would apply to all CITES Parties, not just the proponents. Consequently, the management and control measures of all Parties likely to engage in commercial whaling are relevant. Most CITES Parties are not members of the IWC, and therefore are not required to adhere to the current IWC moratorium on commercial whaling. While the relevant management and control measures for the proponent countries are described in the supporting statements, no information is presented on the measures in place in other countries.

DNA registers as trade control systems

All four proposals refer to DNA registers as providing effective control systems for detecting illegally traded whale products. As described in the supporting statement, genetic analysis is performed for each individual whale that is legally harvested and can be used to detect whether products being traded derive from these individuals or are by default illegal. Both the Japanese and the Norwegian proposals refer to sampling of all whales in their harvest for inclusion in the DNA register. To be effective all legal whale products must be sampled and registered, including not only the commercially or scientifically harvested whales, but also whales harvested by aboriginal whaling, imported whale products, whales taken incidentally in fisheries (bycatch), and frozen stockpiles. While the proposals describe the DNA-registers of Japan and Norway, no reference is made to the registers of any other countries that may start trading in whale products, in the event of a transfer to Appendix II. There is insufficient information in the proposals with which to evaluate the trade control systems under development, and the adequacy of the proposed registers for the purposes of the RMS has not been evaluated by the Scientific Committee of the IWC. In particular, the proposed registers have no provisions for controlled access to allow independent verification and monitoring. The Norwegian proposal states that 'the register will be accessible to interested parties'. No such statement is made in the Japanese proposals. Work conducted by TRAFFIC East Asia has identified shortcomings in Japan's current domestic management system's ability to distinguish between legal and illegal whale meat products at the retail level (Mills *et al.*, 1997; Phipps *et al.*, 1998; TRAFFIC East Asia, 2000).

The effectiveness of the DNA trade control system in controlling illegal trade will depend on how regularly and comprehensively market surveys are carried out and how many whale products are tested to assess their legality. These details are not specified in the proposals. Markets are complex with a wide variety of products already available. Monitoring a market with sufficient scope to be able to quickly detect the potential trade of endangered species is a difficult problem. There are stocks and even some species of cetaceans, including three stocks of baleen whales in the Okhotsk Sea (Gray, Right and Bowhead), that number only in the tens or hundreds of individuals. In order to not further endanger these Appendix I species, a market monitoring system would need to have comprehensive coverage and rapid processing of samples.

In the absence of a genetic match to a legally harvested whale on the DNA register, additional tests are required to identify the stock from which a product came, and therefore facilitate subsequent investigations and future enforcement of harvest and trade controls. While identifying individuals is a well understood forensic process, identifying stock-origins requires a different genetic approach. Techniques for identifying product origin are not yet well developed. For example, some products that were incorrectly labeled as "whale" in one survey turned out to be dolphin, but the genetic variability in this group of dolphins did not even allow the products to be identified to a species level (Dizon *et al.,* 2000). For Sperm Whales, individuals cannot be identified to ocean basin. Minke Whales can be identified to ocean within the Northern Hemisphere. However, Minke Whale products can be reliably identified to stock only in a few exceptional cases, notably for J-stock North Pacific Minke Whales. Within the rest of the North Pacific and the North Atlantic, it would rarely be possible to identify individuals to stocks. Thus, even if the DNA register of all legal whale products is effective, there remains the serious problem of detecting species that can afford no harvest and then identifying that product to a specific area so that enforcement can halt illegal kills. A truly comprehensive market monitoring system that would allow effective enforcement would require a very large DNA library that included samples from marine mammal species over their full global ranges.

Baker *et al.* (1996) note the potential utility of DNA analysis as a regulatory tool, but also comment on its drawbacks and considerations limiting its present utility. Although genetic methods have the power to monitor trade and retail markets, to be most effective they must take place within a larger management scheme (Baker, 2000). Such a scheme is under development by the IWC but is not complete.

Trade in Minke and Gray Whales

'Trade' is defined by CITES as export, re-export, import and introduction from the sea, while 'introduction from the sea' is defined as the transportation into a State of specimens of any species which were taken in the marine environment not under the jurisdiction of any State. Since 1989, the only country to have issued introduction from the sea certificates for Minke Whales has been Japan, for scientific purposes (351 Minke Whales in 1994, 540 in 1995, 456 in 1996, and 533 in 1997; CITES Annual Report data 1989-1999). Although Norway has harvested Minke Whales since 1993, it does not allow its whalers to operate outside of waters under Norwegian jurisdiction (TRAFFIC Europe, in prep). Other than introduction from the sea, the majority of CITES-recorded international trade in Minke Whales between 1989 and 1998 has been exports of meat from Appendix II West Greenland stocks by Greenland to Denmark (totalling 16 578 kg). Prior to the IWC moratorium on whaling, the majority of CITES reported trade in Minke Whale products between 1980 and 1986 was from Norway to Japan (totalling over 2 400 tonnes). In the case of the Gray Whale, CITES Annual Report data shows little trade in the species between 1980 and 1997 with most transactions involving bone and ivory carvings, small quantities of meat, or specimens.

Illegal trade

Eight separate cases of attempted illegal trade of whale meat involving Japan from 1987-1994, totalling 748 tonnes , have been reported by Japan to the CITES Secretariat. Meat from Bryde's Whale *Balaenoptera edeni* was identified in five out of eight cases, with exporters including the Republic of Korea (South Korea), Russian Federation and Taiwan; the species were not specified in the remaining three cases (Anon., 1995). Since then, the Japanese Government has reported on three additional cases, one involving illegal catch of a Sperm Whale, one involving attempted illegal import of Bryde's Whale meat (1995), and one involving 5 tons of whale meat of unidentified species (1996) (Japan Fisheries Agency press release, 25 June 1996). The Norwegian supporting statement notes two instances of attempted illegal whale exports to Japan (one of Minke Whale and one in which the species is not specified).

The results of genetic studies of cetacean products on sale in Japan have been interpreted as suggesting that undetected illegal trade of North Pacific Minke Whale products takes place (for example see Lento *et al.*, 1998a, b; Baker *et al.*, 1999). The complexity and extent of Japan's domestic market for cetacean products make monitoring and detection of illegal trade extremely difficult (Phipps *et al*., 1998; Dizon *et al,.* 2000; Kasuya, 2000).

Demand for Whale Products

Significant commercial markets for whale meat are currently known to exist in Japan, Norway and the Republic of Korea. Aboriginal whaling for meat and other products, exclusively for local consumption, is also known to take place in Canada, Greenland (Denmark), the Russian Federation, and the USA.

Norway's supporting statement notes that although whale meat is much in demand, there is little demand for the blubber, which is currently being stockpiled. Retail prices for meat range from USD14 to 24/kg. Norway's domestic market for whale meat is thought to be met through whaling the Minke Whale stocks on which Norway holds a reservation and which are the subject of Norway's proposal.

Japan has a large domestic market for whale meat (Mills *et al*., 1997). Legal domestic supply of whale products (including small cetaceans) comes from: scientific whaling; stocks of frozen whale meat (which includes whale meat obtained prior to the IWC moratorium on commercial whaling and whale meat imported before imports were stopped in 1991); bycatch in coastal fisheries; coastal whaling of cetaceans not covered by the IWC (TRAFFIC East Asia, 2000). Japan has been conducting scientific whaling of Minke Whales in the Antarctic, from the Southern Hemisphere stocks, since 1987, and in the North Pacific, from the Okhotsk Sea/West Pacific stocks since 1994. The products are sold commercially within Japan (under Japan's reservation on the Appendix I listing of Minke Whales and under the terms of the

ICRW for disposal of the products of scientific whaling). Annual catches of Minke Whales in Antarctic waters averaged 257 in 1988 and 1989, 323 between 1990 and 1995, and 427 between 1996 and 1999 (TRAFFIC East Asia, 2000). Annual catches of Minke Whales in the north Pacific were around 100 whales from 1995 to 1999 (TRAFFIC East Asia, 2000). Prior to its current ban on the import of whale meat, Japan imported nearly 124 000 tonnes of whale meat between 1980 and 1991, and caught more than 28 000 whales, between 1980 and 1987 (Chan *et al.*, 1995).

The Republic of Korea is a significant consumer of whale meat (Mills *et al.*, 1997), although not approaching the scale of Japan. Whale meat is supplied from bycatch of Minke Whales in the Republic's coastal waters (Sea of Japan/Yellow Sea/East China Sea stock). Officially reported levels of Minke Whales bycatch have declined since a high in 1996 of 129 animals, to 78 and 45 animals in 1997 and 1998 respectively (TRAFFIC East Asia, in prep).

Transfer of Eastern North Pacific stock of Gray Whale *Eschrichtius robustus* from Appendix I to Appendix II. Proponent: Japan.

Summary: The eastern North Pacific stock of Gray Whale (*Eschrichtius robustus*) may be the only viable population of whales in the family Eschrichtiidae remaining, with a population of just over 20 000 individuals. Gray Whales are extinct in the North Atlantic, while the western North Pacific stock of Gray Whales numbers in the low hundreds and is considered to be Endangered by IUCN. The eastern North Pacific stock has been recovering slowly since commercial harvests were controlled in the 1940s and is listed on the 1996 IUCN Red list of Threatened Animals as Low Risk. Catches, averaging about 175 whales per year, have been taken from the eastern North Pacific population over the last 30 years by or on behalf of indigenous people, but exclusively for local consumption. At present, there is very little legal international trade in Gray Whale products for non-commercial purposes. *E. robustus* was placed in Appendix I in 1975 (not 1986 as indicated in the supporting statement and its listing had no link to Res. Conf. 2.9). Contrary to the statement in the proposal, Japan does not have a reservation on this listing. The current proposal is based on: 1) the biological criteria (Annex 1, Res. Conf. 9.24) for Appendix I listing are not met for the eastern North Pacific stock and 2) precautionary measures (Annex 4, Res. Conf. 9.24) are fulfilled through national conservation and management measures and establishment of a trade control system based on DNA analysis techniques. Much of the range of the eastern North Pacific stock occurs within the EEZs, and often the territorial waters, of range States, where they are subject to relevant national legislation. Although Japan is a range State for the western Pacific stock, it is not a range State for the eastern North Pacific stock, and it is not clear how this stock would be harvested for international commercial trade.

Analysis: The stock does not appear to meet the biological criteria for inclusion in Appendix I. Adequate protection for the eastern North Pacific stock of the Gray Whale is, however, essential as the only other stock (Western Pacific stock) is endangered and may not be viable. For transfer to Appendix II, the species/stock must meet any one of the precautionary measures in Annex 4 (criterion B). With respect to precautionary measure B2a (Annex 4), although there is very little trade in Gray Whale products at present, international demand for whale products exists. Effective trade control measures need to be in place to ensure that international trade in products from the eastern North Pacific stock does not threaten the western Pacific stock. It is not currently possible to differentiate whales from the Eastern North Pacific from those of the Western Pacific stocks on either morphological or genetic grounds. While Japan is a range State for the endangered Western Pacific stock, it is not a range State for the Eastern North Pacific stock. With respect to precautionary measure B2b (Annex 4), concerning the management of international trade, as the proposal stands at present, any Party to CITES could trade internationally in whale products from this stock in the event of transfer to Appendix II being accepted by the Parties. While the proponent country may have adequate measures in place to monitor and control the import of baleen whale products into Japan (dependent on the state of its trade monitoring scheme, said to be in development, and the completeness of its DNA register), the proposal does not address how other CITES parties, especially non-IWC members, will implement controls under an Appendix II listing. Both Russia and the United States have a legal aboriginal harvest of Gray Whales, and no mention is made of including these animals in a genetic register as part of a trade control system. In the absence of a genetic register that would include all legally harvested Gray Whales, enforcement of trade controls would not be possible. The setting of suitable quotas to meet precautionary measures B2c and B2d (Annex 4) is not currently an integral part of the amendment proposal.

	Supporting Statement (SS)	**Additional information**
Taxonomy	Two stocks of Gray Whales occur in the North Pacific, the western and eastern stocks. It is likely that they are geographically isolated.	The two stocks migrate down either side of the North Pacific. Their distributions do not overlap.
Range	Range States are Canada, Mexico, Russian Federation, and the USA. Gray Whales inhabit coastal waters less than 200 m deep.	Being a coastal species, whales of the eastern North Pacific stock spend most of their time within the EEZs of range States, and often within territorial waters (Wade, 2000). They rarely occur in international waters.
IUCN Global Category		LR/cd. In addition, the two populations are recognised separately; the eastern North Pacific population is listed as Low Risk, the Western Pacific

	Supporting Statement (SS)	Additional information
		population as Endangered (D1) (IUCN, 1996).
Biological criteria		
A) Small wild population	The most recent estimate of the eastern North Pacific stock is 26 635 whales (95% confidence limits 21 878 to 32 427) using data from 1997/1998, and is similar to the estimates for 1993/1994 and 1995/1996.	The IWC's latest assessment of this stock was 21 000 (95% confidence limits 19 800 to 22 500) for data from 1987/1988 (IWC, 1993; Wade, 1996). The population estimate from 1997/1998 was not significantly different from those of 1995/96 and 1993/94 (Hobbs and Rugh, 1999).
B) Restricted area of distribution	The eastern North Pacific stock migrates annually along the Pacific coast of North America between the breeding grounds off the coast of Baja California, Mexico and summer feeding grounds along the Siberian coast and in the southern Chukchi and northern Bering Seas. Historical distribution of this stock is assumed to be similar to the present distribution.	The area of distribution exceeds 10 000 km^2. Relative to other species of large whales, however, the Gray Whale has a restricted area of distribution and is highly concentrated into a few locations during the breeding season. There is also a question of whether small resident feeding populations exist (Calambokidis, 2000; Darling, 2000).
C) Decline in number of wild individuals	Surveys indicate that the stock has increased substantially since 1968, when surveys first started, but may now be levelling off. The stock may have been reduced to as few as 2 000 whales at the beginning of the 20^{th} Century.	It is likely that the population has increased by approximately 3% per year between 1967/68 and 1987/1988 with an annual catch of 174 whales (Reilly,1992; Gamble, 2000). Although recent abundance estimates are consistent with a reduction in population growth rate, the cause of this reduced growth rate is unknown.
D) Status suggests inclusion in Appendix I within five years		The stock is unlikely to meet this criterion as long as total harvests are within the sustainable catch limits set by the RMP or the aboriginal whaling plan under development by the IWC.
Trade criteria		
The species is, or may be, affected by trade	Harvesting of Gray Whales has been an important means of livelihood for traditional and indigenous communities. Catches continue to be taken, averaging about 175 whales per year over the last 30 years, in Russian coastal waters by or on behalf of indigenous people and exclusively for local consumption. In addition, the Makah Indian Tribe from the USA have permission for a small harvest, and caught one Gray Whale in 1999. Current annual catch quota set by the IWC is 140 whales. The SS notes that the estimated average sustainable yield for this stock is 670 whales (no reference provided). Commercial harvesting of Gray Whales started in 1846 and was phased out in 1946. Although annual catches of 500 or so whales were made in the mid 1800s from the Eastern stock, over the last 100 years annual commercial and aboriginal catches have not exceeded 250 whales. At present there is no legal international trade in Gray Whale products,	CITES Annual Report data records little trade in this species between 1980 and 1997, with most transactions involving bone and ivory carvings, small quantities of meat, or scientific specimens. No current information on utilisation of this species, other than for aboriginal subsistence purposes in the USA and the Russian Federation, exists as there is currently no other legal harvest. In addition, there is no information, either in the SS or elsewhere, on potential use should transfer to Appendix II take place. Japan has not, in the past, imported Gray Whale products from the range States of the eastern stock on a large scale. Substantial catches, totalling at least 1700 animals, were taken in the past from the now depleted Western stock (Kato and Kasuya, 1990). Surveys, using molecular genetic identification techniques, of whale products for sale in Japan and South Korea have not detected any Gray Whale products. Part of a Gray Whale carcass, presumably from the western North Pacific stock, was recently found on the Hokkaido coast of Japan, with 11 hand harpoon heads embedded in it (IWC, 1999; Brownell

	Supporting Statement (SS)	Additional information
	and there have been no reports of illegal international trade.	and Kasuya, 1999).
Precautionary measures		
B2b: CoP satisfied with: i) implementation of Article IV	In the event of downlisting, import into Japan would be subject to stringent control mechanisms. Import will only be allowed when all the requirements of Article IV of the CITES Convention are met. Under Japan's Decree of Import of Trade Control, imports from non-IWC countries are prohibited. Under Japanese law, all whale species are either protected or harvested under strict conservation and management measures. Whale capture can only be carried out with a licence from the Ministry of Agriculture, Forestry and Fisheries.	No information is presented in the SS concerning implementation of Article IV in countries other than Japan. Under CITES Article XIV.4, Parties who are also contracting States of the IWC are relieved of the provisions of CITES for those species (i.e. permitting and reporting requirements, etc.), except for the need to issue a certificate attesting that the specimens concerned were taken in conformity with the ICRW.
B2b: CoP satisfied with: ii) enforcement controls	Japan reports the development of a control system, based on DNA analysis, that will be able to detect any illegally traded whale products. The SS notes that DNA analysis provides the means to identify species, individuals and in some cases the stock of origin. Two attempts at illegal import of whale meat (not from this stock) into Japan from Norway have been prevented, in 1993 and 1996.	No information is presented in the SS concerning enforcement controls in countries other than Japan. It is not currently possible to distinguish whale products from the eastern North Pacific stock from those of the endangered Western Pacific stock using molecular genetic techniques. In the absence of a genetic register/library that would include all legally harvested Gray Whales, enforcement of trade controls would not be possible. There is no mention in the SS of an agreement with the Russian Federation (where aboriginal whaling currently takes place) or the other range States for such a system. The operation of an efficient trade monitoring scheme is essential for adequate enforcement. The SS notes that a regular market monitoring program is in the process of development in Japan but gives no details. See 'introduction to whale proposals' section for further discussion of the trade control and enforcement issues.
Other information		
Threats	A plan exists to develop a salt factory in part of the breeding ground, but the Government of Mexico has protected most of the breeding habitat by establishing a whale sanctuary. The incidence of Gray Whale strandings at Baja California Sur, Mexico has increased in recent years. Poor body condition, resulting from low nutrient concentrations at the feeding grounds, has been suggested as a cause.	The environmental impact of plans to develop salt factories within Mexican breeding lagoons are being considered by the Mexican government so potential impacts remain unknown. The increased strandings referred to occurred over one four month period, probably reflecting an increased search effort (Perez-Cortez *et al*., 1999). While no comparable data from previous years exist, strandings of Gray Whales are common every winter. No data are available to suggest that the

	Supporting Statement (SS)	Additional information
	Entanglement in gillnets along the southern California coast has been a problem.	cause was starvation. The Gray Whale's coastal migration and inshore distribution in winter make this species vulnerable to human development and disturbance. This is likely to be a particular problem on the breeding grounds. However, such problems to date do not seem to have impeded the Eastern stocks' recovery from depletion (Reeves and Leatherwood, 1994). Although the SS notes that human development activities have been minimal in the feeding ground, the area does support a substantial fishery, whose impact on the ecosystem is not clear (Darling, 2000).
Conservation, management and legislation	The population has been the subject of extensive research and is regularly monitored by the US National Marine Mammal Laboratory. IWC has set a block quota for aboriginal subsistence whaling of 620 animals for the years 1998 to 2002 inclusive, provided that no more than 140 whales shall be taken in one year. The breeding grounds in the lagoons off the coast of Baja California have been declared reserves by the Government of Mexico for the protection of the Gray Whale habitat. All range States have domestic legislation to protect Gray Whales. The Marine Mammal Protection Act of the USA prohibits the taking of Gray Whales except for aboriginal subsistence use. The Gray Whale was removed from the U.S. Endangered Species List in 1994. The Marine Mammal Regulations of Canada allows for the issuing of whale hunting licences, although current policy is not to issue licences for whaling by non-aboriginal people. The SS states that, "the survival of the Gray Whale stock will not be threatened by trade if current quotas are maintained and if/because the Revised Management Procedure [RMP] completed by the Scientific Committee of the IWC or the Aboriginal Subsistence Whaling Management Procedure [ASWMP] currently being developed are used when the quotas are set."	Research in the USA, Canada and Mexico has concentrated on obtaining accurate population estimates. The possible existence of sub-populations within the Eastern North Pacific stock has not been thoroughly studied (Darling, 2000; Swartz, 2000). There have been few studies of Gray Whales on their northern feeding grounds. The existence of whale-watching mentioned in the SS as a non-lethal utilisation of the Gray Whale is actually of considerable economic and social importance to coastal communities from Mexico to British Columbia. Whales of the eastern North Pacific stock spend most of their time within the EEZs of range States, and often within territorial waters (Wade, 2000), where they are subject to relevant national legislation over much of their range. The Gray Whale is listed in the Mexican regulations (Norma Oficial Mexicana NON-059-ECOl-1994) as a 'species under special protection'. The SS does not suggest how quotas resulting from the RMP would be allocated or enforced, particularly among CITES Parties who are not members of the IWC. Under the ICRW (and as pointed out by the SS), the IWC prohibits the export of products from aboriginal subsistence whaling so the relevance of the ASWMP to international trade is not clear.
Similar species		It is not possible to differentiate whales from the eastern North Pacific from those of the Western Pacific stocks on either morphological or genetic grounds, at least at present (Rosel and Kocher, 1997; Wade, 2000). The western North Pacific sub-population is an IWC protection stock. No accurate estimate is available for the abundance of this stock, but it may number less than 100 individuals (Weller *et al*., 1999).

Reviewers: J. Darling, T. Kasuya, M. Simmonds,, B.L. Tayor, J. Urban, P.R. Wade, TRAFFIC East Asia.

Transfer of Southern Hemisphere stock of Minke Whale *Balaenoptera acutorostrata* from Appendix I to Appendix II. Proponent: Japan.

Summary: CITES listings for cetaceans currently recognise one Minke Whale species, *Balaenoptera acutorostrata*. There is strong scientific consensus, however, for recognising two species of Minke Whales in the Southern Hemisphere: the Antarctic Minke Whale (*B. bonaerensis)* and the Northern Minke Whale (*B. acutorostrata*). Although abundance estimates combine both species, it is widely recognized that the larger Antarctic Minke Whale is much more common than the smaller Northern Minke Whale. *B. acutorostrata* in the Southern Hemisphere are normally called Dwarf Minke Whales. The status of the Dwarf Minke Whale (*B. acutorostrata*) is uncertain. *B. acutorostrata* is listed on the 1996 IUCN Red List of Threatened Animals as Lower risk: near threatened; *B. bonaerensis* is listed as Lower risk: conservation dependent. The total population of the Southern Hemisphere stock, including both *B. bonaerensis* and *B. acutorostrata,* is estimated at 761 000 whales. Although no commercial harvests of Minke Whales have taken place in the Southern Hemisphere since 1988, Japan currently harvests approximately 400 whales per year for research purposes. The products of this harvest are sold within Japan. In 1983, with the exception of the West Greenland population, the Minke Whale was transferred to Appendix I (effective 1 January 1986) to coincide with the IWC's moratorium on commercial whaling. Japan, Norway and Peru currently hold reservations on the CITES Appendix I listings of *B. acutorostrata*. The current proposal is based on: 1) the biological criteria (Annex 1, Res. Conf. 9.24) for Appendix I listing are not met for the Southern Hemisphere stock of Minke Whales, and 2) precautionary measures (Annex 4, Res. Conf. 9.24) are fulfilled through national conservation and management measures and establishment of a trade control system based on DNA analysis techniques. The stock occurs in international waters and the territorial waters of a number of range States, but not those of Japan. Japan has placed an objection on the IWC declaration of the Southern Ocean Sanctuary.

Analysis: The available information on population size and distribution area indicates that *B. bonaerensis* (the species most likely to be in trade since it is thought to comprise a high proportion of Southern Hemisphere Minke Whales) does not appear to meet the numerical guidelines relating to the biological criteria for inclusion in Appendix I. The status of *B. acutorostrata* in the Antarctic is unknown and lack of information concerning their abundance, distribution, and catch history makes it difficult to assess the impacts of the proposed transfer to Appendix II on this species. For transfer to Appendix II, the species/stock must meet any one of the precautionary measures in Annex 4, criterion B. With respect to precautionary measure B2a (Annex 4), international demand for whale products, including those of Minke Whales, exists. Since demand for whale products is not generally specific to particular stocks or species, and many whale species occur in international waters and the territorial waters of multiple range States, it is possible that the transfer of this stock to Appendix II could stimulate trade in or cause enforcement problems for other species or stocks of whale included in Appendix I. However, products from *B. bonaerensis*, the species most likely to be in trade from the Southern Hemisphere stock, are distinguishable from the products of other species using genetic analysis. Further research is needed to assess whether it is possible to reliably distinguish the products of Dwarf Minke Whales (*B. acutorostrata*) in the Southern and Northern Hemispheres. With respect to precautionary measure B2b (Annex 4), concerning the management of international trade, as the proposal stands at present, any Party to CITES could trade internationally in whale products from this stock in the event of transfer to Appendix II being accepted by the Parties. While the proponent country may have adequate measures in place to monitor and control the import of baleen whale products into Japan (dependent on the state of its trade monitoring scheme, said to be in development, and the completeness of its DNA register), the proposal does not address how other CITES parties, especially non-IWC members, will implement controls under an Appendix II listing. This is an important consideration for a migratory species that is found primarily in international waters and that passes through the territorial waters of multiple range States. No mention is made of including animals taken by other countries in a genetic register as part of a trade control system. In the absence of a genetic register that would include all legally harvested whales, enforcement of trade controls would be more difficult. In addition, although the Supporting Statement reports that future harvest quotas will be based on the RMP, it does not suggest how the quotas would be allocated or enforced, particularly among CITES Parties who are not members of the IWC. The setting of suitable quotas to meet precautionary measures B2c and B2d (Annex 4) is not currently an integral part of the amendment proposal.

	Supporting Statement (SS)	Additional information
Taxonomy	Synonyms: *Balaenoptera bonaerensis* and *Balaena rostrata*. Two forms of Minke Whale, the more abundant, ordinary form and the less abundant, dwarf form are recognised. The genetic distance between the forms is similar to that reported between different cetacean species.	See 'introduction to whaling proposals'. CITES listings for cetaceans follow Wilson and Reeder (1993) which currently only recognises one Minke Whale species, *Balaenoptera acutorostrata*. There is a strong scientific consensus, however, for recognizing two well-defined species of Minke Whale (Rice, 1998). The larger, more abundant species, *B. bonaerensis* (Antarctic Minke Whale), occurs only in the Southern Hemisphere. The smaller species, *B. acutorostrata*, occurs as two, and possibly three, disjunct geographical populations, with *B.acutorostrata* subsp. (Dwarf Minke Whale) in the Southern Hemisphere.
Range	Range States are: Argentina, Australia, Brazil, Chile, Comoro, Congo, Ecuador, Fiji, France, Gabon, Indonesia, Kenya, Madagascar, Mauritius, Mozambique, Namibia, New Zealand, Papua New Guinea, Peru, Seychelles, South Africa, Tanzania, the United States, the United Kingdom, Uruguay, and Vanuatu.	The IWC Southern Hemisphere baleen whale stocks range from the equator to the antarctic landmass and are divided into 6 management divisions from west to east. Bannister (2000) notes that there is likely to be differential distribution of the two species of Minke Whale found in the Southern Hemisphere, for example in the coastal waters off Australia.
IUCN Global Category		*B. bonaerensis* LR/cd *B. acutorostrata* LR/nt
Biological criteria		
A) Small wild population	Total Minke Whale population is estimated at approximately 1 million animals. The Southern Hemisphere stock is likely to be the largest, at 761 000 animals (95% confidence limits 510 000 to 1 140 000).	The total estimate for all Minke Whales comprises two species. The figure of 761 000 animals for the Southern Hemisphere stock is that agreed by the IWC for its Comprehensive Assessment of this stock, based on surveys during the 1980s, and considers the two species of Minke Whale together. It has been roughly estimated that the Dwarf Minke Whale (*B. acutorostrata*) represents about 1% of the Minke Whales in the Antarctic (Zerbini, 2000).
B) Restricted area of distribution	The Southern Hemisphere stock of Minke Whale is widely distributed (see above).	The extent of genetic separation of the population into breeding stocks is not clear (Baker, 2000a; Zerbini, 2000). While there is clear evidence that different stocks do exist (Pastene *et al*., 1999), the boundaries, migration patterns and breeding areas remain uncertain.
C) Decline in number of wild individuals	The population is expected to have increased following the cessation of commercial whaling in 1987. Between 1971 and 1986, approximately 6 000 whales were taken annually, compared with 300 - 400 for scientific purposes since 1987. Analyses in 1990 by the IWC Scientific Committee suggest that population levels were then at 62% to 97% of initial stock levels, depending on the assumptions used in the modelling.	The above abundance data (1979-90) show no statistically significant trend in overall abundance over time (Punt *et al*., 1997). Analyses of population trends do not consider the two species separately.
D) Status suggests inclusion in Appendix I		No information available suggests that *B. bonaerensis* is likely to meet this criterion. The status of the Dwarf Minke Whale, *B. acutorostrata,* in the Southern Hemisphere is unknown.

	Supporting Statement (SS)	Additional information
within five years		
Trade criteria		
The species is, or may be, affected by trade	The SS states that there is no legal international trade in Minke Whale products. Two alleged illegal exports from Norway to Japan are mentioned, in 1993 and 1996. Currently 400 +/- 10% Minke Whales are killed annually by Japan for research purposes. No commercial harvest has been conducted since 1988. The Southern Hemisphere stock of Minke Whales will not be threatened by trade because harvest quotas will be set, based on the Revised Management Procedure.	Whales harvested by Japan as part of its Scientific Whaling Programme are technically introduction from the sea and therefore constitute international trade. Although CITES Annual Report data show that international trade in Minke Whale products over the last 10 years has been limited, international demand for Minke Whale products, in particular the meat, exists (see 'introduction to whaling proposals'). Although the Government of Japan reported to the CITES Secretariat eight separate cases of attempted smuggling of whale meat into Japan between 1987 and 1994, it is unlikely that any of the meat derived from the Southern Hemisphere stocks of Minke Whale. The identification of two samples of Antarctic Minke Whale (*B. bonaerensis*) in market samples collected in the Republic of Korea (Baker *et al*., 1996a) suggests that some illegal trade may be occurring, but, overall, evidence of illegal trade is limited. Although the species most likely to be harvested from this stock and traded is *B. bonaerensis*, trade data do not generally differentiate between the two species. Prior to the IWC moratorium on whaling, Dwarf Minke Whales (*B. acutorostrata*) were harvested from the Southern Hemisphere stocks, and some were captured during the Japanese Scientific Whaling programme (eg Kato *et al*., 1990).
Precautionary measures		
B2b: CoP satisfied with: i) implementation of Article IV	In the event of downlisting, import into Japan would be subject to stringent control mechanisms. Import will only be allowed when all the requirements of Article IV of the CITES Convention are met. Under Japan's Decree of Import of Trade Control, imports from non-IWC countries are prohibited. Under Japanese law, all whale species are either protected or harvested under strict conservation and management measures. Whale capture can only be carried out with a licence from the Ministry of Agriculture, Forestry and Fisheries.	No information is presented in the SS concerning implementation of Article IV in countries other than Japan. Under CITES Article XIV.4, Parties who are also contracting States of the IWC are relieved of the provisions of CITES for those species (i.e. permitting and reporting requirements, etc.), except for the need to issue a certificate attesting that the specimens concerned were taken in conformity with the ICRW. However, Japan placed an objection on the IWC declaration of the Southern Ocean Sanctuary.
B2b: CoP satisfied with: ii) enforcement controls	Japan reports the development of a control system, based on a DNA register of all Minke Whales harvested by Japan, that can distinguish between different species, different stocks of Minke Whales and between different individuals. This control system will apparently be able to detect any illegally traded whale products. Imported whale products will also be DNA tested and included in the control system.	No information is presented in the SS concerning enforcement controls in countries other than Japan. The operation of an efficient trade monitoring scheme is essential for adequate enforcement. The SS notes that a regular market monitoring program is in the process of development but gives no details. The results

	Supporting Statement (SS)	Additional information
	Two attempts at illegal import of whale meat (not from this stock) into Japan from Norway have been prevented, in 1993 and 1996.	of only one market survey by the Japanese Government have been reported to the IWC (Baker, 2000a). See 'introduction to whaling proposals 'for additional information on enforcement issues.
Other Information		
Threats	No serious threats are mentioned.	No additional information.
Conservation, management and legislation	The SS states that the Revised Management Procedure completed by the Scientific Committee of the IWC will be used for the quota calculations. It also mentions that introduction from the sea, currently in the form of scientific takes of the Southern Hemisphere stock, has been and will be conducted within the limits calculated by the RMP. The 1982 IWC moratorium on commercial whaling, effective from 1986, is still in place. Southern Hemisphere Minke Whale stocks have been the subject of extensive survey work by both the IWC and Japan. The SS reports that favourable environmental conditions may have enabled Southern Hemisphere Minke Whales to grow more rapidly (comparing 1940s with the 1970s) and become sexually mature earlier.	The SS does not suggest how quotas resulting from the RMP would be allocated or enforced, particularly among CITES Parties who are not members of the IWC. No data or calculations are presented to demonstrate how current and planned harvests relate to the RMP. It is possible that current scientific harvests by Japan may exceed RMP catch limits in Area IV, the most heavily exploited management area (Cooke, 2000). In 1991, the Scientific Committee of the IWC recognised the existence of the Dwarf and the Antarctic Minke Whale and suggested they should be managed separately (Zerbini, 2000). While the stock of the Antarctic Minke Whale (*B. bonaerensis*) has been extensively studied, relatively little is known of the Dwarf Minke Whale (*B. acutorostrata*). Minke Whales have the highest calving rate of all baleen whales. The relatively high estimate of Maximum Sustainable Yield rates is suggestive of comparatively high resilience (Butterworth and Punt, 1999). In 1994, IWC declared most waters south of 40° S as the Southern Ocean Sanctuary, within which catches of whales are prohibited. Japan has placed an objection on the creation of the Southern Ocean Sanctuary.
Similar species	Minke Whales can be distinguished at sea from other whales. It is not possible to distinguish meat or blubber from different species by visual inspection. This can be done, however, using mtDNA sequence analysis. Sometimes the stock of origin can be determined as well.	Although the two species of Minke Whale can be differentiated visually on the basis of colour patterns and morphology, the two species are difficult to distinguish at sea (Zerbini, 2000). It is, however, unlikely that the Dwarf Minke Whale (*B. acutorostrata*) will be severely threatened by a harvesting program that is based on the RMP, particularly if the proportion of Dwarf Minke Whales is monitored using mtDNA testing (Schweder, 2000). Traded products of the Antarctic Minke Whale (*B. bonaerensis*) can be distinguished genetically from the products of Northern and Dwarf Minke Whales (*B. acutorostrata*) (Baker *et al*., 1996b). However, it is not currently possible to reliably distinguish products from among different stocks of the Antarctic Minke Whale, or from among different stocks of *B. acutorostrata*, except perhaps the 'J' stock from the East Sea/Sea of Japan (Baker, 2000b).

Reviewers: J. Angell, C.S. Baker**,** J. Cooke, T. Schweder, M. Simmonds, A.N. Zerbini, TRAFFIC East Asia.

Transfer of Okhotsk Sea - West Pacific stock of *Balaenoptera acutorostrata* Minke Whale from Appendix I to Appendix II. Proponent: Japan.

Summary: IWC currently recognises three stocks of Minke Whales in the North Pacific: (1) Sea of Japan/Yellow Sea/East China Sea stock (J-stock), (2) Okhotsk Sea/West Pacific stock, and (3) the "remainder" of whales to the east of 180 degrees W. These latter two stock definitions are not based on Minke Whale biology, and the Japanese have undertaken a scientific whaling program with the primary objective of providing population data on which the stock structure used in the RMP can be based. The J-stock is estimated at about 900 whales, and was declared a protection stock by the IWC in 1985. Mixing of the Okhotsk Sea/West Pacific stock and the J-stock takes place during part of the year, at least in the southern Okhotsk Sea. Whales from the three stocks cannot be distinguished morphologically from each other in the wild, nor can whales from the Okhotsk Sea/West Pacific area and the eastern North Pacific area be distinguished genetically. J-stock whales can, however, be differentiated from whales of the other two stocks using genetic techniques. The IWC has accepted an estimate of approximately 25 000 animals for the Okhotsk Sea/West Pacific area. *B. acutorostrata* is listed on the 1996 IUCN Red List of Threatened Animals as Lower risk: near threatened. Minke Whales in the North Pacific may be a separate subspecies, *B. acutorostrata davidson*. Although no commercial harvests of Minke Whales have taken place from the Okhotsk Sea/West Pacific area since 1987, Japan currently harvests approximately 100 whales per year from this area for research purposes. The products of this harvest are sold within Japan. In 1983, with the exception of the West Greenland population, the Minke Whale was transferred to Appendix I (effective 1 January 1986) to coincide with the IWC's moratorium on commercial whaling. Japan, Norway and Peru currently hold reservations on the CITES Appendix I listings of *B. acutorostrata*. The current proposal is based on: 1) the biological criteria (Annex 1, Res. Conf. 9.24) for Appendix I listing are not met for the for the Okhotsk Sea/West Pacific stock of Minke Whales, and 2) precautionary measures (Annex 4, Res. Conf. 9.24) are fulfilled through national conservation and management measures and establishment of a trade control system based on DNA analysis techniques. Japan is a range State for the proposed stock.

Analysis: Uncertainty about the population structure of Minke Whales in the North Pacific makes it difficult to determine whether whales within the Okhotsk Sea/West Pacific area meet the biological criteria for inclusion in Appendix I. In particular, with respect to criterion C (Annex 1), the last comprehensive assessment of whales in this area estimated that the species or stocks could have declined from 17% to 95% of its pre-exploitation level depending on what assumptions were made about the population structure. The structure of the stock has not yet been sufficiently evaluated to determine which option is most appropriate. In addition, there are no direct estimates of population trends based on abundance data for this management area. Since the stock has been estimated at approximately 25 000 animals, and does not have a restricted area of distribution, it does not appear to meet either criterion A or B for inclusion in Appendix I (Res. Conf. 9.24, Annex 1). For transfer to Appendix II, the species/stock must meet any one of the precautionary measures in Annex 4 (criterion B). With respect to precautionary measure B2a (Annex 4), international demand for whale products, including those of Minke Whales, exists. Since demand for whale products is not generally specific to particular stocks or species, and many whale species occur in international waters and the territorial waters of multiple range States, it is possible that the transfer of this stock to Appendix II could stimulate trade in or cause enforcement problems for other species or stocks of whale included in Appendix I. J-stock whales may be harvested during whaling of the Okhotsk Sea/West Pacific stock. In addition, although the products of J-stock whales can be genetically identified to stock level, increased trade in Minke Whale products may make the detection and control of illegal trade in products from the protected J-stock more difficult. With respect to precautionary measure B2b (Annex 4), concerning the management of international trade, as the proposal stands at present, any Party to CITES could trade internationally in whale products from this stock in the event of transfer to Appendix II being accepted by the Parties. While the proponent country may have adequate measures in place to monitor and control the import of baleen whale products into Japan (dependent on the state of its trade monitoring scheme, said to be in development, and the completeness of its DNA register), the proposal does not address how other CITES parties, especially non-IWC members, will implement controls under an Appendix II listing. This is an important consideration for a migratory species that is found in international waters and that passes through the territorial waters of multiple range States. In addition, although the Supporting Statement reports that future harvest quotas will be based on the RMP, it does not suggest how the quotas would be allocated or enforced, particularly among CITES Parties who are not members of the IWC. The setting of suitable quotas to meet precautionary measures B2c and B2d (Annex 4) is not currently an integral part of the amendment proposal.

	Supporting Statement (SS)	Additional information
Taxonomy	Synonyms: *Balaenoptera bonaerensis* and *Balaena rostrata*.	The stock referred to in this proposal is the smaller, less abundant species of Minke Whale found in both the north and south hemispheres and considered to be *B. acutorostrata*. Some authors further divide *B. acutorostrata*, giving subspecific status to North Pacific Minke Whales as *B. acutorostrata davidsoni* (Rice, 1998).
Range	Minke Whales from the Okhotsk Sea - West Pacific stock occur west of 170° E in the western North Pacific, but the western boundary is unclear. In winter, they occur south of 30° N, moving northward in summer, including into the Okhotsk Sea. Range States listed in the SS are Canada, the People's Republic of China, Indonesia, Korea, Marshall Islands, the Philippines, the Russian Federation and the United States of America (but see additional information).	The proposal is thought to refer to the Okhotsk Sea - West Pacific management area defined by the IWC Schedule. This is the Okhotsk Sea and the North Pacific West of 180° and north of the equator, the western boundary being defined approximately as a line through Sakhalin, Hokkaido, Honshu, Kyushu, the Ryukyu chain, Taiwan and the Philippines. The number of biological populations in this area, their breeding areas, movement patterns, and ranges are not clearly understood. North and South Korea and Canada are not range States for this management area. The occurrence of Minke Whales in this area includes international waters.
IUCN Global Category		LR/nt
Biological criteria		
A) Small wild population	The IWC has accepted an estimate of 25 049 animals (95% confidence limits 13 700 to 36 000) for the Okhotsk Sea - West Pacific stock. Analyses in 1991 by the IWC Scientific Committee indicated that the current population was at 61-88% of their pre-exploitation level, depending on the assumptions used in modelling.	The population estimate of 25 049 whales for this area is based on surveys in 1989-1990. There have been more recent estimates made of some sub-areas, but they are unlikely to change the figure accepted by the IWC markedly (Punt, 2000). The total of the most recent estimates for each sub-area used by the IWC Scientific Committee for preliminary calculations for the RMP is approximately 19 000 animals (IWC, 1999a).
B) Restricted area of distribution	Current distribution is considered to be similar to historical distribution.	The range of this stock is greater than 10 000 km^2.
C) Decline in number of wild individuals	In 1991, current population level was estimated to be between 61% and 88% of initial stock levels (IWC, 1992). Population is expected to have increased following the cessation of commercial whaling in 1987. It is estimated that 200 - 400 animals were harvested each year from the 1940s to 1986. Japan currently harvests up to 100 animals for research purposes.	Direct assessment of trends in abundance is not possible for this area because only recent population survey data are available, together with past and current catch data. In 1991, the IWC Scientific Committee produced estimates of the extent of population decline since 1946 which ranged from 17% to 95%, depending on the stock structure option and the assumptions of the model used (IWC, 1992). The structure of the stock has not yet been sufficiently evaluated to determine which option is most appropriate (Taylor, 2000). The neighbouring Sea of Japan/Yellow Sea/East China Sea stock, which seasonally occurs in the Okhotsk Sea, was declared a protection stock by the IWC in 1985, on the basis of catch rate analysis showing a decline of over 50% (IWC, 1986). It is estimated at approximately 900 whales (IWC, 1997). Incidental kills may be sufficient to have resulted in further declines

	Supporting Statement (SS)	Additional information
		(Taylor, 2000).
D) Status suggests inclusion in Appendix I within five years		The stock is unlikely to meet this criterion as long as total harvests are within the sustainable catch limits set by the RMP. However, uncertainty surrounding stock structure makes it difficult to assess the status of stocks in the North Pacific (Taylor, 2000).
Trade criteria		
The species is, or may be, affected by trade	Currently there is no legal international trade in Minke Whale products. Since 1994, Japan has harvested up to 100 whales annually from this stock for scientific research purposes. No information is presented concerning current consumption of whale products by Japan or expected future levels of consumption should transfer to Appendix II occur. Two alleged illegal exports of whale meat (not from this stock) from Norway to Japan are mentioned, in 1993 and 1996.	Whales harvested by Japan in international waters as part of its Scientific Whaling Programme are technically introduction from the sea and therefore constitute international trade. CITES Annual Reports indicate that Japan reported issuing introduction from the sea permits of Minke Whales for scientific purposes in 1994 (351 whales), 1995 (540), 1996 (456), and 1997 (533). The catch from the Okhotsk Sea/West Pacific area has never exceeded 100 whales, the rest coming from the Southern Hemisphere stock. In addition to the scientific harvest, Japanese government records suggest an average of about 20 Minke Whales per year are killed annually as bycatch (TRAFFIC East Asia, 2000), although one estimate suggests the real figure could be as high as 100 (Toboyama *et al*., 1992). Although CITES Annual Reports show that international trade in Minke Whale products over the last 10 years has been limited, international demand for Minke Whale products, in particular the meat, exists (see 'Introduction to whaling proposals'). Between 1980 and 1987, Japanese commercial whalers harvested a total of 2 712 Minke Whale from the Okhotsk Sea/West Pacific area (Chan *et al.,* 1995). Genetic analyses of independent market samples in Japan revealed a significantly higher than expected proportion of products derived from the protected Sea of Japan/Yellow Sea/East China Sea area than would be expected on the basis of the monitored catch (Lento *et al,* 1998; IWC, 1999b). While this does not necessarily imply that illegal trade is occurring, it does suggest that a significant number of animals other than from monitored sources are entering the market.
Precautionary measures		
B2b: CoP satisfied with: i) implementation of Article IV	In the event of downlisting, import into Japan would be subject to stringent control mechanisms. Import will only be allowed when all the requirements of Article IV of the CITES Convention are met. Under Japan's Decree of Import of Trade Control, imports from non-IWC countries are prohibited. Under Japanese law, all whale species are either protected or harvested under strict conservation and management measures. Whale capture can only be carried out with a licence from	No information is presented in the SS concerning Implementation of Article IV in countries other than Japan. Under CITES Article XIV.4, Parties who are also contracting States of the IWC are relieved of the provisions of CITES for those species (i.e. permitting and reporting requirements, etc.), except for the need to issue a certificate attesting that the specimens concerned were taken in conformity with the ICRW.

	Supporting Statement (SS)	Additional information
	the Ministry of Agriculture, Forestry and Fisheries.	
B2b: CoP satisfied with: ii) enforcement controls	Japan reports the development of a control system, based on a DNA register of all Minke Whales harvested by Japan, that can distinguish between different species, different stocks of Minke Whales and between different individuals. This control system will apparently be able to detect any illegally traded whale products. Imported whale products will also be DNA tested and included in the control system. Two attempts at illegal import of whale meat (not from this stock) into Japan from Norway have been prevented, in 1993 and 1996.	No information is presented in the SS concerning enforcement controls in countries other than Japan. The operation of an efficient trade monitoring scheme is essential for adequate enforcement. The SS notes that a regular market monitoring program is in the process of development but gives no details. The results of only one market survey by the Japanese Government have been reported to the IWC (Baker, 2000). There is no genetic or morphological technique to distinguish between Minke Whales from the eastern and western North Pacific. Since no mention is made in the proposal of regulations to restrict whaling from areas where J-stock whales occur, it is possible that some harvest of the protected J-stock whales will occur as a result of the proposed transfer of the Okhotsk Sea/West Pacific stock to Appendix II. The effects of this bycatch on the Sea of Japan/Yellow Sea/East China Sea stock, in combination with incidental takes of J-stock whales in the Okhotsk Sea during proposed whaling operations, is a matter of concern (Taylor, 2000). See 'introduction to whaling proposals 'for additional information on enforcement issues.
Other Information		
Threats	No serious threats reported.	
Conservation, management and legislation	The SS states that the Revised Management Procedure completed by the Scientific Committee of the IWC will be used for the quota calculations. The 1982 IWC moratorium on commercial whaling, effective from 1986, is still in place. Japan has been monitoring this stock since the early 1980's.	The SS does not suggest how quotas resulting from the RMP would be allocated or enforced, particularly among CITES Parties who are not members of the IWC. The actual catch limits that would arise from applying the RMP cannot be determined until the implementation preparation process (IWC, 1999c) has been completed by the IWC Scientific Committee. The proposal suggests that Japan plans to implement the RMP using the least precautionary assumptions regarding population structure in this area (Taylor, 2000). Concern has arisen that some of the simulation trials for the RMP suggest that the J-stock may be threatened by unavoidable incidental harvest of J-stock whales during harvesting operations targeted at the O stock (IWC, 1999b). The current IWC stock definitions for the North Pacific are not based on Minke Whale biology (Donovan, 1991). The Japanese have undertaken a scientific whaling program with the primary objective of providing population

	Supporting Statement (SS)	Additional information
		data on which the stock structure used in the RMP can be based.
Similar species	The SS does not refer to any possible impact of the transfer on the Sea of Japan/Yellow Sea/East China Sea stock (J-stock).	IWC recognises at least three stocks of Minke Whales in the North Pacific: (1) Okhotsk Sea/West Pacific stock, (2) Sea of Japan/Yellow Sea/East China Sea stock (J-stock), and (3) the "remainder" of whales to the east of 180W. The J-stock was declared a protection stock by the IWC in 1985. It has markedly different migration and breeding patterns from the other two stocks. Mixing of the J-stock with the Okhotsk Sea/West Pacific stock does occur, however, in at least the southern Okhotsk Sea. J-stock whales can not be differentiated visually from whales of the other two stocks but the products of J-stock whales can be identified with 99% certainty using genetic methods (Congdon *et al*., 1999). The J-stock is threatened by incidental bycatch in fishing nets in South Korea and Japan. Officially reported levels of Minke Whale bycatch in South Korea have declined from 129 animals in 1996 to 78 whales in 1997 and 45 in 1998 (TRAFFIC East Asia, 2000).

Reviewers: J. Angell, J. Cooke, T. Kasuya, B.L. Taylor, TRAFFIC East Asia.

Transfer of Northeast Atlantic and North Atlantic Central stocks of Minke Whale *Balaenoptera acutorostrata* from Appendix I to Appendix II. Proponent: Norway.

Summary: The stocks referred to in this proposal are of the Northern Minke Whale *Balaenoptera acutorostrata*. *B. acutorostrata* is listed in the 1996 IUCN Red List of Threatened Animals as Lower risk: near threatened. The size of the Northeast Atlantic stock has been estimated by the IWC at 112 000 whales, based on data collected during 1995. In 1990, IWC accepted 28 000 whales for the best estimate of the size of the North Atlantic Central stock. The North Atlantic Marine Mammal Commission (NAMMCO) provided a more recent estimate, based on surveys in 1995, of 72 100 whales, but this has not been accepted by IWC. In 1983, with the exception of the West Greenland population, the Minke Whale was transferred to Appendix I (effective 1986) to coincide with the IWC's moratorium on commercial whaling. Norway, Japan and Peru currently hold reservations on the listing of this species in Appendix I. Norway also holds an objection on the IWC moratorium on commercial whaling and on the IWC classification of the Northeast Atlantic stock of Minke Whales as a Protection stock. Norway resumed commercial whaling in 1993, and set a quota of 753 Minke Whales for 1999. Although whale meat is in high demand in Norway, there is no internal market for blubber, and stocks are accumulating. The current proposal is based on: 1) the biological criteria (Annex 1, Res. Conf. 9.24) for Appendix I listing are not met for the Northeast Atlantic and North Atlantic Central stocks and 2) precautionary measures (Annex 4, Res. Conf. 9.24) are fulfilled through national conservation and management measures and establishment of a trade control system based on DNA analysis techniques. Norway is a range State for these stocks.

Analysis: The available information on population size and distribution area suggests that the Northeast Atlantic and North Atlantic Central stocks of Minke Whales do not appear to meet the biological criteria for inclusion in Appendix I. For transfer to Appendix II, the species/stock must meet any one of the precautionary measures in Annex 4, criterion B. With respect to precautionary measure B2a (Annex 4), international demand for whale products, including those of Minke Whales, exists. Since demand for whale products is not generally specific to particular stocks or species, and many whale species occur in international waters and the territorial waters of multiple range States, it is possible that the transfer of this stock to Appendix II could stimulate trade in or cause enforcement problems for other species or stocks of whales included in Appendix I. Minke Whales within the North Atlantic cannot currently be identified to stock origin on the basis of either morphology or genetics. With respect to precautionary measure B2b (Annex 4), concerning the management of international trade, as the proposal stands at present, any Party to CITES could trade internationally in whale products from this stock in the event of transfer to Appendix II being accepted by the Parties. While the proponent country may have adequate measures in place to monitor and control the trade of baleen whale products (dependent on the completion of its DNA register), the proposal does not address how other CITES parties, especially non-IWC members, will implement controls under an Appendix II listing. Minke Whales from these stocks are taken in aboriginal harvests in Greenland and also killed incidentally in fisheries. No mention is made of including these animals in a genetic register as part of a trade control system. In the absence of a genetic register that would include all legally harvested whales, enforcement of trade controls would be more difficult. The Supporting Statement reports that Norwegian quotas for harvests from the Northeast Atlantic and Central North Atlantic stocks are currently set by application of the RMP developed by the IWC. It is not clear, however, whether the RMP would continue to be applied to harvest quotas for these stocks following their transfer to Appendix II. The setting of suitable quotas to meet precautionary measures B2c and B2d (Annex 4) is not currently an integral part of the amendment proposal.

	Supporting Statement (SS)	**Additional information**
Taxonomy	Synonyms: *Balaenoptera bonaerensis* and *Balaena rostrata*.	The two stocks included in this proposal are of the Northern Minke Whale species (*B. acutorostrata*).
Range	Range States for at least one of the two stocks are Belgium, Denmark (including Faroe Islands and Greenland), France, Germany, Iceland, Ireland, the Netherlands, Norway, Portugal, the Russian Federation, Spain, Sweden and the United Kingdom.	Mauritania, Senegal, and Morocco are confirmed range States for Minke Whale in the North East Atlantic Ocean, while Gambia is a probable range State (Van Waerebeek *et al*., 1999).

	Supporting Statement (SS)	Additional information
IUCN Global Category		LR/nt
Biological criteria		
A) Small wild population	Northeast Atlantic stock: Based on data collected during 1995, IWC estimated the size of this stock at 112 000 whales (95% confidence limits: 91 000 to 137 000). In 1989, the population was estimated at 65 000 whales (95% confidence limits: 44 000 to 94 000). North Atlantic Central stock: In 1990, IWC accepted 28 000 whales (95% confidence limits: 21 600 to 31 400) for the best estimate of this stock. NAMMCO provided a more recent estimate, based on surveys in 1995, of 72 100 (95% confidence limits: 44 700 to 116 400).	North Atlantic Central stock: Although the IWC maintains its existing estimate of 28 000 animals, this is still well above the guideline figure of 5 000 animals for populations meeting this criterion.
B) Restricted area of distribution	The historical distribution of both stocks is thought to be similar to their present distribution.	The area of distribution of the two stocks exceeds 10 000 km^2.
C) Decline in number of wild individuals	Northeast Atlantic stock: IWC estimates suggest the size of this stock has increased by at least 2% between 1989 and 1995. In 1983, the stock was estimated to be at 70% of its 1952 level. North Atlantic Central stock: Population has apparently increased from 28 000 whales (estimate accepted by IWC) in 1990 to 72 100 whales (NAMMCO estimate) in 1995. The size of the stock is considered to be similar to pre-exploitation levels.	There is no conclusive evidence of population declines in either stock. The 2% increase mentioned for the Northeast Atlantic stock was not agreed by the IWC Scientific Committee, but only put forward as one of a number of plausible hypotheses explaining the difference between the 1989 and 1995 abundance estimates (IWC, 1996). The Northeast Atlantic stock of Minke Whales was classified as a Protection stock by the IWC on the basis that it had been estimated to have declined below the IWC's protection level of 54% of initial abundance (IWC, 1986). Schweder and Volden (1994), however, estimated that the 1983 stock level was 70% of the 1952 level. Although this analysis was discussed briefly by the IWC (1994), no conclusions were drawn because different analyses produced different trend estimates.
D) Status suggests inclusion in Appendix I within five years		The stocks are unlikely to meet this criterion as long as total harvests are within the sustainable catch limits set by the RMP (IWC, 1999).
Trade criteria		
The species is, or may be, affected by trade	Traditionally the Northeast Atlantic stock of Minke Whale has been hunted only by Norway, while the North Atlantic Central stock has been hunted by Iceland and Norway. There is an annual catch of a few Minke Whales from this stock in East Greenland. No Minke Whales have been caught in Icelandic waters since 1985. Whaling has always been an important means of livelihood for Norwegian coastal communities. In the period 1990-1999, a total of 2 929 Minke Whales were caught by Norway, 2 657 from the North East	Norway restricted Minke Whale harvests to research purposes from 1987 to 1992; commercial hunting resumed in 1993, but Norway does not allow its whalers to operate in waters outside Norwegian jurisdiction (TRAFFIC Europe, in prep). Other than introduction from the sea permits into Japan, the majority of recorded trade in Minke Whale products between 1988 and 1989 has been exports of meat from Appendix II West Greenland stocks by Greenland to Denmark. Between 1982 and 1987, records indicate that Norway reported

	Supporting Statement (SS)	Additional information
	Atlantic stock and 272 from the North Atlantic Central stock. A commercial hunting quota of 753 whales was set for the two stocks combined for 1999; actual harvest was 589 whales. Although whale meat is much in demand in Norway, whale blubber is not currently used for human consumption. Currently there is no legal international trade in Minke Whale products. Two alleged illegal exports, one of Minke Whale meat and one of whale meat (species not reported), from Norway to Japan are mentioned, in 1993 and 1996.	issuing CITES permits for the export of 2 727 tons of Minke Whale meat to Japan. Although CITES Annual Report data show that limited international trade in Minke Whale products takes place at present, international demand for Minke Whale products, in particular the meat, exists (see 'introduction to whaling proposals'). Norway's domestic market currently consumes all meat products, while blubber and other products are not being used at present and are stockpiled.
Precautionary measures		
B2b: CoP satisfied with: i) implementation of Article IV	In addition to CITES regulations with respect to the issue of export permits, Norway introduced an additional regulation, in 1993, requiring an export permit for Minke Whale products from the Ministry of Fisheries. No export permits have been issued for commercial purposes since 1993. As a result of two Acts, the Sea-Water Fisheries Act 1983 and Whaling Act of 1939, special permits are required for whaling, quotas and catch periods are set for harvesting, permission is required for boats and crew to participate in hunts, the hunting procedures are specified, including the need for obligatory training programs, and the presence of an inspector on board the whaling boat is required. Norwegian harvesting quotas are set by application of the Revised Management Procedure, developed by the IWC.	No information is presented in the SS concerning Implementation of Article IV in countries other than Norway. Under CITES Article XIV.4, Parties who are also contracting States of the IWC are relieved of the provisions of CITES for those species (i.e. permitting and reporting requirements, etc.), except for the need to issue a certificate attesting that the specimens concerned were taken in conformity with the ICRW. However, Norway also holds objections on the IWC moratorium on commercial whaling, and on the IWC classification of the Northeast Atlantic stock of Minke Whales as a Protection stock. Detailed examination of the quotas set by Norway (listed in the SS) suggest that they are not compatible with all the provisions of the RMP (Cooke, 2000).
B2b: CoP satisfied with: ii) enforcement controls	Norway will ensure that systems for the proper monitoring and control of trade are in place in importing countries before any export takes place. Norway had developed a DNA register for all whales harvested by Norway since 1997. This will be used to monitor trade in Norwegian whale products and distinguish them from whale products from other sources.	No additional information is presented in the SS concerning the trade controls and monitoring procedures required in importing countries. A genetic register that would include all legally harvested Minke Whales is a necessity for effective enforcement of trade controls. The genetic structure of Minke Whale stocks in the North Atlantic is insufficiently known at this stage to enable whale products that are known to be from the North Atlantic to be accurately assigned to a specific harvest (geographic area) in the absence of an entry in a genetic register (Palsboll, 2000). While Norway's own DNA register will probably be fully operational by the end of the year 2000 (TRAFFIC Europe, in prep), there is no mention in the SS of an agreement for such a system with other States that might start harvesting and trading whale products in the event of a transfer of these stocks to Appendix II.

	Supporting Statement (SS)	Additional information
		Minke whales from these stocks are taken in aboriginal harvests in Greenland and also killed incidentally in fisheries (Van Waerebeek, 2000). No mention is made of including these animals in a genetic register as part of a trade control system.
Other information		
Threats	None known.	The species is vulnerable to a wide range of fishing activities. Unassessed, but probably low numbers, of Minke Whales are accidentally caught as bycatch in fishing nets and traps in several range States (Van Waerebeek *et al*., 1999).
Conservation, management and legislation	To monitor stock sizes, a continuous survey pattern is in operation, conducted by Norway according to guidelines laid down by the Scientific Committee of the IWC. Since 1996, 1/6th of the area has been surveyed every year, and it is planned to continue this survey pattern, thus covering the whole area every six years. Norwegian quotas for whale harvests from the Northeast Atlantic and Central North Atlantic stocks are currently set by application of the RMP developed by the IWC. The SS notes that 'as long as catch limits will be kept at sustainable levels, the actual or potential impacts of trade would be non-existent for these stocks'.	Although information concerning population estimates for the two stocks has been and is being collected, several key aspects of the biology of the two stocks are under-researched, in particular the southern distribution boundaries, migration paths and the use of calving and wintering areas (Van Waerebeek, 2000). It is not clear whether the RMP would continue to be applied to harvest quotas for these stocks following their transfer to Appendix II. Nor does the SS suggest how quotas resulting from the RMP would be allocated or enforced among CITES Parties who are not members of the IWC. The Northeast Atlantic stock of Minke Whales is currently classified as a Protection stock by the IWC, but Norway lodged an objection to this decision. It also lodged an objection to the IWC moratorium on commercial whaling. A significant proportion of the habitat of the stocks in question is within the Exclusive Economic Zones of the European Union. Smaller proportions are within the EEZs of other coastal States. Fishery restrictions are routinely applied in these areas and may provide protection from harvesting. Under current European legislation (Council Regulation (EC) 3626/82) all cetaceans not listed in CITES Appendix I are included in Annex C1 and subject to the same controls.
Similar species	The Minke Whale cannot easily be confused with other whale species at sea. It is not possible to visually distinguish between whale meat and blubber from different species of baleen whale. The meat and blubber of the relevant whale stocks can however be distinguished from other species of baleen whale and other stocks of Minke Whales through the use of DNA analysis.	Reliable differentiation between whale products from these stocks and those of other stocks of this species in the North Atlantic, based on DNA analysis, remains uncertain due to currently unresolved stock structure (Palsboll, 2000).

Reviewers: J. Angell, J. Cooke, M.C. Kingsley, F. Larsen, C. Lockyer, P. Palsboll, TRAFFIC East Asia, TRAFFIC Europe.

Deletion of Brown Hyaena *Hyaena (Parahyaena) brunnea* from Appendix II. Proponent: The Swiss Confederation and the Republic of Namibia.

Summary: Confined to arid and semi-arid areas of west and southern Africa, the Brown Hyaena is a dog-like mammal of the family Hyaenidae. With a life span of approximately 15 years, the species is primarily a wide-ranging scavenger with nocturnal feeding habits. Although recent census data are lacking, the global population is thought to be stable. The major threat to the Brown Hyaena results from persecution by farmers, although the species is used locally for medicinal purposes and in witchcraft, the demand for which is unknown but thought to be relatively low. CITES Annual Report data indicate negligible interest in the commercial international trade of Brown Hyaenas. Included in Appendix I in 1975, the Brown Hyaena was transferred to Appendix II at CoP 9 in 1994 as part of a two-step approach to remove the species from the Appendices. Following the precautionary measures under Resolution Conf. 9.24 Annex 4 - B1, whereby trade must be monitored for at least two intervals between meetings of the Conference of the Parties, the species is now proposed for deletion from Appendix II. This must be in accordance with the precautionary measures under Resolution Conf. 9.24 Annex 4 - B4, stating that no species should be deleted from Appendix II if such deletion would be likely to result in qualifying for inclusion in the Appendices in the near future.

Analysis: Following Resolution Conf. 9.24, with regard to the precautionary measures under Annex 4 - B4, current low levels of international trade and the extremely low potential demand for international trade indicate that the criteria for inclusion in Appendix II are not met. The population is thought to be stable, and neither notably small nor with a limited distribution, therefore the species does not appear to meet the biological criteria for inclusion in Appendix I and is unlikely to do so in the near future.

	Supporting Statement (SS)	**Additional information**
Taxonomy		Hoffmann (2000) disputes the use of *Hyaena brunnea,* believing that *Parahyaena brunnea* is a more accurate taxonomic description of the species.
Range	Angola, Botswana, Lesotho, Mozambique, Namibia, South Africa and Zimbabwe. The largest populations occur in Botswana, Namibia, South Africa and Zimbabwe.	Mills and Hofer (1998) list Malawi and Swaziland as possible range States. Hoffmann (2000) disputes that the Brown Hyaena was ever extinct in the Gansbaai area of South Africa.
IUCN Global Category		LR lc
Biological and trade criteria for retention in Appendix II		
B) Harvesting for international trade has, or may have, detrimental impact on population i) exceeds sustainable yield	Botswana, Namibia and South Africa report that the range of the species has not declined since the species' downlisting, with Zimbabwe stating that no data are available on any change in distribution. CITES Annual Report data show no significant increase in legal trade with less than three live specimens and less than four dead specimens being legally traded per year from 1994 to 1997. Botswana, Namibia and Zimbabwe report that there has been no increase in trade since CoP 9.	There are some small discrepancies between trade data given in the SS and that obtained at a later date from WCMC (TRAFFIC East/Southern Africa, 1999). However, considering the very small scale of CITES reported trade, these discrepancies appear insignificant. CITES Annual Report data detail the seizure of two skins and two skulls from 1986 to 1994.

	Supporting Statement (SS)	Additional information
ii) reduces population to potentially threatened level	These three range States, with the addition of South Africa, report that there is no known illegal trade in this species.	Apart from limited numbers of live animals, skulls, skins and hunting trophies, the species does not appear to be in demand for international commercial trade. Demand exists for Brown Hyaena parts and derivatives for traditional medicinal purposes within local communities. The extent of this trade is unknown but is thought to be small, with demand for Brown Hyaena parts reported to be low to medium in comparison to other medicinal species (TRAFFIC East/Southern Africa, 1999). The species has been recorded in trade in South Africa, with 1987 research showing that approximately six litres of fat were recorded in sales data. Twelve percent of the 48 traditional medicine healers interviewed reported that they use hyaena parts and derivatives in their medicine with uses such as protective charms, cattle and fighting charms and as hat decorations (TRAFFIC East/Southern Africa, 1999). The species has a low market value according to Mills (1999), however, Avenant (2000) reports that South African traditional healers will pay up to ZAR3 000 (approximately USD477) for a Brown Hyaena.
Retention in Appendix II to improve control of other listed species		
Specimens resemble other species and are difficult to distinguish, or most of taxon is already listed		The species is easily distinguishable from the Spotted Hyaena *Crocuta crocuta* and the Aardwolf *Proteles cristatus* whose ranges overlap with the Brown Hyaena's (TRAFFIC East/Southern Africa, 1999). However, Anderson (1999) notes that laypersons, such as farmers, can confuse the Brown Hyaena with the Aardwolf, which is listed in Appendix III (Botswana).
Criteria for inclusion in Appendix I		
Trade		There is no evidence to suggest international demand for either live specimens (other than for zoological institutions, the demand for which is declining) or parts or derivatives. However, there is small-scale local use for medicinal purposes and in witchcraft (Anon., 1994). The species is in limited demand for international commercial trade.
Biological criteria	The total population for Botswana, Mozambique, Namibia, Zambia and Zimbabwe is estimated to be between 5 070 and 8 020 animals. An additional 220 are thought to occur in Angola, Lesotho and Mozambique (Mills and Hofer, 1998). The populations of Botswana, South Africa and Zimbabwe have not decreased since CoP9. The SS states that the Namibian population should be estimated at levels greater than those given in CoP 9 SS, of	The SS incorrectly cites Mills and Hofer (1998), who state that the population is estimated at between 4 850 and 7 800 animals for Botswana, Namibia, South Africa and Zimbabwe. An additional 220 are thought to occur in Angola, Lesotho and Mozambique. Recent population estimates are lacking, and reviewers are in general agreement with estimates given by Mills and Hofer (1998). Global populations have declined by less than 10% over the past three generations

	Supporting Statement (SS)	Additional information
	between 492 and 720, and possibly even greater.	and it is thought that this pattern will not change over the next three generations (Mills and Hofer, 1998). Both Avenant (2000) and Watson (2000) report that few animals are observed in the Free State Province of South Africa. Mills (1999) reports that by and large, the species' distribution is not fragmented and the species is thought to be widespread throughout its range. However, Anderson (1999) regards the species distribution to be fragmented due to patches of unsuitable habitat within its range. He furthermore questions the viability of effective gene transfer between these populations.
Other information		
Threats		The major threat to the species is persecution (Mills, 1999). Other possible threats are stray dogs and diseases such as mange (Wiesel, 1999). It is unknown whether the domestic demand for medicinal use poses a threat to Brown Hyaenas (TRAFFIC East/Southern Africa, 1999). Watson (2000) favours the retention of the species in Appendix II. Reviewers concur that the species can co-exist well in close proximity to man. Mills (1999) notes that the species appears to be very adaptable to habitat change, with reviewers generally concurring that loss of the species' habitat is occurring at a slow rate.
Conservation, management and legislation	The SS states that there has been no change in the protection status in the four consulted range States since CoP9.	The enlargement of protected areas that are too small to hold permanent populations should be considered (Anon., 1994). Berry (1999) notes that the accurate size of the Etosha National Park is 2 291 200 ha, making the total protected area in Namibia 16 567 700 ha. The species is protected in Angola and Mozambique; listed as a 'protected game species' in Namibia, and a 'protected game animal' in Botswana where it can only be taken once a permit has been issued (Anon., 1994). It is not protected in Zimbabwe (Anon., 1994; Mills and Hofer, 1998). The species is protected by six regulations in South Africa: the *Cape Nature and Environmental Conservation Ordinance 19 of 1974* (effective in Eastern, Western and Northern Cape Provinces); the *Free State Nature Conservation Ordinance 8 of 1969*; the *KwaZulu Nature Conservation Act 29 of 1992*; the *Mpumulanga Nature Conservation Act 10 of 1998*; the *Natal Nature Conservation Ordinance 15 of 1974*; and the *Transvaal Nature Conservation Ordinance 12 of 1983* (effective in Gauteng, North West and Northern Province). These indicate where permits are required including: hunting; catching; possession; captive keeping; sale; purchase; donation; conveyance; import; and export (TRAFFIC East/Southern Africa, 1999).

Reviewers: M.D. Anderson, N.L. Avenant, H. Berry, M. Hoffmann, G. Mills, TRAFFIC East Southern Africa- South Africa, A. Turner, J.P. Watson, I. Wiesel.

Introduction to the African Elephant *Loxodonta africana* proposals

The conservation and management of African Elephants has been a matter of considerable debate and controversy both within the arena of CITES and beyond it. Disagreement may be based as much on differences in philosophy and outlook as on differing interpretations of data. This, along with the extraordinarily high public profile of the species concerned, has ensured that discussions concerning it have become polarised and highly politicised. This places independent reviewers in a very difficult position and seriously compromises their ability to contribute constructively. The Parties have acknowledged this in having taken the unprecedented step of establishing a Panel of Experts to review proposals to transfer African Elephant populations from Appendix I to Appendix II.

In view of this, the following analysis consists of a short account of the procedures that have been followed under CITES since African Elephants were first transferred to Appendix I in 1989, and summary analyses of proposals 11.21, 11.22, 11.23, 11.24 and 11.25. The analyses are confined as far as possible to brief statements of fact on these proposals, strictly within the terms of Resolution Conf. 9.24.

The African Elephant was listed in Appendix II in 1977 and was transferred to Appendix I in 1989. At that time, the Parties recognised that populations of the species from certain range States might not have met the Berne Criteria for inclusion in Appendix I, these being the criteria then used by Parties (now replaced by Resolution Conf. 9.24). The Parties therefore approved (in Resolution Conf. 7.9) a special mechanism, a review by a Panel of Experts, to serve as the basis for approving the transfer of certain populations of the species from Appendix I to Appendix II.

Botswana, Namibia and Zimbabwe each submitted separate proposals to transfer their elephant populations to Appendix II, under a series of restrictions and precautionary measures. The Panel of Experts, in its report issued on 7 February 1996, concluded that the population status and management of elephant populations, including anti-poaching efforts, were adequate in all three countries. The Panel expressed some concern over domestic ivory trade controls, to varying degree, in the proponent countries and in Japan, all of which took measures to address these shortcomings prior to CoP 10. The Panel of Experts noted this progress in its report before that meeting, and acknowledged that, in the case of Namibia alone, all outstanding issues had been satisfactorily rectified.

At CoP 10, modified versions of the proposals submitted by Botswana, Namibia and Zimbabwe were accepted by the Parties, who also adopted two Decisions (10.1 and 10.2) and two Resolutions on trade in elephants or elephant products. Acceptance of the proposals resulted in the African Elephant populations of Botswana, Namibia and Zimbabwe being transferred from Appendix I to Appendix II subject to the following annotation:

°604 “For the exclusive purpose of allowing: 1) export of hunting trophies for non-commercial purposes; 2) export of live animals to appropriate and acceptable destinations (Namibia: for non–commercial purposes only); 3) export of hides (Zimbabwe only); 4) export of leather goods and ivory carvings for non-commercial purposes (Zimbabwe only). No international trade in ivory is permitted before 18 months after the transfer to Appendix II comes into effect (i.e. 18 March 1999). Thereafter, under experimental quotas for raw ivory not exceeding 25.3 tonnes (Botswana), 13.8 tonnes (Namibia) and 20 tonnes (Zimbabwe), raw ivory may be exported to Japan subject to the conditions established in Decision of the Conference of the Parties regarding ivory No. 10.1. All other specimens shall be deemed to be specimens of species included in Appendix I and the trade in them shall be regulated accordingly.”

Decision 10.1 set out terms and conditions to be met before trade in raw ivory could resume. Among these was the condition that such trade could not resume until the relevant range States, the CITES Secretariat, TRAFFIC International and any other approved party agreed an international system for reporting and monitoring legal and illegal international trade and an international system for reporting and monitoring illegal trade and illegal hunting within or between elephant range States.

Decision 10.1 also determined that the Standing Committee should set in motion a mechanism for the transfer of elephant populations from Appendix II to Appendix I in the event of non-compliance with the conditions of Decision 10.1 or of the escalation of illegal hunting of elephants and/or trade in elephant products owing to the resumption of legal trade. In order to comply with the provisions of the Convention, the mechanism suggested by the Secretariat and subsequently approved by the

Standing Committee involved the Standing Committee requesting the Depositary Government (the Swiss Confederation) to prepare and submit the required proposal.

The Decision additionally stated that the Standing Committee would identify, in co-operation with range States, any negative impacts of this conditional resumption of trade and determine and propose corrective measures.

Decision 10.2 set out conditions for the disposal of ivory stocks and the generation of resources for conservation in African elephant range States. The Decision allowed for a one-off purchase for non-commercial purposes of government stocks declared by African elephant range States to the CITES Secretariat within the 90-day period before the transfer to Appendix II of any African Elephant populations. The mechanism only applied to those range States wishing to dispose of ivory stocks and agreeing to and participating in the systems for monitoring trade and illegal killing of elephants outlined in Decision 10.1. Range States participating in this scheme were to agree that all revenues from any purchase of stockpiles by donor countries and organizations would be deposited in and managed through conservation trust funds.

Resolution Conf. 10.9 set out revised terms of reference for a Panel of Experts to review any future proposals to transfer populations of the African Elephant from Appendix I to Appendix II. Resolution Conf. 10.10, regarding trade in ivory specimens, made a series of recommendations regarding marking of ivory, control of ivory trade, assistance to elephant range States and quotas for and trade in raw ivory. It also agreed that, regarding monitoring of illegal hunting of and trade in elephant specimens, a comprehensive, international monitoring system would be established under the supervision and direction of the Standing Committee.

The Secretariat reported (Doc. SC.42.10.2.1) to the 42nd meeting of the Standing Committee (28 September – 1 October 1999) that it had verified, in accordance with Decision 10.1, the precautionary undertakings given in relation to the sale and shipment of raw ivory set out in annotation °604. As a consequence, auctions of the experimental quotas of ivory detailed in annotation °604 were held in Botswana, Namibia and Zimbabwe between 7 and 18 April 1999. The ivory arrived in Japan in July 1999 and was delivered to its buyers.

Discussions on the implementation of other parts of Decisions 10.1 and 10.2 and Resolution Conf. 10.10. will be discussed at CoP 11 under item 31 of the provisional agenda “Conservation of and trade in elephants” and is not considered further here.

Proposal 11.20, concerning transfer of the South African population of African Elephant from Appendix I to Appendix II will be reviewed by a Panel of Experts under the terms of Resolution Conf. 10.9 and is not considered further here in these analyses.

Maintenance of the Botswanan population of African Elephant *Loxodonta africana* in Appendix II. Proponent: Botswana.

To amend the Annotation ^{0}604 regarding the Botswana's population of *Loxodonta africana* to read:

^{0}604 For the exclusive purpose of allowing in the case of the population of Botswana

a) Trade in registered stocks of raw ivory (whole tusks and pieces) of Botswana origin owned by the Government of Botswana for commercial purposes only to CITES approved trading partners who will not re-export and subject to an annual quota of 12 tonnes (12 000kg) ivory.
b) Trade in live animals to appropriate and acceptable destinations.
c) International Trade in hunting trophies.
d) Trade in hides and leather goods.

Summary: The Botswanan population of African Elephant was transferred from Appendix I to Appendix II in 1997, subject to annotation °604. The latter made provision for experimental quotas of ivory (25.3 tonnes in the case of Botswana) which were exported in 1999. This part of the annotation is therefore no longer operational. Parts of the annotation applicable to Botswana still in operation allow for: 1) export of hunting trophies for non-commercial purposes; 2) export of live animals to appropriate and acceptable destinations. All other specimens shall be deemed to be specimens of species included in Appendix I and the trade in them shall be treated accordingly. The proposed amendment allows for trade in hides and leather goods and for trade in registered stocks of raw ivory subject to a maximum annual quota of 12 000 kg (12 tonnes).

The proposal entails a request for an annual quota for export of ivory, following a one-off export quota, and may thus be interpreted as adhering to paragraph D, Annex 4, of Resolution Conf. 9.24. There are no explicit guidelines in the Convention or in resolutions of the CoP for assessing such requests. However, as noted in the introduction to the elephant proposals, because annotation °604 indicates that all specimens of African Elephant in Botswana other than those specified in the annotation should be treated as if they were of species in Appendix I, the terms of paragraph B 2.c) of Annex 4 of Resolution Conf. 9.24 appear to be applicable. These state that the quota must be approved by the Conference of the Parties, based on management measures described in the supporting statement of the amendment proposal, provided that effective enforcement controls are in place. In the case of hides and leather goods, no quota is proposed, so that the precautionary measures in paragraph B.2.b) appear to be applicable (the Conference of the Parties must be satisfied with the implementation of the requirements of the Convention, in particular Article IV, and be satisfied that appropriate enforcement controls are in place). An analysis of whether the Botswanan population of African Elephant might meet the criteria for inclusion in Appendix I is set out in the analysis of proposal 11.24.

Analysis: The basis for the proposed ivory quota is not clear. Compliance with the precautionary undertakings referred to in Decision 10.1, Part A paragraph h) was verified by the CITES Secretariat in April 1999, allowing a one-off export of an experimental quota of ivory under the terms of annotation °604. The country is not known to have filed with the Secretariat a national report on illegal killing of elephants. The conditions for establishing a CITES-approved trading partner for the proposed ivory quota are not clear.

	Supporting Statement (SS)	Additional information
Range	Botswana	
IUCN Global Category		EN A1b

	Supporting Statement (SS)	Additional information
Management measures		
	Ivory: The SS reports a current accumulation of 24.8 tonnes of ivory in government storage, of which 7.1 tonnes comprises ivory from outside Botswana or of unknown origin and poached ivory. The SS states that no ivory of unknown origin or ivory known to have come from outside Botswana will be exported. Hide and related products: SS states that because of a lack of a market, at present Botswana does not recover hide from elephants killed in protection of property. It notes that the country would like to collect hides and trade them but does not expect to collect a large quantity unless a need arises to control the elephant population for management purposes.	No indication is given in the supporting statement of the source of any further ivory to be accumulated, nor of the basis from which the proposed annual quota has been derived. Lindsay (2000) notes that the reported trade level (i.e. quota requested) appears sustainable if it includes the export of trophies. During the 1980s, prior to the inclusion of the African Elephant in Appendix I, small volumes of hide purchased in South Africa and Zimbabwe were tanned in Botswana and then re-exported to manufacturers in the region or abroad (Milliken, 1996). This trade has reportedly been inactive over the past decade (TRAFFIC East/Southern Africa, 2000).
Enforcement measures		
Within the proposed country of export	Details of control measures are set out in the SS.	Botswana at the time of writing was not known to have filed a “National report on the illegal killing of elephants” under the interim monitoring system established by the CITES Standing Committee. In April 1999 the CITES Secretariat verified that control measures in place in Botswana at that time satisfied the precautionary undertakings referred to in Decision 10.1, Part A, paragraph h). These permitted an auction and subsequent export of an experimental quota of ivory as set out in annotation °604 (Doc. SC.42.10.2.1).
Within potential countries of import	No country of import is specified in the case either of ivory or of hides and leather goods. In the case of the former, the SS notes that Botswana proposes to export ivory only to CITES-approved trading partners who will not re-export.	There is a large number of potential importing countries for ivory, hides and leather goods. The meaning of a CITES-approved trading partner is not clear.

Maintenance of the Namibian population of African Elephant *Loxodonta africana* in Appendix II. Proponent: Namibia.

To amend the Annotation °604 regarding the Namibian population of *Loxodonta africana* to read:

°604 For the exclusive purpose of allowing in the case of the population of Namibia:
a) trade in hunting trophies for non-commercial purposes,
b) trade in live animals for non-commercial purposes to appropriate and acceptable destinations (as determined by the national legislation of the country of import),
c) trade in hides and leather goods,
d) trade in registered stocks of raw ivory (whole tusks and pieces) of Namibian origin owned by the Government of the Republic of Namibia for commercial purposes, to trading partners that have been verified by the CITES Secretariat to have sufficient national legislation and domestic trade controls to ensure that ivory imported from Namibia will not be re-exported and will be managed according to all requirements of Resolution Conf. 10.10 concerning domestic manufacturing and trade, and subject to a maximum annual quota of 2000 kg ivory.

Summary: The Namibian population of African Elephant was transferred from Appendix I to Appendix II in 1997, subject to annotation °604. The latter made provision for experimental quotas of ivory (13.8 tonnes in the case of Namibia) which were exported in 1999. This part of the annotation is therefore no longer operational. Parts of the annotation still applicable to Namibia allow for: 1) export of hunting trophies for non-commercial purposes; 2) export of live animals to appropriate and acceptable destinations (Namibia: for non-commercial purposes only). All other specimens shall be deemed to be specimens of species included in Appendix I and the trade in them shall be treated accordingly. The proposed amendment defines “appropriate and acceptable destinations” for the purposes of non-commercial import of live animals as “determined by the national legislation of the country of import”. It further allows for trade in hides and leather goods and for trade in registered stocks of raw ivory subject to a maximum annual quota of 2 000 kg to trading partners whose enforcement controls have been examined by the CITES Secretariat and who will not re-export the ivory.

The proposal entails a request for an annual quota for export of ivory, following a one-off export quota, and may thus be interpreted as adhering to paragraph D, Annex 4, of Resolution Conf. 9.24. There are no explicit guidelines in the Convention or in resolutions of the CoP for assessing such requests. However, as noted in the introduction to the elephant proposals, because annotation °604 indicates that all specimens of African Elephant in Namibia other than those specified in the annotation should be treated as if they were of species in Appendix I, the terms of paragraph B 2.c) of Annex 4 of Resolution Conf. 9.24 appear to be applicable. These state that the quota must be approved by the Conference of the Parties, based on management measures described in the supporting statement of the amendment proposal, provided that effective enforcement controls are in place. In the case of hides and leather goods, no quota is proposed, so that the precautionary measures in paragraph B.2.b) appear to be applicable (the Conference of the Parties must be satisfied with the implementation of the requirements of the Convention, in particular Article IV, and be satisfied that appropriate enforcement controls are in place). An analysis of whether the Namibian population of African Elephant might meet the criteria for inclusion in Appendix I is set out in the analysis of proposal 11.24. An analysis of the amendment concerning appropriate and acceptable destinations for live animals in included in the analysis of proposal 11.25.

Analysis: The supporting statement reports that ivory is recovered from all recorded natural mortalities as well as elephants destroyed as problem animals, and that an accumulation of 1 000-5 000 kg per year would be expected. Compliance with the precautionary undertakings referred to in Decision 10.1, Part A paragraph h) was verified by the CITES Secretariat in April 1999, allowing a one-off export of an experimental quota of ivory under the terms of annotation °604. No country of import is named for the requested ivory quota. The CITES Secretariat verified internal controls in Japan in July 1999 for the purposes of allowing a one-off sale of an experimental quota of ivory.

	Supporting Statement (SS)	Additional information
Range	Namibia	
IUCN Global Category		EN A1b
Management measures		
	Ivory: The SS states that no elephants have, or will be killed specifically to obtain ivory for any commercial purpose. Ivory is recovered from all recorded natural mortalities as well as elephants destroyed as problem animals. The SS reports a current accumulation of 33 tonnes of whole tusks (2.2 tonnes from natural mortality/management sources, 29.8 tonnes from seizures and 1.1 tonnes of unknown source) and 1.8 tonnes of ivory pieces. It reports an expected annual accumulation of 1000-5000 kg (1-5 tonnes). Hide and related products: The only hide currently collected is from trophy animals, when sport hunters wish to export hide. The recovery of hides from problem animals will be pursued in future. The number of hides collected in this respect would average less than 20 per year, unless it becomes necessary to embark on a population control programme for management purposes.	Hide and related products: The country has not to date been involved in the elephant hide industry (TRAFFIC East/Southern Africa, 2000).
Enforcement measures		
Within the proposed country of export	Details of control measures are set out in the Supporting Statement. A national report form on illegal killing of elephants in Namibia is attached as an annex to the SS.	In April 1999 the CITES Secretariat verified that control measures in place in Namibia at that time satisfied the precautionary undertakings referred to in Decision 10.1, Part A, paragraph h). These permitted an auction and subsequent export of an experimental quota of ivory as set out in annotation °604 (Doc. SC.42.10.2.1). TRAFFIC East/Southern Africa (2000) notes that TRAFFIC has twice independently audited Namibia's ivory stock management system, most recently as part of the implementation of Decision 10.2. In each case the results of the audit were satisfactory.
Within potential countries of import	No country of import is specified in the case either of ivory or of hides and leather goods. In the case of the former, Namibia undertakes to export only to trading partners that have been verified by the CITES Secretariat to have sufficient national legislation and domestic trade controls to ensure that ivory imported from Namibia will not be re-exported and will be managed according to all requirements of Resolution Conf. 10.10 concerning domestic manufacturing and trade.	There is a large number of potential importing countries for ivory, hides and leather goods. In July 1999 the Secretariat carried out a mission to Japan and verified that controls were in place to satisfy the requirements of Decision 10.1 and to permit the auction of an experimental quota of ivory under the terms of annotation °604. The Secretariat is not known to have verified national legislation and domestic trade controls in any other potential trading partner of Namibia.

Maintenance of the Zimbabwean population of African Elephant *Loxodonta africana* in Appendix II. Proponent: Zimbabwe.
To amend Annotation °604 regarding the Zimbabwe population of *Loxodonta africana* to read:

°604 For the exclusive purpose of allowing in the case of the population of Zimbabwe:

a) trade in registered stocks of raw ivory (whole tusks and pieces) of Zimbabwe origin stored at the Government Central Store for commercial purposes, to trading partners with adequate controls and enforcement measures; that will not re-export, and subject to a maximum annual quota of 10 000 kg ivory;
b) trade in hunting trophies for non-commercial purposes;
c) trade in live animals for non-commercial purposes to appropriate and acceptable destinations;
d) trade in hides;
e) trade in leather goods and ivory carvings for non-commercial purposes.

Summary: The Zimbabwean population of African Elephant was transferred from Appendix I to Appendix II in 1997, subject to annotation °604. The latter made provision for experimental quotas of ivory (20 tonnes in the case of Zimbabwe), which were exported in 1999. This part of the annotation is therefore no longer operational. Parts of the annotation still in operation applicable to Zimbabwe allow for: 1) export of hunting trophies for non-commercial purposes; 2) export of live animals to appropriate and acceptable destinations; 3) export of hides (Zimbabwe only); 4) export of leather goods and ivory carvings for non-commercial purposes (Zimbabwe only). All other specimens shall be deemed to be specimens of species included in Appendix I and the trade in them shall be treated accordingly. The proposed amendment reduces the scope of export of live animals to allow export for non-commercial purposes only. It also requests an annual export quota of 10 000 kg (10 tonnes) of ivory to trading partners with adequate controls and enforcement measures.

The proposal entails a request for an annual quota for export of ivory, following a one-off export quota, and may thus be interpreted as adhering to paragraph D, Annex 4, of Resolution Conf. 9.24. There are no explicit guidelines in the Convention or in resolutions of the CoP for assessing such requests. However, as noted in the introduction to the elephant proposals, because annotation °604 indicates that all specimens of African Elephant in Zimbabwe other than those specified in the annotation should be treated as if they were of species in Appendix I, the terms of paragraph B 2.c) of Annex 4 of Resolution Conf. 9.24 appear to be applicable. These state that the quota must be approved by the Conference of the Parties, based on management measures described in the supporting statement of the amendment proposal, provided that effective enforcement controls are in place. An analysis of whether the Zimbabwean population of African Elephant might meet the criteria for inclusion in Appendix I is set out in the analysis of proposal 11.24. An analysis of the amendment concerning appropriate and acceptable destinations for live animals included in the analysis of proposal 11.25.

Analysis: The basis for the proposed ivory quota is not clear. Compliance with the precautionary undertakings referred to in Decision 10.1, Part A paragraph h) was verified by the CITES Secretariat in April 1999, allowing a one-off export of an experimental quota of ivory under the terms of annotation °604. A National report on illegal killing of elephants was filed with the Secretariat prior to the 41st meeting of the Standing Committee. Aerial surveys carried out in 1999 indicated a carcass ratio (ratio of elephant carcasses to live elephants plus elephant carcasses) that might be indicative of increased levels of poaching in the Zambezi Valley. Regarding imports of ivory, no indication is given of the mechanism for assessing the adequacy of controls and enforcement measures of trading partners .

	Supporting Statement (SS)	Additional information
Range	Zimbabwe	
IUCN Global Category		EN A1b

	Supporting Statement (SS)	Additional information
Management measures		
	The SS quotes a figure that appears to date from 1996 of 20.1 tonnes ivory held by "parks" (presumably the Department of National Parks and Wildlife Management) and 2.7 tonnes held by communities. It notes that despite having weekly sales to local ivory manufacturers and the experimental export to Japan, Zimbabwe has accumulated substantial amounts of ivory. The SS states that Zimbabwe does not exploit elephants directly for their products either for commercial trade or for domestic consumption.	The supporting statement does not make clear how large the current accumulation of ivory is. From Feb 1998 to Jan 2000 some 12 tonnes of ivory have reportedly been legally bought from the Central Ivory Store by local manufacturers (TRAFFIC East/Southern Africa, 2000). No indication is given in the supporting statement of the source of any further ivory to be accumulated, nor of the basis from which the proposed annual quota has been derived.
Enforcement measures		
Within the proposed country of export	Details of control measures are set out in the Supporting Statement. The SS states that illegal trade in ivory in the region is relatively low but probably increasing. It notes that there has been some increase in poaching in the Zambezi Valley in the last two months.	Zimbabwe filed a "National report on the illegal killing of elephants" with the CITES Secretariat prior to the 41st meeting of the Standing Committee in February 1999. Aerial surveys have been carried out in the four main elephant distribution areas at least since 1993 (Davies, 1999; Dunham, 1999; WWF, 2000). These surveys count elephants and elephant carcasses and calculate carcass ratios (the number of carcasses observed divided by the total number of live animals plus carcasses, given in percentage terms). Carcass ratios between 2% and 8% are considered normal for stable or increasing populations. Ratios above 9% are indicative of increased mortality and those above 10% suggest there might be increased levels of poaching (Douglas-Hamilton *et al.*, 1992). In years for which data are available, carcass ratios have exceeded 10% in the Zambezi Valley Floor in 1995 (12.4%) and 1999 (11.3%) and in Gonarezhou in 1993 (10.1%), 1995 (16.5%) and 1996 (11%). In all other cases, carcass ratios have been well below 10% (WWF, 2000). In the 1999 Zambezi Valley Floor survey (carried out between 26 October and 3 November), 99% of carcasses were classified as category 3 (Old: bones scattered and bleached – probably died during or before last rainy season (i.e. more than eight months but generally more than one year old and up to several years old)) (Davies, 1999). In April 1999 the CITES Secretariat verified that control measures in place in Zimbabwe at that time satisfied the precautionary undertakings referred to in Decision 10.1, Part A, paragraph h). These permitted an auction and subsequent export of an experimental quota of ivory as set out in annotation °604 (Doc. SC.42.10.2.1).
Within potential countries of import	The SS notes that Zimbabwe proposes to export ivory only to trading partners with adequate controls and enforcement measures that will not re-export.	There is a large number of potential importing countries for ivory. No indication is given of how "adequate controls and enforcement measures" are to be defined or assessed.

Transfer of populations of African Elephant *Loxodonta africana* currently listed in Appendix II to Appendix I. Proponents: Kenya and India.

Summary: Three national populations of African Elephant – in Botswana, Namibia and Zimbabwe – are currently included in Appendix II under the restrictions applied in annotation °604. These populations were transferred from Appendix I to Appendix II in 1997. This proposal seeks to transfer them from Appendix II to Appendix I, citing the precautionary measure included in paragraph A. of Annex 4 to Resolution Conf. 9.24. Much of the discussion in the supporting statement concerns the impact of the presence in Appendix II of those populations of African Elephant currently in Appendix II on other populations of elephants. As explained in the general introduction to the elephant proposals, at CoP 10 the Parties approved a mechanism for assessing such impact. This will be discussed under item 31 of the provisional agenda "conservation of and trade in elephants" and will not be considered further here. This analysis examines whether these populations might meet the criteria for inclusion in Appendix I as set out in Resolution Conf. 9.24.

Analysis: Following Resolution Conf. 9.24, the populations of African Elephant in Botswana, Namibia and Zimbabwe would not appear to meet the biological criteria for inclusion in Appendix I. Their populations do not appear to be small, nor do they have a restricted area of distribution. The most recent available data indicate that populations in all three countries are increasing. There does not therefore appear to be any evidence for an ongoing decline in the number of individuals in the wild nor does there appear to be any inferred or projected basis for such a decline. Annex 3 of Resolution Conf. 9.24 states that listing of species in more than one Appendix should be avoided in general. When split-listing does occur, this should generally be on the basis of national or continental populations, rather than subspecies.

	Supporting Statement (SS)	**Additional information**
Range	Botswana, Namibia, Zimbabwe. Range of species: Angola, Benin, Botswana, Burkina Faso, Cameroon, Central African Republic, Chad, Congo, Côte d'Ivoire, Democratic Republic of Congo, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Ghana, Guinea, Guinea Bissau, Kenya, Liberia, Malawi, Mali, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Somalia, South Africa, Sudan, Swaziland, Tanzania, Togo, Uganda, Zambia, Zimbabwe,	
IUCN Global Category	EN A1b	
Biological criteria		
A) Small wild population	**Botswana** Estimated 80 174 in 1995, comprising 62 998 "definite", 8 588 "probable", 8 588 "possible". **Namibia** Estimated 11 999 in 1995, comprising 5 843 "definite", 3 058 "probable", 3 098 "possible**".** **Zimbabwe** Estimated 81 855 in 1995, comprising 56 297 "definite", 11 674 "probable", 13 884 "definite".	**Botswana** Estimated 103 472 in 1998, comprising 76 644 "definite", 13 414 "probable", 13 414 "possible" (Barnes *et al.*, 1999). **Namibia** Barnes *et al.* (1999) estimated 9 105 in 1996, comprising 6 263 "definite", 1 421 "probable", 1 421 "possible". **Zimbabwe** Barnes *et al.* (1999) provide an estimate of 81 289, in 1998 comprising 63 070 "definite", 8 034 "probable" and 10 185 "possible".
B) Restricted area of distribution	**Botswana** 81 671 km^2 in 1995. **Namibia** 145 344 km^2 in 1995.	**Botswana** Range in 1998 estimated at 81 486 km^2 (Barnes *et al.*, 1999). The supporting statement to proposal 11.21 quotes a range of approximately 80 000 km^2.

	Supporting Statement (SS)	Additional information
	Zimbabwe 106 476 km^2 in 1995.	**Namibia** Barnes *et al.* (1999) estimate range at 145 015 km^2. **Zimbabwe** Range estimated at 109 563 km^2 in 1998 (Barnes *et al.*, 1999).
C) Decline in number of wild individuals	**Botswana** Upward trend 1981-1995. **Namibia** Upward trend 1981-1995. **Zimbabwe** Upward trend 1981-1995.	**Botswana** Lindsay (2000) notes that pre-1990 figures may be inaccurate, but that since 1990 there are enough data to allow estimation of reliable trends. 1998 population estimates (see above) indicate that increase is continuing. **Namibia** Barnes *et al.* (1999) noted that elephant estimates had changed little since the last update (Said *et al.* 1995). **Zimbabwe** Aerial survey results for the period 1993-1999 indicate the following: the estimated population in Matabeleland North was 24 935 ± 28% in 1993 and 35 992 ± 16% in 1998 (1999 results were not available at the time of writing); the estimated population in Sebungwe was 10 386 ± 20% in 1993 and 16 020 ± 18% in 1999; the estimated population in the Zambezi Valley floor was 10 742 ± 19% in 1993 and 10 865 ± 23% in 1999; the estimated population in Gonarezhou was 5 171 ± 59% in 1993 and 5 166 ± 27% in 1998 (the area was not surveyed in 1999) (WWF Zimbabwe, 2000). These surveys also calculate carcass ratios (the number of carcasses observed divided by the total number of live animals plus carcasses, given as percentages). Carcass ratios between 2% and 8% are considered normal for stable or increasing populations. Carcass ratios above 9% are indicative of increased mortality (Douglas-Hamilton *et al*. 1992). In years for which data are available, carcass ratios have exceeded 8% in the Zambezi Valley Floor in 1995 (12.4%) and 1999 (11.3%) and in Gonarezhou in 1993 (10.1%), 1995 (16.5%) and 1996 (11%). In all other cases, carcass ratios have been well below 8% (Davies, 1999).
Trade criteria		
The species is, or may be, affected by trade	There is international demand for elephant products	
Other information		
Threats	Habitat loss and illegal killing.	
Conservation, legislation and management		Refer to analyses of proposals 11.21, 11.22, 11.23.
Similar species	Asian Elephant *Elephas maximus*.	

Doc. No.: 11.25

Proposal: Amendment of the annotation °604 concerning Appendix II populations of African Elephant *Loxodonta africana*. Proponent: Switzerland.
In the event of proposals being adopted with the provision that trade in live animals is allowed for non-commercial purposes, or to "appropriate and acceptable destinations" only, the following paragraph shall be added to the annotation:

To ensure that where a) destinations for live animals is to "be appropriate and acceptable" and/or b) the purpose of the import is to be "non-commercial", export permits and re-export certificates may be issued only after the issuing Management Authority has received, from the Management Authority of the state of import, a certification to the effect that:

in case a), in analogy to Article III, paragraph 3(b) of the Convention, the holding facility has been reviewed by the competent Scientific Authority, and the proposed recipient has been found to be suitably equipped to house and care for the animals; and/or
in case b), in analogy to Article III, paragraph 3(c), the Management Authority is satisfied that the specimens will not be used for primarily commercial purposes.

Summary: Currently, the African Elephant populations of Botswana, Namibia and Zimbabwe are included in Appendix II subject to annotation °604. This permits, *inter alia*, export of live animals to appropriate and acceptable destinations (Namibia: for non-commercial purposes). As noted in the Supporting Statement, this amendment seeks to elaborate conditions that constitute 'appropriate and acceptable destinations' for such trade, without Parties having to rely on stricter domestic measures. It does this by applying the terminology of Article III, paragraphs 3.b) and 3.c), which state how destinations for live Appendix-I species and the purpose of import of Appendix-I species should be determined. In proposal 11.22, Namibia has requested that annotation °604 be amended in the case of Namibian populations of African Elephant so that "appropriate and acceptable destinations" for the purposes of non-commercial import of live animals are defined as "determined by the national legislation of the country of import".

Analysis: The proposal clarifies how Parties should determine appropriate and acceptable destinations and purpose of export in the case of live specimens of Appendix-II listed populations of African Elephant. If accepted, it would dictate that Management Authorities of exporting countries shall only issue export permits when satisfied that certain conditions are met on the basis of information received from the Scientific Authority or Management Authority of the importing country. The proposal would effectively apply Appendix I measures to Appendix II species. If proposal 11.22 is accepted, it and the present proposal will have to be reconciled.

	Supporting Statement	Additional information
Discussion	The supporting statement notes that this mechanism prevents Parties having to rely on stricter domestic measures to determine the meaning of acceptable and appropriate destinations and of commercial purposes in the case of live animals.	The proposal in effect applies measures under Article III of the Convention (Regulation of Trade in Specimens of Species Included in Appendix I) to populations of African Elephants listed in Appendix II specifically with relation to trade in live animals.
Other comments		Lindsay (2000) comments with regard to live trade that capture and removal of wild elephants from otherwise intact groups may have an impact on elephant social organisation, with possible downstream effects on fecundity, distribution, habitat relations and conflicts with people.

Transfer of the Australian population of Dugongs *Dugong dugon* from Appendix II to Appendix I. Proponent: Australia.

Summary: Dugongs are the only species in the family Dugongidae, and are the only extant species of completely marine herbivorous mammals. They have a widespread distribution in the Indian and western Pacific oceans. In Australia, they occur around the subtropical and tropical western, northern and eastern coasts. The Australian population is likely to be a significant stronghold for the species, but as Dugongs occur at low densities throughout their range, they are difficult to census accurately. They are classified by IUCN as Vulnerable across their range. Dugongs may live over 70 years; they mature slowly, females first breed at a minimum of 10 years of age, and give birth to a single young every three to five years. Their estimated natural rate of population increase is less than 5% per year. Dugongs feed on seagrasses and occasionally marine algae. This highly selective diet limits the availability of suitable habitat, which is generally confined to shallow, sheltered inshore waters. Seasonal movements have been observed in the southern limits of their Australian range, and some individuals have been tracked moving up to several hundred kilometres in a few days. The reasons for these long distance movements are unknown. Thus individuals in Torres Strait populations are likely to move between the waters of Australia, Papua New Guinea and Indonesia. In 1975, the Australian population of Dugongs was listed in Appendix II whilst all other populations were listed in Appendix I, resulting in a geographically defined split listing for the species. The limited genetic evidence supports this split. The species is harvested locally by indigenous people around much of Australia, for domestic consumption of meat and oil. However there has been virtually no reported international trade in Dugongs from any population, and CITES Annual Report data show only the very occasional tusk carving, skull or scientific specimen being exported from Australia, Indonesia or Papua New Guinea. Australia recognises this lack of trade, stating that the reason for submitting the proposal is to avoid enforcement problems associated with the split-listing.

Analysis: Following Resolution Conf. 9.24, the Australian Dugong population does not appear to meet the biological criteria and associated numerical guidelines for inclusion in Appendix I. The population is apparently not small according to CITES guidelines (thereby not meeting criteria A of Annex I), nor is it restricted in range (thereby not meeting criteria B). The decline in population numbers has been localised, and below levels at which the population is likely to meet the CITES guidelines under criteria C. There is also no indication that the Australian population is likely to meet the Appendix I criteria in the next five years (as evidenced by the SS, which states that the population is not endangered). International trade occurs at negligible levels, and the current Appendix II listing should reveal any future increase in this trade, via the monitoring of CITES Annual Report data. Resolution Conf. 9.24 Annex 3 states that listing of a species in more than one Appendix should be avoided in general in view of the enforcement problems it creates. However, as international trade in Dugongs is minimal, the possible enforcement problems are unlikely to pose a threat to the species.

	Supporting Statement (SS)	**Additional information**
Taxonomy	There are no scientific synonyms.	Reviewers concur with the taxonomy in the SS, although Marsh (1999) mentions that there is some genetic evidence for the distinction of the Australian population. Migration is thought to occur between the Torres Strait populations, between the Cape York Peninsular (Australia), Irian Jaya (Indonesia) and Papua New Guinea (Marsh *et al*., 1997).
Range	Species range: Indian Ocean (eastern, western) and Pacific Ocean (north-west, western central). Australian population: Dugongs occur from Shark Bay in Western Australia around the northern coastline to Moreton Bay, Queensland.	Other range States: Bahrain, Bangladesh, Cambodia, China (with Taiwan), Djibouti, Egypt, Eritrea, Federated States of Micronesia, France (New Caledonia), India, Indonesia, Iran, Iraq, Israel, Japan, Jordan, Kenya, Kuwait, Madagascar, Malaysia, Mauritius, Mozambique, Myanmar, Oman, Palau, Papua New Guinea, Philippines, Saudi Arabia, Singapore, Solomon Islands, Somalia, South Africa, South Korea, Sri Lanka, Sudan, Tanzania, Thailand, United Arab Emirates, USA (Guam),

	Supporting Statement (SS)	Additional information
		Vanuatu, Vietnam, Yemen. Possibly also Brunei, Comoros, Maldives and Pakistan.
IUCN Global Category	Vulnerable (A1cd)	
Biological Criteria		
A) Small wild population	The Australian population is estimated at around 85 000 individuals. This is likely to be an underestimate, as not all of the Dugong's range has been surveyed and the correction factors for animals unavailable to observers due to water turbidity are conservative. The SS does not suggest that Dugongs have a small wild population.	Aragones (2000) comments that the population level is likely to be an overestimate. In contrast, Marsh *et al*. (in press) suggest that this is likely to be an underestimate, due to the lack of surveys across the range, and the conservative correction factor built in to the survey methodology. Anderson (2000) suggests that there may be as many as 100 000 individuals around the coasts of Australia. According to the criteria, the population does not appear to be small.
B) Restricted area of distribution	Dugongs in Australia occur widely around the western, northern and eastern coastline. The species as a whole occurs in the tropical and sub-tropical sheltered coastal areas of the Indian Ocean and the south-west Pacific. The SS does not suggest that Dugongs have a restricted area of distribution.	Habitat loss is likely to continue, especially along coastlines in urban areas (Tikel, 2000), and where increased turbidity and sedimentation are caused by deforestation in catchment areas (Preen, 2000). Under the CITES criteria, the population would currently not appear to have a restricted area of distribution.
C) Decline in number of wild individuals	In Australia, numbers in the southern Great Barrier Reef area and in Hervey Bay have dropped significantly over the past decade. However, in other areas, populations are considered stable, and in some cases are amongst the highest densities known for the species. The SS does not suggest that Dugongs have declined significantly over their range in Australia. No information is given in the SS on projected declines.	Lawler (2000) notes that there are substantial difficulties in identifying population trends because population changes have to be substantial before they become statistically significant. Also it is not possible to be sure whether population changes are due to movements (Marsh *et al*., 1997). Preen (2000) suggests that declines have been more dramatic than mentioned in the SS, with up to around 70% decline in some areas. Anderson (2000) acknowledges the severe declines in some areas (notably the southern Great Barrier Reef region), but comments that this decline probably has not represented a significant reduction in Dugong numbers as a whole. Gales (2000) adds that additional surveys were conducted in Shark Bay (a major stronghold) in mid-1999. Provisional analysis from these surveys has indicated that the estimates are as much as 60% higher than in the previous two surveys of 1989 and 1994. Large-scale increases in the Torres Strait populations have also been observed (Marsh *et al*., 1997); these have been attributed to movements between Australian and Indonesian waters. Concern has also been raised over the current levels of indigenous harvest in the Torres Strait area (Marsh, 1999; Preen, 2000), although there has not been a recorded decline in this region. Hunting is not believed to be the major cause of declines in the southern Great Barrier

	Supporting Statement (SS)	Additional information
		Reef area and in Hervey Bay. The population as a whole appears not to have declined to the extent where it may meet the CITES criteria.
D) Status suggests inclusion in Appendix I within five years	Australian populations are considered stable across the majority of their range. The SS does not suggest that Australian Dugongs are likely to meet the criteria for inclusion in Appendix I within five years.	Habitat loss and displacement of Dugongs from otherwise suitable habitat is likely to increase in future years as a result of increasing human populations in coastal areas (Preen, 2000). However, recent surveys have indicated that the population is stable in many areas, and possibly even higher than previously thought (Gales, 2000).
Trade criteria		
The species is, or may be, affected by trade	Although there is some indigenous hunting for food, there is no legal commercial trade in Dugongs either within or from Australia. Other range States consulted were also not aware of any commercial Dugong trade.	Reviewers concur that trade is extremely limited, if not absent. However, Marsh (1999) notes that there is a potential new threat to Dugongs relating to indigenous hunting. The indigenous harvest of Dugongs in Torres Strait is more than 1 000 animals per year, and although a change in the Australian law would be required, there is apparently an increasing interest by indigenous peoples in commercially exploiting the by-products of their Dugong harvest. Preen (2000) also comments that there is undoubtedly trade in Dugong meat between Torres Strait Islanders in Australia and communities in Papua New Guinea. TRAFFIC Oceania (2000) could not identify any international trade in this species.
Other information		
Threats	The major identified threats in Australia are gill netting, traditional hunting by local people and loss of habitat through coastal development. No details are given as to the impact or relative importance of these threats.	Reviewers generally concur with the SS, identifying habitat loss, traditional hunting and capture in mesh/gill nets as the major threats. They also list a number of other threats including: dredging and low tide fishing (Bradley, 2000), pollution (Tikel, 2000), disturbance from intense boating activity (Anderson, 2000) and irreversible vegetation changes as preferred food species are replaced by less preferred species if Dugongs are extirpated from an area (Marsh, 1999; Aragones, 2000). Gales (2000) notes that the threats to Australian Dugongs are likely to vary regionally. In Western Australia, extensive bids for marine aquaculture are likely to be a new and significant threat. Kwan (2000) suggests that any increase in harvesting in the Torres Strait population (probably the largest remaining population in Australian waters) would have significant impacts on the species.

	Supporting Statement (SS)	Additional information
		Low fecundity, long life-span and specialised habitat requirements make Dugongs particularly vulnerable to threats of extinction (Marsh, 1999; Anderson, 2000; Kwan, 2000). Anderson (2000) adds that the species' vulnerability is increased due to the Australian populations being concentrated in only a few areas.
Conservation, management and legislation	The species is listed as protected in all those states of Australia where it occurs, and commercial trade is prohibited. Internationally, Australian Dugongs are listed in Appendix II, and other populations in Appendix I. Aerial surveys are regularly conducted around Australia, although Dugongs are extremely difficult to accurately census, due to their occurrence at low densities, and in turbid waters.	Monitoring is inadequate in most Australian waters and absent outside Australia (Marsh, 1999 and Preen, 2000). The species is not listed on the Australian Endangered Species Protection Act (1992).
Similar species	There are no similar species in Australian waters.	
Other information	The proposed amendment would eliminate the possibility of false permits being issued claiming an animal is from an Appendix II population, when it is in fact from an Appendix I population. Other Dugong range States were consulted during the preparation of the SS, and of the ten that responded, all supported the transfer of the Australian population to Appendix I. The SS states that Indonesia has sometimes experienced enforcement problems.	The global trade in Dugongs is also negligible. For example, CITES Annual Report data show no trade over the last ten years from Indonesia, and only two exports from Papua New Guinea, both of scientific specimens. It would therefore appear that significant enforcement problems are unlikely to arise. Kwan (2000) and TRAFFIC Oceania (2000) comment that a response to the proposal from Papua New Guinea would seem to be important, given that they share the same stocks of Dugong with Australia. Kaneko (2000) notes that Dugongs currently satisfy the split-listing criteria listed in Annex 3 of Resolution Conf. 9.24., and comments that there is no justification for their uplisting to Appendix I.

Reviewers: P.K. Anderson, L.V. Aragones, J.J. Bradley, N. Gales, Y. Kaneko, D. Kwan, I.R. Lawler, H. Marsh, A.R. Preen, D. Tikel, TRAFFIC Oceania.

Transfer of remaining populations of Vicuña *Vicugna vicugna* from Appendix I to Appendix II with the exclusive purpose of allowing international trade in cloth made with wool sheared from live animals under the name Vicuña-Bolivia. Proponent: Bolivia.

Summary: The Vicuña is a South American wild camelid with exceptionally fine wool. Females normally first breed at three years (sometimes two) and give birth generally to a single young. Wild populations occur in the Andes, from 9°30' to 29°00' latitude South, in Argentina, Bolivia, Chile and Peru; small numbers have recently been introduced in Ecuador. Numbers of the species were reduced to a few thousand individuals by the mid-1960s. Management actions since then have allowed the overall population of the species to increase considerably, so that it is now estimated to number some 200 000 individuals. The species was included in Appendix I in 1975. In 1987 two Vicuña populations, one in Chile and one in Perú, were transferred from Appendix I to Appendix II with an annotation (°606) restricting exports to cloth made from wool sheared from live Vicuñas. In 1994 Perú's remaining Vicuña populations were transferred to Appendix II and the annotation was amended to allow the export of raw wool sheared from live animals as well as cloth made from that wool, and also to allow the export of stocks held within Perú. In 1997 further Vicuña populations (including the three largest in Bolivia) were transferred to Appendix II subject to annotation °606.

Those populations that are not in Appendix I include a number in Bolivia, Chile, Argentina and Ecuador. However, the supporting statement refers in detail only to Bolivian populations. This and the proposed annotation (which refers to cloth under the name Vicuña-Bolivia) indicate that the proposal intends to refer only to Bolivian populations. Annex 3 of Resolution Conf. 9.24 notes that in general split-listings should be avoided. When they do occur, they should be on the basis of national or continental populations rather than subspecies. The proposal requests transfer to Appendix II for these populations solely to permit trade in wool sheared from live animals. This annotation already applies to those populations of Vicuña in Bolivia currently in Appendix II. At present there is a zero quota for export of such wool from Bolivia (annotation °606), so that the precautionary measures of paragraph B 2.c) apply. If proposal 11.28 is accepted, no quota will apply to export from Bolivia wool from live-sheared Vicuña (i.e. export will be unrestricted). In this case, precautionary measures in paragraph B 2.b) will apply. The supporting statement notes that the proposal has been submitted because Bolivia wishes to help create economic incentives for local communities in the range of those Vicuña populations still in Appendix I, to encourage conservation, management and sustainable use of the species. Bolivia is Party to the "Convenio de la Vicuña" (the Vicuña Convention).

Analysis: Following Resolution Conf. 9.24, the Bolivian populations of Vicuña currently in Appendix I would appear unlikely to meet the biological criteria for inclusion in Appendix I set out in Annex I of Resolution Conf. 9.24. They do not appear to be small nor do they have a restricted distribution, and appear to have been increasing over the past two generations (although recent survey data are sparse). If accepted as it is understood (i.e. to apply only to Bolivian populations), this proposal would remove the split-listing for the Bolivian national population of Vicuña. The species itself would still be split-listed because of the remaining Chilean, Argentinean and Ecuadorian populations in Appendix I. Progress has apparently been made in conservation and management of those Bolivian populations of Vicuña already in Appendix II. Conservation, management and enforcement of protection of those populations not currently in Appendix II appear to be less well developed (although these populations are not currently thought to be declining). Creation of potential economic incentives may help to improve this. Enforcement mechanisms for controlling the movement of Vicuña wool within Bolivia do not appear to be very well developed.

	Supporting Statement (SS)	**Additional information**
Range	The proposal includes all populations in Bolivia except those already in Appendix II (Mauri-Desaguadero, Ulla Ulla and Lípez-Chichas). Range of species: Argentina, Bolivia, Chile, Ecuador (introduced), Peru.	
IUCN global category		LR cd

	Supporting Statement (SS)	Additional information
Biological criteria		
A) Small wild population	The overall population in Bolivia is quoted as just over 45 000, based on 1996 figures updated with reports from game-wardens in some areas. Population still in Appendix I quoted as just over 12 000.	1996 national census gave 10 500 in Appendix-I populations (Direccion General de Biodiversidad, 1999). More recent localised observations indicate that at least some Appendix-I populations have from 1996-1999 although overall figure for 1999 is estimated (Ripa de Marconi, 2000).
ii) small subpopulations	Populations in each of the Patacamaya – La Malla and Altamachi – Morochata Vicuña conservation and management units is given as less than 1 000.	
B) Restricted area of distribution	The area currently occupied by Vicuñas (including those in Appendix II) is estimated at around 30 000 km^2. The potential area of distribution is estimated at 100 000 km^2. The estimated area of distribution of those populations still in Appendix I is given as just over 16 500 km^2.	
iv) decrease in distribution, population, habitat or reproductive potential		The range of Vicuña in Bolivia appears to be increasing (Ripa de Marconi, 2000).
C) Decline in number of wild individuals	The population in Bolivia is reported to have increased from around 4 500 in 1981 to around 45 000 currently.	Most data in the SS are from the 1996 national census. Observations from four small (<1 000) populations still in Appendix I indicate population growth of from 5.0% to 14% in the period 1996-1999 (Ripa de Marconi, 2000).
D) Status suggests inclusion in Appendix I within five years	There is no information in the SS to suggest that the species may meet any of the above criteria within 5 years.	
Trade criteria		
The species is, or may be, affected by trade	Live animals have been exported to Ecuador to help establish a population there. Wool is the major product in demand.	
Precautionary measures		
B2b: CoP satisfied with: i) implementation of Article IV	Because annotation °606 allows only for export of wool sheared from live animals, trade should have no negative impact on populations.	Studies have been carried out in Bolivia and elsewhere on the potential impacts (e.g. increased mortality, disruption of group structure or reduced reproductive potential) of temporary capture and shearing of wild Vicuña. These have resulted in recommendations to improve traditional methods of capturing Vicuña (Bonacic, 1999, Bonacic and Macdonald, 1999). It is not known if these have been incorporated into Bolivia's management plans.
B2b: CoP satisfied with: ii) enforcement controls	Capacity for implementing CITES has been improved and a plan has been prepared to train customs officials in the recognition of CITES-	There are reportedly currently 12 wildlife guards, seven park guards and six guards from local communities ("vigilantes") in areas with Appendix-I listed Vicuñas. This contrasts with 26 faunal guards, 20 park guards and 108

	Supporting Statement (SS)	Additional information
	listed species. There is a local market for products made from Vicuña wool which is difficult to control because of its traditional basis.	"vigilantes" in areas with Appendix-II listed Vicuñas. The lack of "vigilantes" in the former is perceived to be a result of the lack of interest in communities in these areas in helping to conserve Vicuñas as they lack any incentive to do so (Ripa de Marconi, 2000). Ripa de Marconi (2000) noted that (illegal) sale of Vicuña wool appears to be localised and mostly confined to the city of El Alto. Sale of vicuña-wool products was more widespread. No details are provided in the SS of the proposed mechanism for controlling processing, domestic sale or export of wool or cloth, or how legally acquired wool will be distinguished from other wool. The Department of the Environment, Natural Resources and Forestry is responsible for collection of wool sheared from live animals with the participation of local communities. Wool is stored at private licensed warehouses. These issue a certificate for the wool, which gives its nominal value. The certificates allow the participating communities to obtain credit (Direccion General de Biodiversidad, 1999).
Other Information		
Proposed Annotation		At present, Bolivia has a zero quota for the export of Vicuña-wool cloth. If proposal 11.28 is accepted the zero quota will be eliminated, so that export of such cloth will become unrestricted.
Threats	Threats include illegal hunting (for wool, skins and meat), competition for land-use and the attraction of markets in neighbouring countries. Poaching appears to be widespread but at a fairly low level and not carried out by organised groups.	Resolucion No. 214/99 of the 19th ordinary meeting of the Comisión técnico administradora del Convenio de la Vicuña (technical commission of the Vicuña Convention) asked the Bolivian Government to take action to improve control of illegal hunting of Vicuñas, particularly in border areas. Vicuñas are harassed, and juveniles sometimes attacked, by domestic dogs. They may also be affected by mange (Puig, 2000). Natural predation pressures are thought to be low (Villalba, 2000).
Conservation, management and legislation	A regulation for the conservation and management of the Vicuña was approved in 1997 (Decreto Supremo NO. 24529). A national plan for the conservation of the Vicuña is currently being developed. This programme has a use sub-programme. Each communal management area registered to allow use of wool from live-shearing of wild populations will have a five-year Vicuña management plan.	Conservation and management of Vicuña is hampered by lack of resources at both national and local level, and most initiatives are currently at least in part dependent on external financial assistance (Ripa de Marconi, 2000). Villalba (2000) comments that 24% of the Vicuna population is within eight Protected Areas in Bolivia. The main Protected Area in Bolivia is the Ulla Ulla Reserve, which is currently managed effectively.
Other comments		Reviewers generally support the view in the SS that conservation and management of the Vicuña would be enhanced by provision of economic incentives to impoverished local communities,they considered this proposal would assist. Puig (2000) notes that live-shearing is low impact use.

Reviewers: C. Bonacic, G. Liechtenstein, S. Puig, M. Ripa de Marconi, TRAFFIC South America, L. Villalba

Elimination of the zero quota for trade in cloth made from wool from the shearing of live animals under the name Vicuña-Bolivia originating in populations listed in Appendix II. Proponent: Bolivia.

Summary: [See the summary of the Analysis of proposal 11.27 for general information]. The current proposal is for an amendment to annotation °606, to eliminate the zero quota currently imposed on cloth made with wool sheared from live animals in Bolivia. This will result in export becoming unrestricted. There are no explicit guidelines in Resolution Conf. 9.24 for assessing such an amendment. However, the precautionary measures in Resolution Conf. 9.24 Annex 4 para. B.b) appear most appropriate. These refer to implementation by the range State of the articles of the Convention, particularly Article IV and the presence of appropriate enforcement controls. The supporting statement notes that absence of incentive measures for local communities is a major impediment to the continued success of conservation and management efforts for the Vicuña in Bolivia. It believes that allowing export of cloth will permit the development of such incentives. Bolivia is Party to the "Convenio de la Vicuña" (the Vicuña Convention). The supporting statement indicates that the Conference of the Parties to that convention has approved this proposal in principle.

Analysis: As discussed in the analysis of proposal 11.27, development of economic incentives that might be generated from export of Vicuña-wool cloth would be expected to contribute to the conservation and management of Vicuñas in Bolivia. However, enforcement mechanisms for controlling the movement of Vicuña wool within Bolivia do not appear to be very well developed.

	Supporting Statement	**Additional information**
Range	Bolivia. Populations currently in Appendix II are those of Mauri-Desaguadero, Ulla Ulla and Lípez-Chichas. If proposal 11.27 is accepted, all Bolivian populations will be included in Appendix II. Range of species: Argentina, Bolivia, Chile, Ecuador (introduced), Peru.	
IUCN global category		LR cd
Biological parameters		
Biological status	The population is estimated at just over 45 000, of which an estimated 33 000 are currently in Appendix II. The population in 1981 was estimated at around 4 500. The species is currently believed to occupy around 30 000 km^2 of habitat.	Reviewers generally concur with the information provided in the supporting statement.
Precautionary measures		
Implementation of Article IV	Harvest is of wool from live wild animals and should therefore not be detrimental to the population. Current stocks of wool are reported to comprise: 3 kg high quality, 6 kg medium quality and 6.5 kg low quality all obtained from semi-captive animals at the Estación Experimental de Patacamaya; 6 kg from shearling of live animals during 1998-1999 at the pilot centre of Sud Lípez and 22 kg from the pilot centre at Ulla Ulla. A number of skins are also held.	Ripa de Marconi (2000) notes that between April 1998 and November 1999 a total of 610 Vicuñas has been temporarily captured for shearing (24 at Lípez Chichas, the remainder at Ulla Ulla). Of these, 417 were sheared, yielding a total of 70 kg of wool. Three mortalities have been recorded.
Enforcement controls	Refer to Analysis of proposal 11.27	Refer to Analysis of proposal 11.27.

Reviewers: C. Bonacic, G. Liechtenstein, S. Puig, M. Ripa de Marconi, TRAFFIC South America, L. Villalba

Inclusion of Musk Deer *Moschus* spp. currently in Appendix II in Appendix I. Proponent: India, Nepal and the United States of America.

Summary: Musk Deer are best known for their musk, a secretion of the male preputial gland that has been used in traditional East Asian medicine and perfumes for many hundreds of years. Musk Deer are distributed sporadically throughout the forested, mountainous parts of Asia, the largest remaining populations being in China and Russia. *Moschus* spp. are listed in Appendix II of CITES, except for the Himalayan populations in Afghanistan, Bhutan, India, Myanmar, Nepal and Pakistan which are listed in Appendix I. Uncertainty exists about the taxonomy and distribution of *Moschus* species, but the populations in these countries are generally considered to be primarily *M. chrysogaster*, and, to a lesser extent, *M. fuscus*. Consequently, the species and populations affected by the proposed transfer to Appendix I are the non-Himalayan populations of *M. chrysogaster* and *M. fuscus*, together with all populations of *M. moschiferus* and *M. berezovskii*. Musk is primarily in demand in East and Southeast Asia for use in traditional medicines, and substantial international trade in musk and its derivatives exists. About 5-10% of international trade is to supply the European perfume industry. Musk is very valuable and sells for as much as USD80 000/ kg. Large numbers of deer are harvested each year to supply the international musk trade and all populations are probably affected. *M. moschiferus* is listed in the 1996 IUCN Red List of Threatened Mammals as Vulnerable, on the basis of declining populations. The other three species are listed as Lower Risk Near Threatened. Although protected over much of their range, reviewers note that protection is often inadequately enforced. Controls of musk trade are difficult to enforce due to the ease with which musk pods can be concealed. Harvesting of Musk Deer to meet national demand for musk is a serious threat to populations in some countries, particularly in China, while all populations are threatened by habitat loss. The difficulty of practically distinguishing Musk Deer species and subspecies means that conservation measures are best implemented at the genus level. Musk from the different *Moschus* species cannot be distinguished. The proposal emphasises that *Moschus* spp. meet the biological criteria (Annex 1, Resolution Conf. 9.24) for Appendix I listing, due to a decline in wild populations (Annex 1C; observed due to the high rates of indiscriminant killing for the trade in musk and inferred due to habitat loss). Relatively abundant populations are considered to meet the criteria for inclusion in Appendix I within five years (Annex 1D). The genus has been subject to ongoing Significant Trade reviews since 1991, under the provisions of Resolution Conf. 8.9 and Decision 10.19.

Analysis: Accurate data on population size and distribution of *Moschus* species are very sparse. Most population estimates are based on extrapolations of crude survey data, or even speculation. With reference to Resolution Conf. 9.24, the available evidence suggests that many populations of *Moschus* spp. may meet the criteria for inclusion in Appendix I. It is unlikely that M. *berezovskii, M. chrysogaster* and *M. moschiferus* meet criterion A (Annex 1), since estimates of total population sizes still exceed 100 000 animals per species. No population estimates are available for *M. fuscus*. It is also unlikely that any of the species meets criterion B (Annex 1) since no species is thought to have a restricted distribution. Widespread observations that *Moschus* populations are continuing to decline throughout their range, combined with inferred declines based on habitat loss, suggest that all species are likely to meet criterion C (Annex 1). Insufficient information is available to determine exactly which populations meet criteria A, B and C, and whether populations which do not currently meet these criteria, are likely to do so within five years (criterion D, Annex 1). Widespread population declines result from harvesting, for both national and international trade, and habitat loss. Substantial levels of international trade, primarily in musk and its derivatives, are reported. Although alternatives to musk have been developed and adopted in the perfume industry, they are not as yet widely accepted in traditional medicine. Consequently, demand for musk is likely to remain high. The harvesting of musk from captive populations will not meet the demand in the near future. Levels of illegal international trade are reported to be high.

	Supporting Statement (SS)	**Additional information**
Taxonomy	Some authorities place the genus in its own family, Moschidae. Four species, *Moschus chrysogaster*, *M. moschiferus, M. berezovskii,* and *M. fuscus,* are listed.	Taxonomy of the genus *Moschus* is unresolved, but there are now considered to be four and possibly as many as six species (Groves and Grubb, 1987). Classification of *Moschus* into the four species listed in the supporting statement agrees with Wilson and Reeder (1993), who note the following synonyms: *M. chrysogaster: M. cupreus,*

	Supporting Statement (SS)	Additional information
		M. leucogaster, M. sifanicus; M. moschiferus: M. altaicus, M. arcticus, M. parvipes, M. sachalinensis, M. sibiricus, M. turowi; M. berezovskii: M. anhuiensis: M. caobangis. Some authors consider *M. fuscus* as a subspecies of *M. chrysogaster*.
Range	Asia, from the Arctic Circle to Afghanistan, Nepal, Pakistan and India in the south.	Distribution of *Moschus* spp. (from Wemmer, 1998):*M. berezovskii* (Forest Musk Deer): China, Vietnam. M. *chrysogaster* (*chrysogaster* sub-species group) (Alpine Musk Deer): China, India. *M. chrysogaster* (*leucogaster* sub-species group) (Himalayan Musk Deer): Afghanistan, China, India, Nepal, Pakistan. *M. fuscus* (Black Musk Deer): Bhutan, China, India, Myanmar, Nepal. *M. moschiferus* (Siberian Musk Deer): China, Democratic People's Republic of Korea (North Korea), People's Republic of Korea (South Korea), Mongolia, former USSR.
IUCN Global Category		*M. berezovskii*: Lower Risk (nt), *M. chrysogaster*: Lower Risk (nt), *M. fuscus*: Lower Risk (nt), *M. moschiferus*: Vulnerable A1a,c,d.
Biological criteria		
A) Small wild population	*M. berezovskii*: In China, *M. moschiferus* and *M. berezovskii* populations combined were estimated to total 100 000-200 000 animals. *M. chrysogaster*: Chinese populations estimated in the late 1990s to total 100 000 animals. *M. fuscus*: rare in China. *M. moschiferus*: Russia populations in the early 1990s estimated at 56 000-60 000 animals and Mongolian populations in 1985 at 44 000. In China, *M. moschiferus* and *M. berezovskii* populations combined were estimated to total 100 000-200 000 animals.	Population estimates at country level are largely conjectural, often based on limited data extrapolated over vast areas. *Moschus* spp. generally occur at low densities, due to scarce food resources in winter as well as harvesting. *M. chrysogaster*: Reported to be 4 000 – 5 000 in Xinglongshan Reserve, where population is protected (Wang, 1998). Chinese populations at the end of the 1990s were estimated to total 100 000 individuals; about 50-60% occur in Tibet Autonomous Region (Sheng *et al*., 1999). Himalayan populations estimated at 30 000 in 1986 (Green, 1986), based on known densities and area of available habitat. *M. fuscus*: rare in Bhutan (Wemmer, 1998). *M. moschiferus*: Populations in Russia reported to total approximately 70 000 animals (Prikhod'ko, 2000), although Government survey estimates are higher (154 000; State Service for Statistics on Hunting Resources, 1997). Reported to be uncommon in Mongolia (Mallon, 1985). *M. moschiferus parvipes and M. moschiferus sachalinensis* are in danger of extinction (Wemmer, 1998; Prikhod'ko, 2000).
i) population or habitat decline		Widespread reports of population declines exist, throughout the entire distribution of *Moschus*.

	Supporting Statement (SS)	Additional information
v) high vulnerability due to biology or behaviour		Musk Deer have relatively high reproductive rates (twins are common, females can probably breed in their first year), secretive habits and ability to survive in deep snow reduce their vulnerability to population declines resulting from over-harvesting (Green, 2000a).
B) Restricted area of distribution	Musk Deer still occur throughout their historic range, but populations have been greatly reduced and/or fragmented in many areas.	No species is thought to have a distribution of less than 10 000 km^2.
C) Decline in number of wild individuals	All populations are reported to be declining.	Reliable data on population trends are lacking, but circumstantial evidence, from declines in musk harvests in particular areas, the absence of Musk Deer from parts of their former range, and habitat loss, suggest that *Moschus* populations have declined dramatically. It is likely that all species are affected by harvesting for trade (Wemmer 1998; Green, 2000a), but the relative impact of national and international trade varies from region to region. The number of Musk Deer in China has declined from an estimated 3 - 4 million in the 1950s (Yuan *et al*. 1992) to 200 000 to 300 000 in the 1990s (Wang, 1998). In 1989, the population of Musk Deer in China was reported to be about 300 000 and declining rapidly (Helin, 1989).
i) ongoing or historic decline	*M. moschiferus*: populations in Russia have declined by 50% between the 1970s and the early 1990s. Populations in Mongolia and China have also declined.	*M. berezovskii*: Populations in China and Vietnam are reported to be decreasing (Wemmer, 1998; Wang *et al.* 1993). *M. chrysogaster*: The overall range of this species has changed little but populations have been reduced to isolated pockets in many regions (Green, 1986). Populations in China have declined during the past decade (Wemmer, 1998). *M. moschiferus*: Populations in the former USSR are reported to have declined by 50% over the last 10 years (Prikhod'ko, 2000), although official census results suggest that populations are stable (Pereladova, 2000). This species has disappeared from part of its former range in China and is reported to have become uncommon in Mongolia (Wemmer, 1998).
ii) inferred or projected decline	Loss of suitable habitat has occurred over much of the range of *Moschus* spp.	Reports of habitat loss are widespread. For example, the available habitat for *M. moschiferus* in Russia is estimated to have declined by 5-20%, depending on the region (Prikhod'ko, 2000).
D) Status suggests inclusion in Appendix I within five years	Those populations which are still relatively abundant satisfy this criterion as a result of poaching and forest harvesting pressures.	

	Supporting Statement (SS)	Additional information
Trade Criteria		
The species is, or may be, affected by trade	The level of international trade in musk pods from *Moschus* spp. is high, and has been for a long time. China and India were estimated to export approximately 1 400 kg of musk each year at the beginning of this century, reducing Musk Deer populations. Demand has increased since then. During the 1950s and 1960s, around 1 500 kg of musk were harvested annually, primarily from *M. berezovskii*, from just three provinces in China. Throughout the 1970s and 1980s, Japan was the largest importer of musk. Most of the musk was derived from India and Nepal, although this changed in the early 1980s when musk from China became more available. Substantial illegal trade in musk is thought to take place, as the pods are small and easy to hide. Approximately, 30-40%, for example, of the musk traded in Russia from 1989 to 1993 was estimated to be from illegal sources. It is not possible to differentiate musk pods from different species. Musk is often mixed with other ingredients in medicines. Harvesting is often non-selective and four to five Musk Deer are killed to obtain one pod-bearing male.	Musk is primarily in demand for use in traditional East Asian medicine. Demand has been high since the beginning of the 20th century. Around 400 pharmaceutical preparations containing musk are used in Chinese medicine (TRAFFIC East Asia, 2000). Demand from the European perfume industry is likely to represent 5-10% of trade. Musk is very valuable and sells for as much as USD80 000/ kg on the Chinese black market (TRAFFIC East Asia, 2000). Interpretation of musk trade is complicated by the fact that musk is often adulterated with other ingredients (Green, 2000a; Tsui and Choi, 1997). CITES Annual Reports (1990-1998) show that the majority (80%) of reported international trade in *Moschus* spp. since 1990 has been in musk or its derivatives. The rest was derived from live animals, trophies, bones, skin and scientific specimens (TRAFFIC Europe, 1999). Eight countries reported total imports of 2 696 kg of musk between 1990 and 1998 (averaging about 300 kg/year), substantially greater than reported exports which totalled 660 kg (averaging 73 kg/year). In addition, hundreds of thousands of derivatives were traded internationally each year. The main exporting countries were the Russian Federation, Mongolia and China (TRAFFIC Europe, 1999). China primarily exported derivatives, in large numbers, but relatively little raw musk. Trends in the international trade in raw musk between 1978 and 1996 indicate a dramatic increase in export figures from Russia, Kyrgyzstan and Uzbekistan after the break-up of the Soviet Union in 1992 (Homes, 1999). CITES Annual Reports (1990-1998) show that the main countries importing raw musk were South Korea, Japan and France, while large numbers of derivatives were imported into East Asia and Southeast Asia (TRAFFIC Europe, 1999). South Korea consumes a large amount of musk within the country while Japan consumes large quantities but also re-exports a significant volume of musk (as derivatives). The number of Musk Deer that are harvested to obtain one male with musk is probably three or four (Green, 1986; Vaisman *et al*. 1999) and the amount of musk obtained from each male is approximately 25 g (Homes, 1999). This would suggest that approximately 30 000 to 50 000 deer were killed each year to supply the reported legal trade in musk; the number killed to provide the reported trade in musk derivatives cannot be estimated. Due to the small size of musk pods, the ease with which they can be

	Supporting Statement (SS)	Additional information
		concealed, the substantial demand for musk, and the high prices that can be obtained, levels of illegal trade are likely to be high (TRAFFIC Europe, 1999; Harris, 2000). Evidence of illegal international trade is widespread (e.g. in musk from illegally harvested deer in Russia, Chestin 1998, Vaisman *et al*. 1999; and in China, Wang, 1998, and of musk into South Korea, TRAFFIC East Asia, 2000). From 1994 to 1996, around 1 200 kg of musk were imported into South Korea under questionable circumstances from Kyrgyztan, Uzbekistan, Mongolia and Cambodia, while 230 kg were imported illegally from North Korea (TRAFFIC East Asia, 2000). There is evidence of international trade and harvesting within protected areas in northern India (from populations in Appendix I; Avasthe, 1999).
Other Information		
Threats	Harvesting to supply national demand is a major threat. Annual medicinal demand for musk within China is estimated at 500-1 000 kg. Demand within Russia is also high. Most of the musk harvested in India is for export (populations in India are in Appendix I). Habitat loss has been a significant factor in the decline of *Moschus* populations. It may represent as serious a threat as poaching in the long term.	Approximately 60 000 to 120 000 deer would probably need to be harvested annually to provide the 500-1 000 kg musk reportedly required for medicinal purposes within China. This corresponds to an offtake of 20 to 40% of the total Musk Deer population in China (estimated at 300 000 deer). The national demand for musk within China may, however, be much higher than the 500-1 000 kg reported in the supporting statement (about 2 000 kg, TRAFFIC East Asia, 2000). Numerous reports of *Moschus* populations declining due to overharvesting exist (e.g. *M. moschiferus, M. chrysogaster* and *M. berezovskii* in China, Wang, 1998; *M. moschiferus* in India, Avasthe, 1999; *M. moschiferus* in the Russian Federation, Prikhod'ko and Ovsyanikon, 1998), but the impact of national, versus international, trade is not clear. Illegal harvesting is widespread (Wemmer, 1998; Prikhod'ko, 2000). In addition to harvesting for their musk pods, Musk Deer are harvested for meat and other products in some areas. Musk Deer are also theatened by competition with domestic animals (Sheng *et al.,* 1999).
Conservation, management and legislation	Although protective legislation prohibiting or regulating harvest exists in most of the range States of the Musk Deer, the effectiveness of the enforcement is a major problem. Populations in Bhutan, India, Mongolia, Myanmar and Nepal are fully protected. *Moschus* spp. are protected in Bhutan by Royal Decree, in India under the Wildlife (Protection) Act, 1972, in Nepal under the National Parks and Wildlife Conservation Act, 1973, in Myanmar since 1994, in Mongolia since 1995 and in Vietnam since 1963. In China, *Moschus* spp. are listed as Category II key species under the Wildlife Protection Law, 1988. Category II species can only be taken under permit granted by the provincial	Reviewers generally concur that protection is rarely adequately enforced and poaching is widespread, even within nationally protected areas. Few regular monitoring programmes of populations or harvest levels are thought to take place. A national survey of Musk Deer is, however, underway in China (Zhang, 2000), and there is a monitoring system in the Russian Federation for Musk Deer populations. Legal hunting of Musk Deer in the Russian Federation is regulated through the issue of licences, based on the Musk Deer counts (Homes, 1999). In addition, the Russian Federation sets annual export quotas for legal trade of musk from Musk Deer.

	Supporting Statement (SS)	Additional information
	authority. Regulations in Russia vary according to the region. Although captive breeding of *Moschus* spp. has taken place in China since 1958, few centres have been successful. Four breeding centres now exist with a population of 1 500-2 000 deer, but mortality is high and the captive population is not stable. One farm exists in India for musk production. Nature reserves set up in China to provide habitat for the Giant Panda have indirectly benefited populations of forest musk deer.	An official letter (no.133, 1990) issued by the Ministry of Forestry (now State forestry administration) details the correct procedures for the export of medicines containing wild animals. Attached to this letter is a list of medicines, including 165 listed medicines containing musk, for which export must be accompanied by an export permit issued by the CITES Management Authority (MA). This permit must be submitted to customs for approval of export (CITES MA of China, 1995). Notice number 2 (1999) issued by the CITES MA and the Head Office of Customs details the correct procedures and permit requirements for the export of musk and for medicinal products containing musk. The customs codes for natural musk and medicinal products containing musk are also provided. In conversations with TRAFFIC East Asia (3 February 2000), the CITES MA of China informed TRAFFIC that exports of natural musk have been prohibited since 1997. Musk from captive breeding can be exported in "the appropriate amounts" as decided by the CITES MA. The CITES MA also informed TRAFFIC that no hunting permits have been issued for Musk Deer since 1989. However, provincial authorities may issue permits for capture of Musk Deer for augmenting captive populations of Musk Deer. Medicines containing natural musk may be exported (if accompanied by the appropriate documents in accordance with official letter no. 133, 1990). The habitat of *Moschus* spp. is protected within nature reserves and/or national parks in Bhutan, China, India, Mongolia, Nepal, Pakistan, the former USSR, and Vietnam (Wemmer, 1998). Current protected areas include about 5 to 8% of the *M. moschiferus* population in Russia (Prikhod'ko, 2000). Green (1986) estimated that 16 811 km^2 of potential habitat for *M. chrysogaste*r was protected in India in 1986. China’s captive Musk Deer population produces a maximum of 10 kg per year (TRAFFIC East Asia, 2000). *Moschus* have also been farmed on an experimental basis in Russia (Prikhod'ko, 2000), and several musk farms exist in India (Green, 2000a). It is unlikely that captive breeding of this genus will provide adequate musk to meet demand in the near future. Although it is possible to harvest musk from live deer in the wild, the methodology is not yet well developed (Green and Kattel, 1997). There are currently three natural substitutes for musk in use in traditional East and Southeast Asian medicine, in addition to synthetic substances, but their use is not currently widespread.

	Supporting Statement (SS)	Additional information
Similar species		The difficulty of practically distinguishing Musk Deer species and subspecies means that conservation measures are best implemented at the genus level (Green, 2000a). Musk from the different *Moschus* species cannot be distinguished (Green, 2000b; Harris, 2000).
Other comments		The genus *Moschus* was included in Phase I of the Significant Trade Review of the Animals Committee under the provisions of Resolution Conf. 8.9 in 1991, and primary recommendations to China and the Russian Federation were made in 1994. In 1997, at CoP 10 the Secretariat reported (Doc 10.55) that the Russian Federation has implemented the recommendations but that further information was sought from China. At the 14th Meeting of the Animal Committee, the genus was included in Phase IV of the Significant Trade Review on the basis of population concerns, and at the 15th Meeting the Secretariat was requested to initiate the review.

Reviewers: A.W. English, M.J.B. Green, R.B. Harris, V. Homes, Y. Kaneko, O. Pereladova, V.I. Prikhod'ko, V.V. Rozhnov, A. J. Sempéré, TRAFFIC Europe, TRAFFIC East Asia, E. Zhang.

Inclusion of all subspecies of Urial *Ovis vignei,* not yet listed by CITES, in Appendix I. Proponent: Germany.

Summary: Urial *Ovis vignei* are wild sheep of the Caprinae subfamily, widely distributed throughout upland areas of the Indo-Himalayan Region and the Commonwealth of Independent States (CIS) of the former USSR. They are gregarious, sometimes gathering in flocks of over 100 individuals. Females generally first breed in their third year, males when somewhat older. Multiple births are not uncommon, and longevity is around six to seven years. Many populations move seasonally, from sheltered valleys in winter to higher habitats in the summer. *Ovis vignei* was listed in Appendix I in 1975, although there has been recent confusion about the listing of the taxon in the Appendices. Doubt arose that the taxon, as originally listed, included all those subspecies mentioned in the official CITES reference for taxonomic nomenclature of mammal species (Wilson and Reeder, 1993). The issue was debated by the Animals Committee, and subsequently the Nomenclature Committee recommended that all subspecies were included in Appendix I, following Wilson and Reeder (1993). However in 1997, the Nomenclature Committee revised its decision, ruling that only populations recognised as *O.v. vignei* are included in Appendix I, and so the remaining populations are not listed in the Appendices. The debate concerned the intent of the original proponent in the listing of the taxon in Appendix I. Further details of the most recent decisions can be found in Doc. 10.19, Com.I 10.12 (Rev) and Com. 10.16. This proposal aims to reinstate the remaining subspecies in Appendix I. There is ongoing debate over the taxonomy of Urial and the IUCN/SSC Caprinae Specialist Group Action Plan notes that many subspecies can be viewed as newly emerging species. Many of these isolated populations have suffered severe declines recently, although as other populations have been stable or in some cases appear to have increased, the overall population status of the species appears to have declined only slightly. The main ongoing threats appear to arise from habitat destruction due to competition with domestic livestock, agricultural encroachment and poaching for meat, and declines have been projected for many populations of the species. The only significant reported international trade is in sport-hunting trophies, of which there have been an average of nine trophies of the species traded a year from 1992 to 1999.

Analysis: Following Resolution Conf. 9.24, it should be noted that split-listings that place some populations of a species in the Appendices and the rest outside the Appendices should normally be avoided. When split-listing does occur, it should generally be on the basis of geographically defined populations rather than subspecies (Resolution Conf. 9.24, Annex 3). Taxonomic names below the species level should not be used in the Appendices unless the taxon in question is highly distinctive and the use of the name would not lead to enforcement problems (Resolution Conf. 9.24, Annex 3). It would appear that the subspecies in question are not highly distinctive, as evidenced by the debate over the taxonomy of Urial. If implemented, the result of this proposal would be to include in Appendix I the entire species *Ovis vignei* as currently recognised by the CITES standard taxonomy.

At the species level, the taxon does not appear to meet the numerical guidelines for inclusion in Appendix I. With a current estimate of around 30 000 individuals, the species does not appear to have a small population (thereby not meeting criterion A), and does not appear to have a restricted distribution (thereby not meeting criterion B). It also seems unlikely that the species has declined over its range at a level consistent with the guidelines for criterion C (50% decline over two generations). Although some populations are likely to decline further, there appears to be insufficient evidence to suggest that the species will meet the criteria for inclusion in Appendix I in the next five years. The species is in international trade due to the limited trade in trophy specimens.

Subspecies are considered both in the Supporting Statement and in the majority of available information on the species. If the five subspecies proposed in the Supporting Statement are considered individually, it appears that each might meet the biological criteria for inclusion in Appendix I. It would appear that each of the subspecies meets the trade criteria for inclusion in Appendix I, as even if there has been no record of trade, there is likely to be international demand for specimens as trophies.

	Supporting Statement (SS)	**Additional information**
Taxonomy	The SS recognises that there is not universal agreement on the number or distribution of subspecies of *Ovis vignei*. The SS considers six subspecies: *O. v. arkal, O. v. cycloceros, O. v. bocharensis, O. v. punjabiensis,*	The CITES Nomenclature Committee is due to meet before the 11th CoP to determine the CITES official taxonomy of the species. Des Clers (1999) comments that the taxonomy used in the SS does not

	Supporting Statement (SS)	Additional information
	O. v. severtzovi and *O. v. vignei*. *O. v. cycloceros* has been grouped with *O. v. arkal* by some authorities. Likewise *O. v. bocharensis* has been considered as *O. v. vignei*. In Pakistan, some authors refer to Urial in Baluchistan and south-west Sind as *O. v. blanfordi*, and others as *O. v. cycloceros*, and some geographically divide these two subspecies, and treat them separately. The SS includes *O. v. blanfordi* within *O. v. cycloceros*, following the taxonomy used by Shackleton (1997). Although the SS lists *O. v. severtzovi* as a Urial, following the taxonomy in the official CITES reference list of Wilson and Reeder (1993), and of Shackleton (1997), recent genetic research has shown that *O. v. severtzovi* may be an Argali, rather than a Urial. One scientific synonym for the species as a whole is noted: *Ovis orientalis*.	strictly follow that officially adopted by CITES. Festa-Bianchet (1999) notes that the taxonomy of Urial is in urgent need of reconsideration. The Caprinae Action Plan (Shackleton, 1997) combines *O. aries* with *O. vignei*, under the species name *O. orientalis*, thereby combining Mouflon and Urial sheep as a single species. Hofer (1999) notes some additional common names for many of the subspecies. Bunch *et al*. (1998) confirm that the subspecies *severtzovi* is likely to be an Argali *O. ammon* and should therefore not be considered in this proposal. All Argali (except subspecies *O. a. hodgsonii*) are currently listed in Appendix II. The taxonomy used in this Analysis follows that presented in the SS.
Range	*O. v. arkal* – Iran, Kazakhstan, Turkmenistan and Uzbekistan. *O. v. cycloceros* – Afghanistan, Pakistan and Turkmenistan. *O. v. bocharensis* – Tajikistan, Turkmenistan and Uzbekistan. *O. v. punjabiensis* – Pakistan. *O. v. severtzovi* – Uzbekistan.	The Caprinae Action Plan (Shackleton, 1997) notes the following additional range States: *O. v. arkal* – Kyrgyzstan is listed as a range State (Kazakhstan is not). *O. v. cycloceros* – Possibly also Iran
IUCN global category	*O. v. arkal* – Vulnerable A2cde *O. v. cycloceros* – Vulnerable C1 *O. v. bocharensis* – Endangered A1cde, C1+2a *O. v. punjabiensis* – Endangered A1cde, C1+2a *O. v. severtzovi* – Endangered A2cde, C2b	
Biological criteria		
A) Small wild population	The estimated total population size (from the addition of subspecies population estimates) of *O. vignei* is in the region of 30 000 individuals. The SS lists the current estimated population sizes of the subspecies: *O. v. arkal* – less than 11 000 *O. v. cycloceros* – greater than 12 000 *O. v. bocharensis* – less than 1 200 *O. v. punjabiensis* – less than 2 000 *O. v. severtzovi* – greater than 2 000	Following the CITES numerical guidelines for a small population, the species as a whole does not appear to meet the guideline criteria for inclusion in Appendix I. If the subspecies are considered individually, only *Ovis v. bocharensis*, *O. v. punjabiensis* and *O. v. severtzovi* appear to have small populations.
i) population or habitat decline	Overall, the species appears to have declined slightly. Many populations have remained stable, some have increased, and some declined. *O. v. bocharensis, O. v. punjabiensis* and *O. v. severtzovi* appear stable overall, although declines may have occurred in some areas.	Jackson (1999) contends that evidence is not provided in the SS to demonstrate a conclusive decline in any of the subspecies. However Festa-Bianchet (1999) considers that the evidence presented in the SS makes it clear that all the subspecies have declined in most of their range, and that many subspecies and populations are threatened with

	Supporting Statement (SS)	Additional information
	O. v. bocharensis – although a decline is reported in Uzbekistan, population estimates in Turkmenistan do not suggest a decline, and in Tajikistan populations have apparently stabilised after a decline in the early part of the 1990s. Current estimates of the total population size appear to be an increase on the estimated population size from the late 1980s. *O. v. punjabiensis* – although there appear to have been local declines in some areas, the current overall population is estimated to be in the region of 2 000, a similar figure to that resulting from a complete census and other estimations in the mid 1970s. *O. v. severtzovi* – numbers appear to have increased recently from a 1983 estimate of 1 500 individuals to a current estimate of at least 2 000 individuals. Habitat declines are noted for all subspecies. This has been mainly as a result of encroachment by agriculture, increased grazing by domestic livestock, and use of habitat for the provision of energy via the extraction of fossil fuels, hydroelectric power and the collection of fuel wood.	extinction. From the information provided in the SS, the subspecies for which a small population merits their consideration under this criterion do not appear to meet the guidelines in the CITES criteria for a 20% reduction in three generations. However, the categories under which the subspecies are listed in the 1996 IUCN Red List suggest that all three subspecies are likely to meet the numerical guidelines for historic or projected declines in the population.
Ii) small subpopulations	The species as a whole is dispersed into a number of small subpopulations throughout all range States. Although accurate census data are often unavailable for these subpopulations, it is probable that many of them contain fewer than 500 individuals. However each range State of the species is also likely to contain subpopulations that are over 1 000 individuals. Subpopulations of *O. v. bocharensis* in all three range States are small, ranging from fewer than ten individuals up to no more than 650 individuals. The largest population of *O. v. punjabiensis* is likely to be over 800 individuals. Eight or nine small groups make up the remainder of the total population, which is likely to be around 2 000 individuals. The largest subpopulation of *O. v. severtzovi* is likely to number more than 2 000 individuals. Other population sizes are unknown.	Reviewers generally concur that the species is scattered into subpopulations. Populations of both *O.v. bocharensis* and *O.v. punjabiensis* appear to be dispersed in small subpopulations such that they would meet the CITES criteria. The subpopulations of *O.v. severtzovi* appear to be of a size whereby this subspecies is unlikely to qualify under this criterion.
(iii) one subpopulation	The species as a whole is dispersed into a number of subpopulations. However, approximately 98% of remaining *O. v. severtzovi* individuals are concentrated in one subpopulation, in the Nuratau Nature Reserve, Uzbekistan. Other subspecies are more evenly dispersed, although around half of the total *O. v. punjabiensis* population is found within a private game reserve in the Punjab Province of Pakistan.	*O.v. severtzovi* would certainly appear to meet this CITES criterion, and as around half of the total *O.v. punjabiensis* population is also concentrated in one subpopulation, and the other groups are relatively small, it could be argued that this subspecies also meets this criterion. The species as a whole does not appear to meet this CITES criterion.
v) high vulnerability due to	Urial densities are often low (less then one individual per square kilometre) because of the arid and relatively unproductive habitat in which they are	Low fecundity and intolerance to disturbance are cited as increasing all subspecies' vulnerability to extinction (Abdunazarov, Bykova, Esipov and

	Supporting Statement (SS)	Additional information
biology or behaviour	found. Their low densities make them particularly vulnerable to the affects of habitat destruction and subsequent fragmentation.	Kreuzberg-Mukhina, 1999).
B) Restricted area of distribution	Distributions given in the SS are based on Shackleton (1997). The distribution of many individual populations of the species is described, and all five subspecies are proposed under this criterion. No quantitative information is provided on the area of distribution for any of the species' populations or for the distribution of the individual subspecies.	Although no quantitative information is provided in the SS on the area of distribution of the various subspecies, it is not likely that the species as a whole meets the criteria for restricted distribution. However, populations of *O. v. bocharensis*, *O. v. punjabiensis* and *O. v. severtzovi* are likely to be restricted in area of distribution to a level whereby they meet the criteria. *O. v. arkal* and *O. v. cycloceros* are more widespread, and do not appear to meet the criteria for restricted distribution.
i) fragmented or localised population	The species is fragmented throughout its range, with many populations confined to isolated mountainous areas. Numbers of Urial in isolated populations vary from as few as 50 (for example in populations in Uzbekistan and Turkmenistan) to over 1 500 individuals (for example in populations in Uzbekistan and Tajikistan). Populations of *O. v. bocharensis* are generally small and fragmented in all three range States. In Uzbekistan, isolated populations are thought to contain less than 200 individuals. The largest subpopulation of *O. v. punjabiensis* is thought to contain around 800–850 individuals. Another eight or nine isolated subpopulations contain approximately an additional 2 000 individuals. The last remaining stronghold of *O. v. severtzovi* (Nuratau Nature Reserve in Uzbekistan) contains around 2 000 individuals. Other subpopulations are isolated, and are likely to be extremely small.	Although there are a number of populations of the species that are above the guideline numbers for a small population, a large number of populations of the species would appear to be small and isolated from other populations. Des Clers (1999) comments that the distribution of habitat is fragmented for all subspecies, especially as populations have generally retreated to the mountainous parts of the range in order to benefit from the less disturbed habitat and more difficult access to poachers. Nuratau Nature Reserve was established in 1975 and covers an area of just over 221 km^2.
(iii) high vulnerability due to biology or behaviour	See criterion A v).	
iv) decrease in distribution, population, habitat or reproductive potential	The SS notes decreases in distribution and habitat for many populations, and all subspecies in parts of their range. However, quantifiable data is not provided. Populations of *O. v. punjabiensis, O. v. bocharensis* and *O. v. severtzovi* may have declined in certain areas of their range, but appear stable overall (see criterion Ai).	See comments in criterion A i).
C) Decline in number of wild individuals	Evidence is provided from surveys and expert estimations to suggest both historic and ongoing declines for many populations of the species. However, some other populations are likely to have increased, and no evidence is supplied to suggest an overall decline in the species. Declines are noted for both *O. v. arkal* and *O. v. cycloceros* and may also have occurred in *O. v. punjabiensis, O. v. bocharensis* and *O. v. severtzovi* populations in certain areas of their range, but these three subspecies appear stable overall (see criterion Ai).	Festa-Bianchet (1999) considers that the evidence is strong for declines in all subspecies in most of their range, and that many populations and subspecies are threatened with extinction. Only a few populations under special protection appear to be secure, and the overall decline appears to be extremely serious. However, Jackson (1999) contends that sufficient evidence is not provided in the SS to suggest a conclusive decline in any of the subspecies.

	Supporting Statement (SS)	Additional information
i) ongoing or historic decline	Declines are noted for two of the subspecies in the SS: *O. v. arkal* – in Iran, the population is likely to have declined from over 20 000 individuals in the mid-1970s to current estimates of around 4 000 individuals. Numbers in their major stronghold declined from around 15 000 in the mid-1970s to around 3 500 in the early 1990s, and are currently estimated at fewer than 1 500. In Kazakhstan, Turkmenistan and Uzbekistan there have also been declines, although the overall status of the subspecies in these three range States appears not to have declined significantly, with the population remaining at around 6 000 – 7 000 individuals. However, in Uzbekistan the population has declined from around 300 individuals in 1983 to around 100 individuals in 1998. *O. v. cycloceros* – numbers in Turkmenistan increased from an estimate of 7 000-9 000 in the late 1970s to an estimated 10 500–11 000 in the early 1990s. In the last ten years, they appear to have declined to a current estimated level of between 5 000 – 6 000. In Pakistan, the population appears to have declined in the North West Frontier Province (NWFP) from an estimated 310 – 340 individuals in 1987 to a more recent total of only 80 individuals. Populations in Sindh Province appear to be stable, and possibly even increasing. Numbers in Torghar Conservation Project area (Baluchistan) appear to have increased, but this is thought not to be typical of the situation in Baluchistan, although data is not available for other areas.	Des Clers (1999) notes that populations of *O. v. arkal* appear to have recovered in protected areas in Iran over the last 20 years, to the point where the government has reauthorized tourist sport hunting of wild sheep for the last two seasons. The decline in *O. v. arkal* populations, from an estimated 26 000 individuals in the mid-1970s to current estimates of around 10 000, would seem to meet the numerical guidelines for a 50% decline over two generations. The 50% decline noted for *O. v. cycloceros* in Turkmenistan since the early 1990s, combined with declines cited for other populations, may also meet the criteria for a significant decline, although there is insufficient information available to confirm rates of decline for the entire subspecies.
Ii) inferred or projected decline	Population declines are projected in the SS for all subspecies, and habitat loss is projected as Urial face ever-increasing numbers of domestic competitors for the limited, low productive plant resources available.	The IUCN/SSC CSG Caprinae Action Plan suggests that without prompt and effective conservation actions, future declines are likely for *O. v. bocharensis, O. v. punjabiensis* and *O. v. severtzovi* (Shackleton, 1997).
D) Status suggests inclusion in Appendix I within five years	Declines in population size and habitat are projected in the SS for all subspecies.	There is general disagreement amongst reviewers as to whether or not population or habitat declines in the species as a whole or individual subspecies are likely to resume, or be ongoing.
Trade criteria		
The species is, or may be, affected by trade	The only significant international trade in this species is in trophies. The SS summarises data on legal international trade with specimens of *O. vignei* in 1993 and 1995 (18 trophies and a small number of captive bred specimens exported). Information is also presented on imports of trophies into the USA for 1996 to 1999 (a total of 35 specimens imported), and the European Union for 1998 and 1999 (no specimens imported). Exports of trophies from Uzbekistan between 1992 and 1998 are also reported (17 specimens exported). Urial are amongst the most highly prized Caprinae trophies. Currently	Reviewers concur that the only significant international trade is for trophy hunting. Fedosenko (2000) suggests that trophy hunters shot approximately 90 to 95 individuals in the CIS during the 1990s. TRAFFIC Europe's (2000) analyses of trade data in the SS show that there have been a total of 70 trophies in international trade between 1990 and 1999. In addition there have been 17 live animals traded (of captive-bred origin), 12 skeletons, eight horns and four skins (TRAFFIC Europe, 2000).

	Supporting Statement (SS)	Additional information
	almost all Caprinae are subjected to trophy hunting, and there is pressure for governments to open or expand hunts to obtain significant economic gains. However few hunting operations meet the guidelines provided by the IUCN/SSC Caprinae Specialist Group, and the SS suggests that there is likely to be much more trade in trophies than is officially documented. Prices for trophy hunting expeditions vary. The cheapest offers were recorded in Iran (USD7 900) and the most expensive in Uzbekistan (USD18 000). *O.v. arkal* and *O.v. cycloceros* are most frequently offered by hunting operators, with some offers made for *O.v. severtzovi*.	Festa-Bianchet (1999) notes that the effects of trophy hunting are largely unknown in the absence of more biological and population information, and that the majority of trophy hunting programmes do not meet the IUCN/SSC CSG recommendations, and would therefore not be supported by the CSG. He also comments that if all Urial subspecies were listed in Appendix I, it would be easier to ensure that trophy hunting programmes met conservation objectives. Valdez (1999) notes that there is no scientific evidence available to validate the contention that trophy hunting at present levels has had harmful effects on the reproduction, survival, or quality of populations. Offers for international trophy hunting expeditions are generally subspecies and country specific. There is no evidence of offers for *O. v. bocharensis*, *O. v. punjabiensis* and *O. v. vignei* (TRAFFIC Europe, 2000).
Other Information		
Threats	The main threats to all Urial subspecies appear to come from habitat destruction, poaching and trophy hunting of which habitat destruction is likely to be the greatest. Poaching is cited as a major cause of the recent decline in *O. v. arkal* populations in Kazakhstan, Turkmenistan and Uzbekistan. Poaching is also cited as the greatest threat to Urial in Pakistan, and to *O. v. severtzovi* in Uzbekistan.	Fedosenko (2000) comments that *O. v. arkal, O.v. bocharensis* and *O.v. severtzovi* occur in accessible habitats and are suffering from increasing poaching and livestock grazing. Des Clers (1999) adds that wolf predation affects populations of *O.v. arkal* in Kazakhstan. *O.v. bocharensis* and *O.v. severtzovi* are threatened by agricultural development; *O.v. arkal* is threatened by industrial development; Uzbek populations of *O.v. bocharensis* are threatened by genetic isolation and all subspecies are threatened by competition with domestic cattle, poaching and disease spread from livestock (Abdunazarov, Bykova, Esipov and Kreuzberg-Mukhina 1999)
Conservation, management and legislation	The SS states that more recent population and distribution data are required for all subspecies of Urial, especially in Iran and Afghanistan. The number of protected areas inhabited by the various subspecies is summarised in the SS, with a suggestion that in each case, the number and/or size of the areas is probably inadequate for the protection of the subspecies. The cross-border ranges of many Urial pose conservation problems, as many borders are still sites of armed dispute. Urial are often used as targets for armed personnel in such areas. Tajikistan and Turkmenistan established quotas in 1999, for 10 hunting trophies as re-exports from Tajikistan, and for 25 hunting trophies as re-exports from Turkmenistan. In Iran, hunting of *O.v. arkal* in protected areas is banned, and hunting	Festa-Bianchet (1999) notes that there is considerable incentive for illegal hunting due to the large sums of money involved, particularly in the face of lax enforcement. The listing in Appendix I is likely to facilitate the enforcement of conservation laws, and would allow limited scientific-based, sustainable trophy hunting programmes to continue (Festa-Bianchet, 1999; Shackleton, 2000). Valdez (1999) and Pereladova (2000) comment that an Appendix-I listing may remove the economic incentive for Urial conservation. Des Clers (1999) comments that owing to civil unrest, no sport-hunting is carried out in Afghanistan.

	Supporting Statement (SS)	Additional information
	outside such areas is subject to a hunting season, and requires a license. In Tajikistan, *O.v. bocharensis* is protected from illegal shooting, and this subspecies is also protected in nature reserves in Uzbekistan. *Ovis v. cycloceros* is fully protected in the territory of Islamabad in Pakistan, but only females are fully protected in the NWFP. *Ovis .v. punjabiensis* is fully protected in both the capital territory of Islamabad and in NWFP. In Baluchistan, only the females of both subspecies are fully protected.	
Similar species	The SS suggests that CITES identification sheets are needed to help control illegal trade.	Shackleton (1997) notes that Mouflon sheep are sometimes classified as the same species as Urial. This is partly due to the significance of chromosome numbers, which range in *Ovis* from 54 in Mouflon to 58 in Urial. Confusion lies with populations in which individuals have an intermediate number of chromosomes. A single species is retained in the IUCN/SSC Caprinae Action Plan for both Urial and Mouflon. Festa-Bianchet (1999) notes that it is particularly difficult to distinguish between subspecies based on horns and capes brought back by trophy hunters. However, des Clers (1999) suggests that trophies are readily identifiable by both hunters and range States. Tareen (1999) comments that the taxonomic classification of the Urial has caused confusion and problems with regulation of trade.
Other comments	Comments were received on the proposal from the governments of Kazakhstan, Turkmenistan and the Russian Federation. Both Kazakhstan and Turkmenistan consider that there is no reason to include the remaining subspecies of Urial in Appendix I, and the Russian Federation's preliminary comments suggest that it may be more appropriate to list some of the subspecies in Appendix II.	Festa-Bianchet (1999) comments that the difficulty of identifying Urials of different subspecies, and the unresolved taxonomic problems are strongly in favour of a single listing under Appendix I, both from a biological and law enforcement point of view. Valdez (1999) considers the proposal to be unwarranted, counterproductive and based on unfounded data. He notes that any decisions need to be based on scientific information that is presently lacking. Pereladova (2000) comments that enforcement problems may arise if there are different listings due to the uncertain taxonomy of Urials, but further considers that as all subspecies are in different situations, they should be regarded separately.

Reviewers: B. Abdunazarov, E. Bykova, B. des Clers, A. Esipov, A.K. Fedosenko, M. Festa-Bianchet, D. Hofer, J. Jackson, E. Kreuzberg-Mukhina, O. Pereladova, D. Shackleton, TRAFFIC Europe, R. Valdez.

Transfer of the Argentine population of Lesser Rhea *Pterocnemia pennata pennata* from Appendix I to Appendix II. Proponent: Argentina.

Summary: The Lesser Rhea *Pterocnemia pennata pennata* is a large flightless bird, standing around 1 m tall, weighing up to 20 kg. It ranges on the scrubland of Patagonia and the grasslands of the Andes at altitudes up to 2 000 m. Rheas congregate in winter, dividing into smaller flocks for the summer breeding season. Offspring are reared by the males, and come into breeding condition after about two years. Longevity is less than 20 years. Local people exploit both Rheas and their eggs for food, and feathers are used to make dusters. Rheas often co-exist with domestic livestock, with which they have relatively little dietary overlap. The species as a whole was listed in Appendix II in 1975, and was subsequently transferred to Appendix I in 1979. From limited survey data, it appears that the Argentine population of Lesser Rheas has been relatively stable recently. The proposal aims to transfer the Argentine population of the subspecies *P. p. pennata* from Appendix I to Appendix II, in accordance with Resolution Conf. 9.24, Annex 4 criteria B 2bi) and 2bii). Chilean populations of *P.p. pennata* would remain on Appendix I.

Analysis: Following Resolution Conf. 9.24, Annex 1, it would appear that the subspecies does not seem to meet the biological criteria for inclusion in Appendix I. The population does not appear to be small, or restricted in distribution, and therefore is unlikely to meet the numerical guidelines for biological criteria A and B. The limited population data available suggest that there have not been significant declines in populations, and it therefore seems unlikely that the population meets the guidelines for criterion C. Available information does not suggest that the population may meet any of these criteria in the next five years, and as such, criterion D is also unlikely to be met. As the biological criteria for inclusion in Appendix I do not appear to be met, consideration should be given to the relevant precautionary measures in Annex 4 of Resolution Conf. 9.24 (B 2bi and 2bii). The proposed management of captive-breeding operations and monitoring of the wild population addresses paragraphs B 2bi and 2bii of Annex 4, regarding compliance with the Convention, and in particular the implementation of Article IV. Resolution Conf. 9.24 Annex 3 states that listing of a species in more than one Appendix should be avoided in view of the enforcement problems in creates. When split-listing does occur, this should generally be on the basis of national or continental populations, rather than subspecies (Res. Conf. 9.24, Annex 3). Further, taxonomic names below the species level should not be used in the Appendices unless the taxon in question is highly distinctive and the use of the name would not give rise to enforcement problems (Res. Conf. 9.24, Annex 3). It would appear that the subspecies in question is distinguishable from other subspecies, and that the management plans proposed for the trade in captive-bred specimens are likely to reduce any problems due to enforcement.

	Supporting Statement (SS)	**Additional information**
Taxonomy	*Pterocnemia pennata pennata* is one of three subspecies of Lesser Rhea. Two synonyms for the species are noted: *Rhea pennata* and *R. darwini*. The species is also known as Darwin's Rhea.	Reviewers concur with the SS.
Range	The subspecies *P. p. pennata* occurs in southern Chile, west-central and southern Argentina, and on the island of Tierra del Fuego, where it was introduced. The species as a whole is found in Argentina, Bolivia, Chile and Peru.	Reviewers concur with the SS.
IUCN Global Category	LR/nt	
Biological criteria		

	Supporting Statement (SS)	Additional information
A) Small wild population	The SS states that the current status of the subspecies is reflected in 1998 survey data. The survey estimated populations in a number of sites in the Argentine Patagonia. The total population was then estimated by calculating the overall habitat and applying the average density from the survey across the range. The overall population of the subspecies in Argentina is estimated at around one and a half million. The SS also suggests that the population size in the recent past was somewhere between 170 000 and over a million, based on density estimations.	TRAFFIC South America (2000) comment that the methodology used in the surveys has been used successfully before. Reviewers concur that the species does not have a small population, although Haene (2000) notes that population densities vary considerably throughout its range.
B) Restricted area of distribution	The habitat currently available to the subspecies, all in the Argentine Patagonia, covers approximately 670 000 km^2.	Reviewers generally concur with the SS. Haene (2000) notes that distribution may be somewhat fragmented at the edges of the range. From the information available, it would appear that the subspecies does not meet the numerical guidelines for a restricted distribution.
C) Decline in number of wild individuals	From questionnaire surveys, declines over the last ten years were noted from 40% of respondents, compared to 41% suggesting that populations had remained stable and 18% suggesting population increases over the same period. However, estimated population densities based on field observations appeared to be greater in 1998 than from surveys carried out in the past. The SS suggests that there have been recent increases in Rhea numbers, although no quantifiable information is provided.	TRAFFIC South America (2000) note that population trends cannot be clearly determined from the information presented in the proposal. Haene (2000) comments that, owing to the difficulty of surveying the taxon, it is difficult to determine overall population trends.
D) Status suggests inclusion in Appendix I within five years	Information in the SS suggests that the subspecies is not likely to meet the criteria for inclusion in Appendix I in the next five years.	Reviewers generally concur with the SS.
Trade criteria		
The species is, or may be, affected by trade	There has been limited trade over the last 20 years, with the majority of individuals originating from Chile, and being traded with zoos. Between 1978 and 1987, 25 live specimens were reportedly exported, while between 1987 and 1997 specimens exported rose to 57. No information is available on illegal trade in this subspecies.	CITES Annual Report data show that international trade between 1988 and 1998 is almost entirely with zoos. All specimens in trade have been recorded as captive-bred. Along with Chile, CITES Annual Report data show that Germany has also been a major exporter. TRAFFIC South America (2000) note that as trade has generally not been recorded at the subspecies level, it is uncertain how many of the individuals in trade have been *P. p pennata*. TRAFFIC South America (2000) concurs that there is no evidence of illegal trade in this subspecies, or in the species as a whole.

	Supporting Statement (SS)	Additional information
Precautionary measures		
B2b: CoP satisfied with: i) implementation of Article IV	The SS states that Argentina will only trade specimens of the subspecies in accordance with regulations covering Appendix II, and using the additional means of identification and certification described below (in precautionary measure B2b ii). There will be no capture of wild specimens for commercial purposes, and trade will be limited to animals produced on farms. Gathering of eggs will only be authorised from wild populations for use as initial breeding stock for new farms, and to introduce genetic variation in existing breeding stock where necessary. Captive breeding operations will remain restricted to the area of distribution of the subspecies, in order to optimise management and avoid problems derived from accidental release, especially in areas where the other Argentine subspecies occur. It is planned to carry out periodic monitoring of wild Rhea populations in several Patagonian provinces. The monitoring will be conducted every one or two years, depending on the situation, using methodology similar to that employed in 1998 by the provincial wildlife authorities.	The proposed management of captive-breeding operations and the monitoring of the wild population would appear to be sufficient to ensure that Article IV can be implemented if the proposal is adopted.
B2b: CoP satisfied with: ii) enforcement controls	Captive-breeding operations will be registered and all specimens from such operations will be identified with a system of implanted microchips. This identification will be monitored and will cover all juveniles over four months of age. A system of mandatory forms will cover aspects of registration, monitoring of stock levels held at facilities and movement of breeding stock between facilities.	The proposed management of the captive-breeding operations would appear to comply with the requirements of the Convention.
Other information		
Threats	The SS comments that potential threats to the subspecies include hunting, gathering of eggs, egg predation by armadillos, predation by wolves, cougars and dogs, human disturbance and climatic factors. Habitat loss from agricultural encroachment does not appear to be a significant threat, as there is a low degree of overlap between the diet of Rheas and that of domestic stock. The SS states that threats to the Patagonian subspecies under consideration are currently insignificant.	*Pterocnemia p. garleppi* have difficulty hatching their eggs successfully in areas of intensive grazing by livestock (Cajul, 1988).
Conservation, management and legislation	Argentina has been a Party to CITES since 1981. Each province in Argentina has its own regulations on conservation, wildlife management, captive breeding operations and commercial and sport hunting of wildlife. The degree of protection afforded to Lesser Rheas is only noted for one of the three range provinces, where it is a protected species.	
Captive breeding	There are a total of 19 Rhea farms in Patagonia, containing around 600	In their study on the conservation and management of Lesser Rheas in

	Supporting Statement (SS)	Additional information
	animals between them. Productivity is believed to be similar to that of most of the Rhea breeding farms in the rest of the world. The number of individuals of the subspecies in captive breeding operations outside of Argentina is unknown, although believed to be insignificant.	Patagonia, Navarro and Martella (1999) conclude that commercial breeding farms are well established and efficient in their production. The farms appear to be profitable, and may constitute an important economic activity in Patagonia (Navarro and Martella, 1999).
Similar species	Both *P. p. garleppi* and the Common Rhea *Rhea americana* are also found in Argentina, although the populations are geographically isolated, and are distinguishable by the differences in their tarsi and feathers. The Common Rhea is currently listed on Appendix II.	TRAFFIC South America (2000) note that necessary measures seem to be in place to differentiate products of the two Rhea species.
Other information	Chile, as the only other range State of the subspecies, was consulted during the preparation of the SS, and supports the proposal.	Although exports are to be limited initially to captive-bred specimens, there is no mention of an export quota in the SS.

Reviewers: C. Bertonatti, J.C. Chebez, E. Haene, TRAFFIC South America.

Transfer of North American populations of Gyrfalcon *Falco rusticolus* from Appendix I to Appendix II. Proponent: United States of America.

Summary: The Gyrfalcon *Falco rusticolus* is found in subarctic and arctic environments around the world. The North American population is estimated at 18 000 birds of which 3 000 are breeding pairs. Numbers fluctuate greatly but North American populations do not appear to have declined or increased overall. The species is considered a vulnerable species in Europe and possible population declines may have occurred in Russia and Norway. Gyrfalcons are primarily in demand for falconry and captive breeding. The vast majority of international trade, and all exports from Canada and the USA between 1988 and 1998, in Gyrfalcon have been of captive-bred birds. Since 1988, the numbers of live Gyrfalcon in trade have been increasing. The countries reporting the highest levels of exports of pure Gyrfalcons during this period were Canada, the USA, and Germany, while high levels of imports were reported by the United Arab Emirates. In addition to the trade in pure Gyrfalcons, a large number of hybrid birds, particularly Gyrfalcon/Peregrine and Gyrfalcon/Saker Falcon hybrids, are traded internationally. *F. rusticolus* was listed in Appendix II under *Falconidae* spp. in 1975, and in Appendix I in 1979. The North American population was transferred to Appendix II in 1981, but transferred back to Appendix I in 1985 due to enforcement problems created by the split-listing. The supporting statement notes that the potential negative effects of the proposed split-listing between North American and Eurasian birds will be addressed by the zero quota for wild-caught birds. In addition, the development of forensic techniques to identify specimens provides an additional enforcement control measure. Saudi Arabia maintains a reservation on the Appendix I listing (since 1996).

Analysis: The available evidence suggests that the North American population of Gyrfalcon may not meet the biological criteria for inclusion in Appendix I. The North American population does not appear to be small. The wild population does not have a restricted distribution (criterion B, Annex 1), and, despite large annual fluctuations, the North American population does not appear to have shown an overall decline (criterion C, Annex 1). It is unlikely given the management controls in place that the North American populations of *F. rusticolus* will satisfy one or more of the biological criteria for inclusion in Appendix I within a period of five years if the transfer to Appendix II took place. The species is known to be in international trade, and although the majority of reported trade is in captive-bred birds, some demand among falconers and breeders is thought to exist for wild birds. The transfer of North American populations of *F. rusticolus* to Appendix II is unlikely to stimulate trade in or cause enforcement problems for any other species in Appendix I, but it may cause enforcement problems for the Eurasian populations of *F. rusticolus* which will remain on Appendix I. The transfer of North American populations of *F. rusticolus* to Appendix II will result in a split-listing of this species. Annex 3 (Res. Conf. 9.24) states that listing of a species in more than one Appendix should be avoided in general in view of the enforcement problems it creates. When split-listing does occur, this should generally be on the basis of national or continental populations, as is proposed for *F. rusticolus,* rather than subspecies.

	Supporting Statement (SS)	**Additional information**
Taxonomy	No subspecies is mentioned. Synonym: *Falco gyrfalco*	
Range	Circumpolar. Range States in which the species breeds are USA (Alaska), Canada, Greenland, Iceland, Norway, Sweden, Finland, and Russia.	The species is also recorded in the following countries as a regular non-breeding visitor: Denmark, Estonia, France, and Japan, and as an irregular visitor: Austria, Belgium, Brazil, China, Czechoslovakia, Germany, Ireland, Netherlands, Pakistan, Poland, Portugal, Spain, Switzerland, Ukraine, and United Kingdom.
IUCN Global Category		Nt

	Supporting Statement (SS)	Additional information
Biological criteria		
A) Small wild population	The North American population is estimated to be 18 000 including 3 000 breeding pairs (375 to 635 pairs in Alaska, 750 pairs in Yukon, 1 300 pairs in the Northwest Territories, 500 pairs (at least) in Ungava and Labrador).	Most estimates are based on the number of breeding pairs and the number of non-breeding adults and immatures is often uncertain (Swem, 2000).
iv) large population fluctuations	Breeding populations fluctuate greatly in number in a given region over a span of a few years. Breeding success is strongly influenced by weather and food abundance, both of which are highly variable.	
v) high vulnerability due to biology or behaviour	While some Gyrfalcons, particularly adult males, remain on the breeding grounds throughout the year, others are migratory, moving south into wintering area. Most of the birds seen far south of the breeding range are females.	The use of traditional nest sites makes gyrfalcons vulnerable to mismanagement and illegal collection of eggs and nestlings (Mossop, 2000).
B) Restricted area of distribution	The species is widely distributed in North America but at low densities. Distribution is patchy due to the availability of suitable nesting sites.	
C) Decline in number of wild individuals	Numbers fluctuate greatly but North American populations do not appear to have declined or increased overall.	Reviewers concur that, although accurate population monitoring of this species is difficult, an undetected significant decrease in North American populations is unlikely. In addition, there is no suggestion that the area or quality of habitat has been sufficiently reduced to cause significant changes in North American populations (Bird, 2000; Poole, 2000).
D) Status suggests inclusion in Appendix I within five years		It is unlikely given the management controls in place that the North American Gyrfalcon populations will satisfy this criterion if transferred to Appendix II.
Trade criteria		
The species is, or may be, affected by trade	Gyrfalcons are primarily in demand for falconry and captive breeding. All Gyrfalcons exported from Canada and USA since 1984 have been captive-bred birds. For both the USA and Canada, captive-bred birds must be closed banded and the numbers provided to the appropriate government authorities. International demand for specimens for breeding and falconry is apparently met by captive populations. Although permits can be obtained to collect birds from the wild in the USA and Canada, the number of birds taken in any given year is very small (less than a dozen). Neither Canada nor the USA has experienced significant falcon poaching or smuggling for at least ten years.	Examination of CITES Annual Report Data (1988-1998) shows that almost all international trade (>99% of specimens traded) in *F. rusticolus* has been of captive-bred birds. Since 1988, the numbers of live *F. rusticolus* in trade have been increasing. The countries reporting the highest levels of exports during this period were Canada (343 birds), the USA (220 birds), and Germany (219 live birds) while relatively high levels of imports were reported by the United Arab Emirates (651 birds), Great Britain (174 birds) and Germany (101 birds). The majority of reported imports into the United Arab Emirates have been in recent years (190 birds in 1994, and 431 birds in 1997, no annual reports submitted for 1995 and 1996). Overall, an increasing trend towards commercial trade in captive-bred birds was reported, compared with trade for personal purposes. Gyrfalcons are currently very popular among falconers in the Middle East,

	Supporting Statement (SS)	Additional information
		and relatively high mortality rates ensure that demand remains high (Parry-Jones, 2000). A number of countries in the Middle East are not Parties to CITES and the total level of imports into this area are not known. Although the majority of reported trade in Gyrfalcons is in captive-bred birds, some demand among falconers and breeders is thought to exist for wild birds, to improve captive breeding stock and because they can be sold for higher prices. Captive-bred birds sell for between USD300 and USD7 000 in Canada but high quality wild-caught birds may be sold for over USD13 000; (TRAFFIC North America-Canada, 2000). Since wild caught Gyrfalcons fetch a premium price, it seems unlikely that there is no illegal trade (Smith, 2000). Recent evidence of illegal trade in Gyrfalcons is minimal, however, and the levels of illegal harvests with the current management controls in place are unlikely to have a significant impact on the North American populations.
Precautionary measures		
B2a: Not in demand for international trade, nor transfer likely to stimulate trade in or cause enforcement problems for other Appendix I species	International demand for Gyrfalcons exists, for breeding and falconry, but is apparently met by captive populations. The potential negative effects of a split-listing between North American and Eurasian birds (e.g. increased potential for illegal trade, similarity of appearance) will be addressed by the zero quota for wild-caught birds. Less restrictive trade of captive-bred birds may reduce the demand for wild birds. Estimates for Eurasian Gyrfalcon populations (not proposed for transfer) are - Greenland, about 500 – 1 000 pairs; Iceland, 300 to 400 pairs; Eurasia, 300 – 500 pairs in Norway, 100-150 pairs in Sweden, 30 pairs in Finland, 50 - 200 pairs in Russia. Russian population may be 750 - 1 000 pairs. In the Red Data Book of the USSR (1978). Gyrfalcon was considered to be 'endangered', possibly due to lack of information, but more recently it has been listed as 'rare' with fairly stable numbers. There is a possible downward trend in the Greenland population, but no recorded changes in Iceland or Scandinavia populations. No data are available on long term population trends in Russia.	Although a small increase in illegal harvest of wild birds is unlikely to impact North American populations significantly, it may have a greater impact on the less secure Eurasian populations. In Europe, the status of *F. rusticolus* is considered to be Vulnerable, with only approximately 1 300 to 2 300 breeding pairs (Tucker and Heath, 1994). Since the proposed transfer will facilitate trade in captive-bred birds, this may increase the incentive for harvesting of eggs or young from the wild, which would then be introduced into captivity and traded by falsely declaring their parentage (Wetton, 2000). The transfer of North American Gyrfalcon populations to Appendix II is unlikely to stimulate trade in or cause enforcement problems for any other species in Appendix I. The only concern may result from the high level of trade in hybrids. The relative numbers of Gyrfalcon hybrids and pure Gyrfalcons bred in captivity in the United Kingdom (between 1994 and 1999, DETR, 2000) and imported into the United Arab Emirates (from CITES Annual Reports) suggests that levels of trade in Gyrfalcon hybrids is likely to be 15 - 20 times that of pure Gyrfalcons. Unless the parentage of hybrids is fully identified, there is the possibility of Appendix I species/Appendix II species hybrids being treated as Appendix II specimens. This is primarily likely to be a problem for the Peregrine (*F. peregrinus*).
B2b: CoP satisfied with: i) implementation of Article IV	In both the USA and Canada, the possession and movement of Gyrfalcons is closely monitored, through a permit system.	A large proportion of the trade in Gyrfalcons is in hybrid birds, particularly Gyrfalcon/Peregrine and Gyrfalcon/Saker Falcon hybrids. Since the Peregrine is on Appendix I, Gyrfalcon/Peregrine hybrids will continue to be treated as Appendix I species (Res. Conf. 10.17), even if North American populations are transferred to Appendix II. Saker Falcons are on Appendix II. Similarly, breeding facilities producing Gyrfalcon/Peregrine hybrids would

	Supporting Statement (SS)	Additional information
		still need to be registered with the CITES Secretariat.
B2b: CoP satisfied with: ii) enforcement controls	Split listing of this species caused enforcement problems when North American Gyrfalcons were transferred to Appendix II in 1981. The SS states that since most, if not all, Gyrfalcons currently in international trade are captive-bred and it is unlikely that split listing would cause the same problems, particularly given the development of forensic techniques to identify specimens. In both the USA and Canada, all captive bred birds must be closed banded and the numbers provided to government authorities. Currently 20 private breeders in the Canada and the USA hold Gyrfalcons as breeding stock, of which seven are registered with the Secretariat as commercial breeding operations. The transfer to Appendix II would mean that breeding facilities for Gyrfalcons would no longer need to be registered with the CITES Secretariat. Breeders would still, however, be regulated by State/Provincial and Federal laws. Import into the European Union would require import permits, regardless of whether the North American population is listed on Appendix I or Appendix II, providing additional protection for birds imported into the European Union.	Genetic differences between the captive Gyrfalcon population and wild populations are currently insufficient to enable a single bird to be reliably assigned to either the captive or wild populations using DNA techniques (Wetton, 2000). Although techniques may be in development which will enable determination of the likelihood of a sampled bird coming from particular populations (White, 2000), it is not currently possible to determine with certainty the geographical area of a wild-caught bird (Mellars, 2000). Only by testing the claimed parents and offspring together could the origin of a bird be deduced. In Canada, although international trade is controlled by the Federal Government, and harvest from the wild is only allowed under permit, possession, captive breeding and internal trade is regulated by individual provinces or territories. Consequently, there is no consistent banding program in place and the licensing and monitoring of breeding operations varies (Smith, 2000). Although the lack of registration of breeding facilities with the CITES Secretariat under an Appendix II listing would make control of breeding facilities more difficult (TRAFFIC North America-Canada, 2000), the proportion registered at present is low. The number of breeders of Gyrfalcon in North America is thought to be higher than stated in the SS (Smith, 2000) and suggests that monitoring of breeding establishments may not be adequate.
Other information		
Proposed Annotation	Zero quota for export of wild birds.	
Threats	No significant threats to North American Gyrfalcon populations in the foreseeable future have been identified.	
Conservation, management and legislation	In the USA, the Gyrfalcon is protected under the provisions of the Migratory Bird Treaty Act (MBTA), which prohibits and/or controls commercial trade in migratory species, as well as by State laws. This will not change under an Appendix II listing. In Canada, the Gyrfalcon is federally protected only through the provisions of CITES, while each province or territory has its own legal protection. In both the USA and Canada, some jurisdictions allow collection of wild Gyrfalcons for personal use, but these birds cannot be exported for commercial purposes. Gyrfalcons are bred in captivity in both USA and Canada. The last official summary of Gyrfalcon by the U.S. Fish and Wildlife Service in	The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) listed *F. rusticolus* as “not at risk” in 1978 and reconfirmed that status in 1987. As populations continue to appear healthy, the COSEWIC Birds Subcommittee has not since revisited the species, except to monitor summary information (Hyslop, 2000). Gyrfalcon will remain on Annex A of the European Union (EU) Wildlife Trade Regulations, as it is listed on Annex 1 of the EU Council Directive on the Conservation of Wild Birds (79/409/EEC). Under these regulations, import permits are required at first introduction into the EU, and export or re-export permits required when exporting to outside the EU. Commercial trade within the EU in Annex A specimens is generally prohibited, but with some

	Supporting Statement (SS)	Additional information
	1988 listed 122 gyrfalcons in captivity in the USA, which produced 47 offspring that year (including hybrids). More recent information suggests that about 300 gyrfalcons are being kept for breeding purposes in Canada and the USA, producing about 150 offspring (including hybrids) each year. More than 20 private breeders in the USA and Canada have established breeding programmes for gyrfalcons and their hybrids. Gyrfalcons have been bred through the F4 generation and thought to be self-sustaining. Most gyrfalcons kept by breeders in North America are now captive-bred individuals.	exceptions. It is listed in Appendix I of the Bonn Convention on the Conservation of Migratory Species of Wild Animals (1979). Individual research projects may have difficulty detecting trends, unless very dramatic, due to low population densities and large population fluctuations (Poole, 2000). A voluntary genetic databank including samples from all Gyrfalcon and Peregrine breeding birds owned by Canadian certified breeders is being established (Lafleur, 2000).
Similar species	The only species with the Gyrfalcon is likely to be confused is the Saker Falcon (*F. cherrug*). Differentiation of the two species by a non-expert or even expert is difficult, without knowledge of the bird's geographic origin. The Saker does not, however, occur naturally in North America.	Excessive harvests of Saker Falcons (Appendix II) have been reported in some parts of their natural range, and illegal trade in this species is known to have occurred.

Reviewers: D.M. Bird, G. Holroyd, D.H. Mossop, O.K. Nielsen, J. Parry-Jones, K.G. Poole, M.C. Smith, T. Swem, J. Wright, TRAFFIC North America-Canada

Introduction to proposals 11.33 and 11.34: There are two proposals concerning changes to the listing of *Eunymphicus cornutus* in the Appendices, both for transfer from Appendix II to Appendix I: Proposal 11.33 concerns the nominate subspecies, *E. c. cornutus* and 11.34 concerns the only other subspecies, *E. c. uvaeensis*. The species is endemic to New Caledonia; *E. c. cornutus* occurs on the main island, Grande Terre, while *E. c. uvaeensis* is found on the island of Uvea. The whole population of *E. cornutus* is estimated at 2 500 birds, comprising approximately 1 700 *E. c. cornutus* and approximately 800 *E. c. uvaeensis.* Transfer of one subspecies to Appendix I without transfer of the other would involve split-listing of the species. Annex 3 of Resolution Conf. 9.24 states that listing of a species in more than one Appendix should be avoided in general in view of the enforcement problems it creates. When split-listing does occur, this should generally be on the basis of national or continental populations, rather than subspecies. In the case of *E. cornutus*, split-listing on the basis of subspecies may cause particular enforcement problems because juveniles of the two subspecies are not easily separated.

Doc. No.: 11.33

Transfer of Horned Parakeet *Eunymphicus cornutus cornutus* from Appendix II to Appendix I. Proponent: France, at the request of New Caledonia.

Summary: The Horned Parakeet *Eunymphicus cornutus* is endemic to New Caledonia, and *E. c. cornutus* occurs on the main island, Grande Terre. The entire species is listed by IUCN as Vulnerable (C1). The total population of *E. c. cornutus* was estimated to number around 1 700 birds in 1998. The main threats are considered to be forest clearance, predation by rats and trapping for the pet trade. A population of about 500 birds exists in captivity, mainly in Europe. The species *E. cornutus* (data in the CITES Annual Reports are not separated by subspecies) is known to be in international trade; a large proportion of traded birds are captive-bred. The majority of birds in trade in Europe are thought to be *E. c. cornutus*. New Caledonia exported 75 live specimens of *E. cornutus* between 1988 and 1998, of which four specimens were reported as wild-caught. The supporting statement notes that most exports from New Caledonia are of wild-caught birds. Although the hunting, capture and possession of *E. cornutus* were prohibited in New Caledonia in 1972, enforcement is inadequate to prevent illegal harvesting. *E. cornutus* was listed in Appendix II in 1975. The supporting statement refers to the need to include this subspecies in Appendix I on the basis of its similarity *with E. c. uvaeensis*. Although adults of the two subspecies are distinguishable, juveniles are not easily separated.

Analysis: Following Resolution Conf. 9.24, small population size, combined with a restricted area of distribution, suggest that *E. c. cornutus* meets the biological criteria for inclusion in Appendix I (Criteria Ai, iii and v, Biii and and iv, and D). The subspecies is known to be in international trade, but the majority of this trade is reported to be in captive-bred birds, and conclusive evidence of international trade in wild-caught *E. c. cornutus* is lacking. Transfer of this subspecies to Appendix I without transfer of the *E. cornutus uvaeensis* subspecies (see prop 11.34) would involve split-listing of the species, which may result in enforcement problems since juveniles of the two subspecies are not easily separated.

	Supporting Statement (SS)	**Additional information**
Taxonomy		Two subspecies are currently reported, *E.c. cornutus* and *E.c. uvaeensis*, although the differences between them, in morphology, range, ecology, habitat preference and vocalisation, are sufficient to suggest they may be two species (Robinet, 2000). The species is also referred to as Crested Parakeet (Juniper and Parr, 1998).
Range	New Caledonia (France), restricted to the island of Grande Terre.	
IUCN Global Category		VU C1

	Supporting Statement (SS)	Additional information
Biological criteria		
A) Small wild population	Although the population has been estimated at 2 000 to 10 000 individuals, a recent field survey, in 1998, suggested a population of fewer than 1 700 individuals. The supporting statement suggests that *E. c. cornutus* is rarer than previously thought.	Reviewers note that this subspecies is little studied. The estimate of 1 700 birds should be considered approximate (1 000 to 3 000) as it is derived from extrapolation of survey data collected in part of the island. Additional survey data are expected soon (Barré, 2000).
i) population or habitat decline	There is little information concerning trends in population size, but the infrequency of confirmed observations indicate that the population is decreasing.	The area of forest habitat is declining slowly (Dutson, 2000; FAO, 1999). Past forest loss has been substantial in some parts of the island (Bouchet *et al*., 1995).
iii) one subpopulation		Two main areas of concentration exist (containing approximately 800 and 300 birds), and the birds are scarce elsewhere (Barré, 2000). No obvious barriers exist between the two areas of concentration, but the extent of dispersal between them is unknown. Generally, distances between forest blocks on Grande Terre are sufficiently small (tens of kilometres) that dispersal is likely to take place between them (Dutson, 2000). Consequently it is likely that the subspecies is represented by just one population.
v) high vulnerability due to biology or behaviour		Reproductive data from the closely related *E. c. uvaeensis* suggest that the species reproduces slowly. Parrots are, however, generally long-lived (Juniper and Parr, 1998). The annual productivity of *E. c. uvaeensis* is 0.65/pair. Females reach sexual maturity at two years, males at three years. A large proportion of adults do not appear to reproduce (Association pour la sauvegarde de la perruche d'Ouvéa (ASPO), www.netacces.com/aspo/). Availability of nest sites may limit reproductive rates.
B) Restricted area of distribution	The Horned Parakeet is endemic to New Caledonia, where it is found throughout the main island (Grande Terre). Its habitat is the dense, humid forest on the central range of the main island, the forest edge and gallery forests. This habitat covers an area of approximately 3 000 km^2. The density of this subspecies is very low throughout the available habitat; over approximately 600 km^2 of habitat, its density is estimated at 10 pairs per 10 km^2 and elsewhere at 0 to 1 pair per 10 km^2.	Although the potential area of habitat is 3 000 km^2, *E. c. cornutus* appears to be absent from large areas of suitable habitat (Willis, 2000). Whilst habitat availability is apparently not a limiting factor, the total area of humid forest of the type where this subspecies is more common is only 1 200 km^2 (Willis, 2000).
iii) high vulnerability due to biology or behaviour		See above
iv) decrease in distribution, population, habitat or reproductive potential	See above	See above
C) Decline in number of wild individuals		Insufficient survey data are available to enable population trends to be assessed quantitatively.
ii) inferred or projected decline	The infrequency of confirmed observations infer that the population is decreasing.	

	Supporting Statement (SS)	Additional information
Trade criteria		
The species is, or may be, affected by trade	Records indicate that 19 specimens have been exported between 1991 and 1998. *E. cornutus* is reported to be in demand for international trade but no additional information is provided. The SS notes that birds exported from New Caledonia are primarily wild-caught specimens.	CITES Annual Report data do not separate the two subspecies, so the scale of the legal trade in this particular subspecies is difficult to assess. Between 1988 and 1998, 158 live specimens of *E. cornutus* were reported in trade. New Caledonia exported 75 live specimens during this period, the main reported source being captive-bred populations (four specimens were listed as wild-caught). Captive breeding is known to occur in Grande Terre, but its current extent is unknown. Since harvesting of birds from the wild is illegal but not well enforced, it is possible that a proportion of wild-caught birds are claimed to be captive-bred to allow their legal export. The Diadema research project found no evidence of harvesting from the wild during field work between July and December 1998. The vast majority of birds reported as exported from New Caledonia were destined for Europe, despite an import prohibition since 1986. The majority of birds in trade in Europe are thought to be *E.c. cornutus* (TRAFFIC Europe, 2000). More than 100 breeders possess *E. .c. cornutus* in France and Germany (Robinet *et al*., 1995), and the captive population is reported to be genetically viable and increasing slowly, possibly numbering over 500 individuals (Rinke, 2000; TRAFFIC Europe, 2000). The current price for a pair is USD2 500 (TRAFFIC Europe, 2000).
Other information		
Threats	*E. c. cornutus* is reported to be threatened by capture for breeding and international trade, and by rat predation of nests.	The species is threatened by habitat loss (Collar *et al*., 1994).
Conservation, management and legislation	The hunting, capture and possession of *E. cornutus* were prohibited in New Caledonia in 1972. A draft regulation is being prepared by the three provinces of New Caledonia to promote the regulation and management of wild species of fauna and flora. *E. cornutus* is the focus of survey work by several research agencies in New Caledonia. There is no official management plan for this subspecies.	Penalties for illegal hunting, capture or possession are relatively light and rarely applied (USD200-400) (Robinet *et al*., 1995). Approximately 3% of the habitat of this subspecies is protected in La Rivière Bleue Territorial Park while La Reserve de Faune et de Flore de la Nodela is a stronghold for the species. Neither protected area provides complete protection from poaching. Approximately 50% of the habitat of the Horned Parakeet on Grande Terre is inaccessible and therefore protected naturally (Barré, 2000). An intensive study of the distribution and habitat requirements of this subspecies is urgently required. The Société Calédonienne d'Ornithologie plans a population survey for 2000.
Similar species	The two subspecies of *E. cornutus* are very similar in appearance.	The two subspecies of *E. cornutus* are superficially similar but differ in the number of feathers in the crest ("horn") and in head colouration. Juveniles are difficult to distinguish. No other parrot species resembles *E. cornutus*.

Reviewers: N. Barré, G. Dutson, T. Greene, M. Holdsworth, D. Rinke, TRAFFIC Oceania, J. Willis.

Transfer of Uvea Horned Parakeet *Eunymphicus cornutus uvaeensis* from Appendix II to Appendix I. Proponent: France, at the request of New Caledonia.

Summary: The Horned Parakeet *Eunymphicus cornutus* is endemic to New Caledonia and the Uvea Horned Parakeet *E. c. uvaeensis* is found on the island of Uvea. The entire species is classified as Vulnerable by IUCN. The population of *E. c. uvaeensis* was estimated to number around 800 birds in 1998, with two main populations, one estimated at under 500 birds, the other under 200 birds. Populations are thought to have declined in the past as a result of widespread clearance of forests for agriculture. Although most international trade (158 specimens in trade between 1988 and 1998, of which 75 derived from New Caledonia) appears to involve the nominate subspecies, there are indications of limited trade in *E. c. uvaeensis* (30 to 40 individuals per year). The subspecies is difficult to breed in captivity and captive populations outside New Caledonia are small. Although the hunting, capture and possession of *E. cornutus* were prohibited in New Caledonia in 1972, enforcement is inadequate to prevent illegal harvesting. A conservation programme for the species is in place. *E. cornutus* was listed in Appendix II in 1975. The transfer of *E. c. uvaeensis* to Appendix I was proposed at the last Conference of the Parties, but was withdrawn.

Analysis: Small population size, combined with a restricted area of distribution and loss of suitable habitat, suggest that the Uvea Horned Parakeet *E. c. uvaeensis* meets the biological criteria for inclusion in Appendix I (criteria Ai, ii and v, Bi and iv). There are indications of limited international trade in *E. c uvaeensis* (including approximately 30 to 40 wild-caught birds illegally exported each year*)*, although no accurate data on trade in this subspecies are available. A large proportion of the international trade in *E. cornutus* appears to involve captive-bred individuals of the nominate subspecies, *E. c. cornutus*. The lack of success in breeding *E. c. uvaeensis* in captivity suggests that demand for wild-caught birds by overseas collectors will continue. Transfer of this subspecies to Appendix I without transfer of the nominate race (see proposal 11.33) would involve split-listing of the species, which may result in enforcement problems since juveniles of the two subspecies are not easily separated.

	Supporting Statement (SS)	**Additional information**
Taxonomy		Two subspecies of Horned Parakeet are currently reported, *E. c. cornutus* and *E. c. uvaeensis*, although the differences between them, in morphology, range, ecology, habitat preference and vocalisation, are sufficient to suggest they may be two species (Robinet, 2000). The Horned Parakeet is also referred to as Crested Parakeet (Juniper and Parr, 1998).
Range	New Caledonia (France). Endemic to the island of Uvea in the Loyalty Islands.	
IUCN Global Category		VU C1
Biological criteria		
A) Small wild population	In the early 1990s, the subspecies was thought to number approximately 100 - 200 birds. A survey in 1993 estimated the population to be 650 individuals, including 100 nesting pairs, mostly on the north of the island. A more recent survey, in 1998, estimated the population at 800 birds.	The distribution and population size of this subspecies described in the two most recent surveys are considered accurate (Barré, 2000).
i) population or habitat decline	The forest habitat of the Uvea Horned Parakeet is increasingly threatened by clearance for agriculture.	No reliable estimates of population trends exist (see below). The forest on Uvea has been greatly reduced in area since the beginning of the 20th century, being replaced with coconut plantations and subsistence crops (Robinet *et al*., 1995). The rapid rate of decline in forest habitat

	Supporting Statement (SS)	Additional information
		(approximately 30-50% in the last 30 years) may slow with planned conservation action.
ii) small subpopulations	Information in the SS suggests two potential subpopulations, one occurring in the north in approximately 20 km^2 of habitat, the other in the south in approximately 46 km^2 of habitat.	The two potential populations are estimated at 460 (+/-190) birds and 150 (+/-190) (Barré, 2000). The available habitat has become fragmented through clearance for agriculture (Robinet *et al*., 1995) but the extent of dispersal of the birds between forest fragments is unknown.
v) high vulnerability due to biology or behaviour		The annual productivity of *E. c. uvaeensis* is 0.65/pair. Females reach sexual maturity at two years, males at three years. A large proportion of adults do not appear to reproduce (Association pour la sauvegarde de la perruche d'Ouvéa (ASPO), www.netacces.com/aspo/). Parrots are generally long-lived (Juniper and Parr, 1998). Being hole nesters, the availability of nest sites is likely to be a factor limiting reproductive rates.
B) Restricted area of distribution	The main population of the Uvea Horned Parakeet is found in a 20 km^2 area of forest on the northern part of the island of Uvea. Some individuals are also found in strips of forest on the northwest isthmus and in the southern part of the island. Total area of potential habitat is approximately 66 km^2.	*E. c. uvaeensis* once occurred on Mouly, an islet very close to Uvea, but has disappeared due to habitat loss.
i) fragmented or localised population	Information in the supporting statement suggests two potential sub-populations, one occurring in the north in approximately 20 km^2 of habitat, the other in the south in approximately 46 km^2 of habitat.	The two potential populations are estimated at 460 (+/-190) birds and 150 (+/-190) (Barré, 2000).
iv) decrease in distribution, population, habitat or reproductive potential	The forest habitat of the Uvea Horned Parakeet is increasingly threatened by man.	
C) Decline in number of wild individuals	The supporting statement suggests that the population may have increased slightly between 1993 and 1998. The population in the southern part of the island had not shown any increase.	The apparent increase in the population should not be seen as significant since the two surveys were not directly comparable, the second covered a smaller area of habitat. In addition, the range of the 1993 population estimate was substantial, from 274 to 996 birds (Barré, 2000). Consequently no evidence of trends can be derived from the two surveys.
ii) inferred or projected decline		The population is inferred to have declined due to habitat loss (30-50% of forest habitat in the last 30 years) but the extent of the decline is unknown.
D) Status suggests inclusion in Appendix I within five years		The subspecies already meets the biological criteria for inclusion in Appendix I.

	Supporting Statement (SS)	Additional information
Trade criteria		
The species is, or may be, affected by trade	Records indicate that six fledglings were exported to Germany in 1980, two in 1992, and four in 1993. It is estimated that 30 to 40 birds are captured illegally each year for export, normally as nestlings. The trade from Uvea is a threat to the survival of the subspecies because it is supplied entirely with wild caught birds. Harvesting of nestlings often involves the destruction of the nest site, reducing the availability of suitable nesting trees. Inhabitants of Uvea sometimes capture these birds as pets. The captive population in Noumea, on Grande Terre, is thought to be 100 to 150 birds. The captive population outside New Caledonia is small, but the birds are bred in captivity, mainly in Europe.	CITES Annual Report data do not separate the two subspecies of Horned Parakeet, so the scale of the legal trade in this particular subspecies is difficult to assess. Between 1988 and 1998, 158 live specimens of *E. cornutus* were reported in trade. New Caledonia exported 75 live specimens during this period, the main reported source being captive-bred populations. In 1992 and 1993, studies showed that the majority of birds trapped were illegally transported from Uvea to Noumea, and sold for approximately USD200, representing about a third of the minimum monthly wage for Uvean Islanders. Demand in Noumea appears to be high. Once in Noumea, the birds were either sold internally or re-exported, mainly to Europe (Robinet *et al*., 1995). The estimate of 30 to 40 illegally traded birds quoted in the supporting statement is considered to be realistic (Barré, 2000). The captive population in Europe was thought to number about 50 individuals in the early 1990s (Robinet *et al*., 1995). This subspecies is reported to be difficult to breed in captivity and attempts to establish a stable captive population have failed (Rinke, 2000). The lack of success in breeding the subspecies in captivity suggests that demand for wild-caught birds by overseas collectors will continue. Given that parrots are generally long-lived and capable of re-nesting, the impact of harvesting of nestlings for trade on the viability of the wild population is unclear (40 nestlings is the expected annual productivity of 150 pairs using data from the ASPO web page, see above). Robinet *et al*. (1996) consider that current harvest rates of 30-50 nestlings per year may well be unsustainable. Since nest sites are often destroyed during the harvesting process, the availability of nest sites may be a limiting factor.
Other Information		
Threats	Although the Uvea Horned Parakeet is preyed upon by a range of predators, the absence of both the Common Rat and the Brown Rat from Uvea is a major factor contributing to their continued survival. These rats do however, occur on the other Loyalty Islands and on Grande Terre, and there is concern that they may be introduced in the future.	The subspecies is threatened by habitat loss (Robinet *et al*. 1995, 1996, Collar *et al*. 1994).
Conservation, management and legislation	The hunting, capture and possession of *E. cornutus* were prohibited in New Caledonia in 1972. A draft regulation is being prepared by the three provinces of New Caledonia to promote the regulation and management of wild species of fauna and flora.	No formal protected areas exist on Uvea; the land belongs to the Kanak tribes and there are efforts under way to ensure informal protection through the tribal chiefs (Barré, 2000).

	Supporting Statement (SS)	Additional information
	Efforts to introduce birds from Uvea to the neighbouring island of Lifou in 1963 were unsuccessful. A conservation plan was prepared for the species in 1996 and is being implemented by the Association for the Conservation of the Ouvea Parakeet (ASPO). It includes a population and nest monitoring programme, an awareness campaign, conservation measures, particularly to prevent rat introductions, and relocation of birds to the southern part of the island.	
Similar species	The two subspecies of Horned Parakeet are very similar in appearance.	The two subspecies of *E. cornutus* are superficially similar but differ in the number of feathers in the crest ("horn") and in head colouration. Juveniles are difficult to distinguish. No other parrot species resembles *E. cornutus*.

Reviewers: N. Barré, G. Dutson, T. Greene, M. Holdsworth, D. Rinke, TRAFFIC Oceania.

Inclusion of Hwamei *Garrulax canorus* in Appendix II. Proponent: China.

Summary: *Garrulax canorus* (Hwamei) is one of approximately 50 species in the genus *Garrulax*, the laughingthrushes. Many *Garrulax* species are popular cagebirds, kept for their song, mainly in China and Southeast Asia. *G. canorus* occurs predominantly in China, where it is reported to be common and widely distributed, occurring in shrub habitat and secondary vegetation. The population in Hubei Province alone is estimated at 1 to 1.2 million birds. Between 1990 and 1997, China exported large numbers of *G. canorus*, primarily to Southeast Asia (annual exports averaged 41 500 birds). Although the number of birds harvested to supply the export trade is substantial, it comprises a small proportion of the total harvest of this species (an estimated 1.7 million birds are harvested annually in China to supply the national demand for this species). China has stopped issuing export permits for *G. canorus* since August 1998, although significant numbers continued to be exported to Hong Kong throughout 1998 and in 1999. There is no known captive breeding of this species. *G. canorus* is proposed for inclusion in Appendix II in accordance with Article II 2 (a) and Resolution Conf. 9.24, Annex 2a.

Analysis: Following Resolution Conf. 9.24, it is unlikely that *G. canorus* currently meets the criteria for inclusion in Appendix II. However, little detailed information is available concerning the distribution and population size of this species. There does not appear to be any evidence that strict regulation of international trade is needed to prevent the species meeting the biological criteria for inclusion in Appendix I in the near future (Annex 2a, criterion A). Given that *G. canorus* appears to be abundant in at least ten provinces in China, the impact of harvesting to supply the reported levels of international trade is likely to be relatively small. The species does not, therefore, appear to meet criterion B (Annex 2a). From the data it can not be known, inferred or projected that the harvesting of specimens from the wild for international trade has, or may have, a detrimental impact on the species by exceeding, over an extended period, the level that can be continued in perpetuity, or reducing it to a population level at which its survival would be threatened by other influences. Although it is highly likely that illegal international trade is taking place, the scale of this trade, and its impact on the *G. canorus* population, is unknown. Over-harvesting has resulted in local population declines in some areas.

	Supporting Statement (SS)	**Additional information**
Taxonomy	Three subspecies are mentioned.	The species is also known as the Chinese Thrush (Sibley and Monroe,1990). It is possible that the island forms are full species (Carey and Leven, 2000). Sibley and Monroe (1990) place *Garrulax* in the family Sylviidae and subfamily Garrulacinae.
Range	China, Vietnam, and Laos.	The range in China should include Fujian and Guangxi Provinces (Lewthwaite, 1996) and Hong Kong (Viney and Phillipps, 1988). Feral populations occur in Hawaii, Japan and Singapore.
IUCN Global Category		The species is not considered to be threatened.
Biological and trade criteria		
A) Trade regulation needed to prevent future inclusion in Appendix I	*G. canorus* is in demand as a cagebird, particularly in China and Southeast Asia. Annual authorised exports of *G. canorus* from China, 1990 – 1997, averaged around 15 500 birds to the USA, Belgium and Singapore, declining from a peak of 78 000 in 1991 to 60 in 1997. No export data are provided for 1993. In addition, an estimated 26 000 birds were exported annually via Hong Kong, primarily to Belgium, France, Indonesia, Italy and	The number of birds exported from Hong Kong between 1990 and 1992 was actually higher than reported in the supporting statement (62 206, rather than 42 206), bringing the total re-exported from Hong Kong between 1990 and 1997 to 171 581 birds (Nash, 1993; TRAFFIC East Asia, 2000). Since records only include those birds which required health certificates from the country of import, data should only be considered as

	Supporting Statement (SS)	Additional information
	Thailand. No export permits have been issued from China since August 1998. No indication of the level of illegal trade is given. The species is reported to be a relatively common one. Population estimate for *G. c. canorus* in Hubei province alone is 1.0 - 1.2 million individuals. No information is provided on population trends, but the species is not thought to be threatened with extinction. Although the overall distribution of *G. canorus* in China is not thought to have changed very much, habitat loss may have resulted in a more fragmented distribution. *G. c. canorus* is said, however, to occur in a wide range of forested habitats from sea level to 1 500 m. No captive breeding of *G. canorus* is reported.	indicative of actual trade levels. Despite a ban on exports from China since August 1998, Hong Kong reported imports/transits of 22 594 birds in 1998 and 29 139 birds in 1999 (based on import health certificates, required as of 1 January 1998, TRAFFIC East Asia, 2000). A large proportion of these birds were in transit to Malaysia (TRAFFIC East Asia, 2000). Although it is possible that these birds were exported from China under permits issued prior to August 1998 (export permits from China are undated), it is also possible that these numbers reflect illegal exports from China. Malaysia also recorded imports from China (which most likely includes Hong Kong) in 1999 (see below). Although most exports of birds were routed through Hong Kong until the early 1990s, tighter health and quarantine restrictions, resulting from an outbreak of avian influenza in Hong Kong in 1997, have significantly reduced the number of all bird species traded (Melville, 2000). It is possible that China increasingly exports birds direct to the countries of destination (Melville, 2000). Confirmation of export data from China reported in the supporting statement is not currently available from most importing countries. Malaysia, however, records imports of 39 558 birds in 1999. Assuming that these imports also include the 1999 re-exports to Malaysia reported from Hong Kong (20 708), the remaining 18 850 birds were most likely illegally exported directly from China to Malaysia. Imports recorded by Belgian authorities indicate under-reporting of trade from Hong Kong. Belgium reported imports of 821 birds from 1994 – 1996 (Anon, 1998), while reported re-exports from Hong Kong to Belgium for the same period totalled 309 specimens (TRAFFIC East Asia, 2000). Wholesale prices per specimen in Belgium increased almost four-fold from 1995 (USD 4) to 1996 (USD 15). Lower exports of *G. canorus* reported in recent years from China are unlikely to be the result of reduced abundance of these birds in the wild; the species is still described as common in China (MacKinnon, 2000). Little accurate information is available on the total population size or distribution of *G. canorus*. However, given that both the species and its habitat (primarily shrubland, including secondary growth following forest clearance) are regularly described as common, it is unlikely that *G. canorus* will meet the criteria for inclusion in Appendix I in the near future. It apparently thrives in marginal habitats, such as scrub and secondary vegetation, in Vietnam (Robson, 2000).

	Supporting Statement (SS)	Additional information
B) Harvesting for international trade has, or may have, detrimental impact on population i) exceeds sustainable yield ii) reduces population to potentially threatened level	Approximately 41 500 birds are exported annually (between 1990 and 1997, see above). In addition, approximately 1 million *G. canorus* are kept as cagebirds in China and this species is the most commonly traded bird species in that country. The total number of birds harvested for national trade is thought to be about 1.7 - 1.8 million individuals. Because of their song, males are more in demand from bird keepers than females. To capture 100 males for sale as songbirds, it is estimated that 80 females are killed and sold for meat in local markets. Mortality during transport and while awaiting sale ranges from 25 to 50%. Nets are used to harvest *G. canorus* in some areas, e.g. Jiangsu Province, which results in a high proportion of females being caught.	The SS notes that the ratio of males: females collected is 100:80, and only males are traded (the females being eaten). Mortality of captured males prior to sale is a further 25 – 50%. Thus, between 100 000 and 150 000 birds must be harvested annually to supply the recorded export trade, taking average annual exports at around 41 500 birds. In some areas, for example Hong Kong, snares and a decoy bird are used to illegally harvest birds, increasing the proportion of males collected (Melville, 2000).
	No data are available on total population size or trends. The population in Hubei province alone is estimated at 1 - 1.2 million birds. The species is reported to be common.	It is unlikely that harvesting levels are unsustainable for the species as a whole, given that the total number of birds harvested for export is estimated at 100 000 to 150 000 birds (see above), the population in Hubei Province alone is estimated at 1 - 1.2 million birds, and the species is reported to occur in at least ten provinces. More information on population sizes, population trends and harvest levels is required, however, to accurately determine the impact of harvesting on this species. It is possible that over-harvesting has resulted in local population declines in some areas (in Hong Kong for example, where legal protection from harvesting is thought to be one factor contributing to the apparent recovery of this population, Viney and Phillips, 1988; Melville, 2000).
Other information		
Threats	The species is threatened by habitat loss and harvesting for national and international trade.	Although agricultural encroachment and habitat loss are threats for this species, its preferred habitat is still widespread in south China, (Carey and Leven, 2000; Mackinnon, 2000) and Vietnam (Robson, 2000). Although *G. c. taewanus* used to be common in Taiwan, it has recently become rarer, primarily as a result of urbanisation and loss of habitat. Interbreeding with the local subspecies by escaped cage birds of the nominate race may be a threat to *G. c. taewanus* in Taiwan (Severinghaus, 2000).
Conservation, management and legislation	*G. canorus* is protected in Henan and Hubei provinces. No export permits have been issued for this species by China since August 1998.	Hunting/trapping of this species in China requires a permit from the Provincial Wildlife Management Authority, in accordance with Article 18 of the Wild Animal Protection Law (1988). In Hong Kong, the species is protected under the Wild Animals Protection Ordinance, Cap. 170 (Melville, 2000). Although not listed on CITES, exports from China of this species require an export permit issued by the Provincial Wildlife Management Authority

	Supporting Statement (SS)	Additional information
		or by the relevant department of wildlife administration under the State Council in accordance with Notification Number 527 (1990) and Notification Number 8 (1988) (TRAFFIC East Asia, 2000). Enforcement of WAPL (1988) and adherence to trade regulations are weak (TRAFFIC East Asia, 2000) No monitoring programmes are known to be in place (Melville, 2000).
Similar species		*G. canorus* is easily distinguished from other *Garrulax* species. The other *Garrulax* species traded internationally in significant quantities from China is *G. chinensis* (Nash, 1993). Five *Garrulax* species, from China, Vietnam and Sri Lanka, are listed as Vulnerable. All five are threatened by habitat loss, due to logging and agricultural encroachment, but not apparently by trade (Collar *et al*., 1994).

Reviewers: G**.** Carey, J. Fellowes, Y. Kaneko, M.R. Leven, J. Mackinnon, D. Melville, C. Robson, TRAFFIC East Asia.

Inclusion of all species of Box Turtles Genus *Cuora* spp. in Appendix II. Proponent: Germany and the United States of America.

Summary: These fresh water turtle species are widespread throughout southern Asia, from Bangladesh in the west to Japan in the east. The distribution of most of the genus *Cuora* is not well known. They generally have a low reproductive rate producing between one to five eggs per clutch, one to three times per year. Habitat requirements differ between species and range from moist forests, to clear mountain streams, ponds, rivers, and swamps. The global IUCN Red List status of all nine turtle species was recently reassessed and the eight extant species are now considered threatened. Habitat loss is presumed to be affecting most species. However, the main cause for population declines is the major harvest to meet the demands of the Asian food and medicine market, primarily in China. Few data exist to assess trade levels accurately, however data that are available indicate that over the last decade hundreds of thousands of specimens have been traded. The demands for *Cuora* spp. are expected to increase. Some species are afforded protection from capture and export in parts of their range, but in some countries such legislation may not be effectively implemented. The proponents seek inclusion of the species *C. amboinensis, C. flavomarginata, C. galbinifrons* and *C. trifasciata* in Appendix II under criteria Bi and ii. The remainder of the genus (*C. aurocapitata, C. mccordi, C. pani, C. yunnanensis* and *C. zhoui*) are proposed for inclusion in Appendix II under Annex 2b criterion B for reasons of similarity of appearance.

Analysis: Following Resolution Conf. 9.24 the available evidence suggests that the genus *Cuora* meets the criteria for inclusion in Appendix II. *C. amboinensis, C. flavomarginata, C. galbinifrons* and *C. trifasciata* meet the criteria for inclusion in Appendix II on the basis that international trade is known, inferred or projected to be unsustainable (Bi;ii). Data on population status and distribution of individual species are limited and trade data that are recorded are not species specific. Additionally, a substantial amount of trade is likely to be unrecorded. Box turtles (*C. amboinensis, C. flavomarginata, C. galbinifrons* and *C. trifasciata*) are in trade and levels of trade are unlikely to be sustainable. The remainder of the genus *C. aurocapitata, C. mccordi, C. pani, C. yunnanensis* and *C. zhoui* meet the criterion for inclusion in that Appendix to help bring trade in the first four species under control (Annex 2b B).

	Supporting Statement (SS)	**Additional information**
Taxonomy		The taxonomy of some species is in dispute. *C. galbinifrons hainanensis* has been synonymised with *C. g. galbinifrons* (de Bruin, 1999; van Dijk, 2000). *C. g. serrata* is considered by some to be a separate species, *C. serrata* (van Dijk, 2000).
Range	Range information is taken from the text of the SS (rather than Table one of the summary of the SS). *C. amboinensis:* Bangladesh, Cambodia, China (?), India, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, Vietnam. *C. aurocapitata:* China. *C. flavomarginata:* China, including Hong Kong (?), Taiwan, Japan. *C. galbinifrons:* Cambodia, China, Lao PDR, Vietnam. *C. mccordi:* China. *C. pani:* China. *C. trifasciata:* Cambodia (?), China, including Hong Kong, Taiwan, Lao PDR (?), Myanmar (?), Vietnam. *C. yunnanensis:* China. *C. zhoui:* China.	The exact range for most species is unknown. *C. amboinensis* probably does not occur in China (Artner, 1999; de Bruin, 1999; Lau, 1999). There is no proof that *C. trifasciata* occurs in Cambodia (Artner, 1999; de Bruin, 1999; Iverson, 1999; van Dijk, 2000) and it is unlikely to occur in Taiwan (Lau, 1999; van Dijk, 2000) or Myanmar (van Dijk, 2000). *C. yunnanensis* is considered extinct in the wild (Artner, 1999).

	Supporting Statement (SS)	Additional information
IUCN Global Category	*C. amboinensis:* LR/nt *C. aurocapitata:* DD *C. flavomarginata:* VU *C. galbinifrons:* LR/nt *C. mccordi:* DD *C. pani:* DD *C. trifasciata:* EN *C. yunnanensis:* DD *C. zhoui:* DD	The global Red List status of all nine box turtle species in the genus *Cuora* was recently reassessed by the Asian Turtle Trade Working Group during the Workshop on Trade in Tortoises and Freshwater Turtles, held in Phnom Penh, Cambodia. All eight extant species are now considered to be in one of the threatened categories (Critically Endangered, Endangered or Vulnerable). These reassessments have been submitted to the IUCN Red List Authority for tortoises and freshwater turtles, to be evaluated for inclusion in the 2000 IUCN Red List of Threatened Species. Dr. John Behler, Chairman of the IUCN/SSC Tortoise and Freshwater Turtle Specialist Group has indicated that these re-assessments will be accepted (Buhlmann, 2000).
Biological and trade criteria		
B) Harvesting for international trade has, or may have, detrimental impact on population i) exceeds sustainable yield ii) reduces population to potentially threatened level	Asian Box Turtles have a low reproductive rate with one to five eggs produced up to three times per year. They reach sexual maturity from 4-5 years of age and have a life expectancy up to 30 years in their natural habitat. There are no population estimates available, although populations are thought to be declining, some rapidly so. Habitat loss is assumed to affect several species to some extent. *C. amboinensis*: reported as facing near extinction in Lao PDR, thought to be in decline in the Philippines and Thailand and possibly declining in Vietnam. The species is a generalist and able to cope with some disturbance. Its habitat is thought to have decreased due to extensive human relocation programmes in Indonesia. *C. flavomarginata:* reported to be in decline and listed as 'endangered' in the Chinese national Red Data Book. The species is assumed to be in decline in Japan and listed as 'vulnerable' there. *C. galbinifrons:* the species is classified as 'endangered' in China and 'vulnerable' in Vietnam. Its status in Cambodia and Lao PDR is unknown. *C. trifasciata*: the species is listed as 'critically endangered' in the China national Red Data Book, populations in Hong Kong are thought to be much more healthy. In Vietnam the species is listed as 'vulnerable'. The species is approaching extinction in the wild. The greatest threat to these species is from collection for the Asian food and medicine market. Some species are consumed and a lower number of specimens are traded internationally as pets.	Lau (1999) believes that habitat loss will continue, possibly at an accelerated rate. He also notes that no detailed population study has been undertaken of any *Cuora* species; but concludes that based on trade data and the biology of the species (long period to maturity and low reproductive rates), the number of adults in the wild must be decreasing. China including Hong Kong: very little data or quantitative information exists on the legal international trade. However, data that are available for Hong Kong indicate a fairly stable level of imports of all turtle species of 2 000 to 3 000 tonnes per year. In 1994, *Cuora* spp. accounted for 5 to 10% of the number of all turtles traded in Hong Kong and southern China. Recent market surveys found four *Cuora* spp. to be amongst the ten most numerous turtle species on sale there (van Dijk, 2000).

	Supporting Statement (SS)	Additional information
	C. amboinensis: the second most abundant species and accounts for most of the trade. Exports from Indonesia affect both sexes and all age groups. Annual exports of plastrons destined for Hong Kong can reach up to 13 tonnes (representing 200 000 specimens) from Sulawesi alone. Malaysia regularly exports *C. amboinensis* to Vietnam, for shipment to China. The Philippines exports only captive-bred specimens. A substantial trade in this species occurs through Singapore with 90% of specimens re-exported, a similar re-export quantity is reported for Vietnam, with most re-exports destined for China. Hundreds of thousands of specimens have been imported into China and Hong Kong during the last decade. *C. flavomarginata*: has become scarce in Chinese food markets, causing significant price increases, which in turn lead to increased incentive for collection. *C. galbinifrons*: no data is available regarding trade in this species for food and traditional medicine. However, during the last decade thousands of specimens were imported into the European Union as well as around 5 000 per year to the USA as pets. *C. trifasciata* has been exported from China in large numbers for several years. It is not certain how much of the trade in China is legal. Large individuals for international collections have fetched prices of up to USD 3 000. This species may no longer be offered for sale in food markets in China. In Vietnam, prices rose from USD 300 in 1993 to USD 1 000 in 1997, since then the species has not been observed at markets there. The volume of turtles imported into Hong Kong increased from 139 000 kg in 1977 to 1.8 million kg in 1994. There is large-scale cross-border illegal trade and several species are assumed to be included in this trade.	*C. amboinensis*: about 800 tonnes (1 million individuals) are estimated to be exported from Indonesia annually, much smaller numbers are exported from other range States. The 1994 export quota for this species from Indonesia was for 10 000 individuals. Hong Kong alone declared almost 150 000 specimen imports from Indonesia in the same year (van Dijk, 2000). Shepherd (1999) does not believe that the current levels of trade in *C. amboinensis* from Sumatra to be sustainable. *C. galbinifrons*: is present in 81% of turtles shipments inspected in northern Vietnam and it is the third most numerous species in those shipments (van Dijk, 2000). van Dijk (2000) is not aware of any monitoring or realistic attempts to use *Cuora* spp. sustainably.
Specimens resemble other species and are difficult to distinguish, or most of taxon is already listed	*C. aurocapitata, C. mccordi, C. pani, C. yunnanensis* and *C. zhoui* are proposed for inclusion in Appendix II to help bring trade in the other four species in the genus under control.	
Other information		
Threats	Most species are considered to be threatened to some extent by habitat loss.	
Conservation, management	*C. amboinensis*: hunting and export are prohibited in Bangladesh,	Shepherd (1999) reports that trappers and traders do not adhere to the

	Supporting Statement (SS)	Additional information
and legislation	Cambodia, Lao PDR and Thailand. Exports are prohibited from Myanmar and Vietnam and controlled through quotas from Indonesia. The species is afforded no legal protection in India or Malaysia. The protection status is unknown in Singapore. *C. flavomarginata*: protected from capture in Japan and requires a permit for capture and transport in China. *C. galbinifrons*: hunting and export are prohibited in Cambodia. Capture is prohibited in Lao PDR and it is excluded from legal trade in Vietnam. The species is not protected in China. *C. trifasciata*: hunting and export are prohibited in Cambodia and the species is excluded from legal trade in Vietnam. In China a permit is required for capture, transport and trade. In addition some species are afforded some level of protection through their occurrence in protected areas.	quotas set for *C. amboinensis.* Although many countries have regulations protecting Chelonia, or controlling their international trade, many controls are not adequately enforced (Lau, 1999).
Similar species	*Cuora* in general and especially *C. amboinensis* resembles *Mauremys mutica. C. amboinensis* also resembles *Annamemys annamemensis.* Hatchlings in general are very difficult to distinguish by species. The flexibility of the plastron which is characteristic for some genera like *Cuora* is not developed until 12 to 14 months.	
Captive breeding	Some species bred in captivity outside the range States including *C. amboinensis* on a small scale There are some attempts to breed *C. trifasciata* in China on a commercial scale for medicinal purposes.	van Dijk (2000) is not aware of comprehensive captive breeding efforts for *Cuora* spp. in the range States, except for *C. trifasciata* in China.
Other comments	There have been several recommendations to include or explore inclusion of at least *C. amboinensis* and *C. trifasciata* in the Appendices. Cambodia as a range State of at least three *Cuora spp*. supports the proposal.	The majority of reviewers believe the information in the SS on biology, trade, conservation and management to be generally accurate and comprehensive. Gaulke (1999) believes the proposal to be important, and suggests that the Genus would benefit further from harvest quotas and size restrictions for specimens in trade.

Reviewers: H. Artner, R. de Bruin, P. P. van Dijk, J. Iverson, M. Lau, M. Gaulke, C. Shepperd, TRAFFIC Southeast Asia.

Inclusion of Spotted Turtle *Clemmys guttata* in Appendix II. Proponent: United States of America.

Summary: *Clemmys guttata* is a small, semi-aquatic turtle, widespread in the eastern USA and parts of southern Canada. It occupies a variety of wetland habitats, from small swamps to brackish tidal streams, and hibernates in the cold season, often in congregations of over 20 individuals. In line with many freshwater turtle species, it has low fecundity (usually producing one clutch of around four eggs each year), variable breeding success and shows late maturity (seven to ten years). Both males and females have been known to live for over 30 years. Little is known of the species' population status or trends, although it has suffered from habitat degradation, and populations are now likely to be highly fragmented. Estimations of population densities vary by over three orders of magnitude, from 0.05 to almost 80 turtles per hectare. The species is in high demand for the pet trade as evidenced by current domestic prices of around USD 90 per animal. However, reported international trade has averaged only 291 animals per year from 1995 to 1998, and many of these have been captive bred (49% in 1998). The vast majority of trade therefore appears to be domestic, and is not quantifiable. There are also reports of illegal domestic trade. Although state laws protect the species from harvesting and trade in over half of its range, it is only partially protected in a further 15% and unprotected in the remaining 25% of its range. The species is not listed in the US Endangered Species Act (1973), although it is classified as Vulnerable by IUCN, and is also listed as Vulnerable by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). Habitat protection and strengthening the enforcement of domestic trade legislation would appear to be a conservation priority for the species. The proposal seeks to include the Spotted Turtle in Appendix II in accordance with Article II, Resolution Conf. 9.24, Annex 2a criteria A, B i) and B ii).

Analysis: Following Resolution Conf. 9.24, the criteria for inclusion in Appendix II do not appear to be met by this species. Criterion A (of Annex 2a) cannot be assessed, as insufficient information is presented on population size, area of distribution, or rates of decline. Criterion Bi is apparently not met as the harvesting of individuals from the wild for international trade is at such low levels compared with the likely overall size of the population. Finally, criterion Bii does not appear to be met, as international trade seems to be currently only a minor threat, and does not appear to be reducing the population to a level where other factors would threaten its survival. Although populations have been reduced across much of the species' range, international trade of wild caught specimens appears to be at such low levels that inclusion in Appendix II would likely have little impact on preventing it becoming further threatened.

	Supporting Statement (SS)	**Additional information**
Range	Canada - eastern and southwestern Ontario, and possibly Quebec, although there have been no sightings in this province since 1992. United States - from southern Maine southward through the eastern seaboard states to north-central Florida. The species also occurs in the Upper Midwest (in Michigan, Illinois, Indiana, Ohio and Pennsylvania) and with isolated populations in the western Carolinas.	Meylan (2000) comments that populations throughout much of the range are probably relatively isolated, and adds that the range extends further south than stated in the SS, into central Florida.
IUCN Global Category		Vulnerable (VU A1cd+2cd)
Biological and trade criteria		
A) Trade regulation needed to prevent future inclusion in Appendix I	Population trends are difficult to quantify, due to the lack of long term monitoring programmes. The species appears to be locally common in some areas, but declining in many areas due to habitat loss and fragmentation, mortality on highways and collection for the pet trade.	TRAFFIC North America (2000) comment that there is a significant domestic demand for the species in the pet trade, but note the low levels of export from the United States. As such, international trade regulation is likely to have little affect on population trends.

	Supporting Statement (SS)	Additional information
		Estimates of current population size or of the amount of suitable habitat are not provided in the SS, and there is no quantitative information provided on the species' decline.
B) Harvesting for international trade has, or may have, detrimental impact on population i) exceeds sustainable yield ii) reduces population to potentially threatened level	Harvesting for the pet trade is cited as a major threat to the species. The vast majority of this trade would appear to be domestic with declared exports from the United States between 1995 and 1999 averaging only 291 individuals per year. However the extent of under-reporting of exports is unknown.	Reviewers concur that international trade is extremely low. However, in the first year of a two year study, Enge (1993) (cited in TRAFFIC North America, 2000) found that of 62 specimens sold in Florida, 24 were exported to businesses in Japan and Switzerland. Domestic prices between 1980 and 1996, corrected for inflation to 1997 values, ranged from USD 48 to USD 90, with prices generally rising during that period (Hoover, 1998). An increasing proportion of the export trade is likely to consist of captive-bred individuals (see below). TRAFFIC North America's (2000) analysis of the United States trade data suggests an average annual export from the USA of only 280.5 individuals between 1995 and 1998. There is no evidence of a high demand for the species in Europe, and a review of over 50 traders found only two that were advertising the species, one of which was offering captive bred individuals. Meylan (2000) notes that in the southern part of its range, the populations appear to be small, such that removal of even a few adults could be detrimental to the population. In Florida, the species is probably too rare to be collected commercially. The large distribution of the species, even when combined with the most conservative density estimates provided in the SS, suggest a population size that would be insignificantly affected by current levels of international trade, even if all the individuals in international trade were harvested from the wild. The overall harvest of individuals for the pet trade may be having a detrimental impact on the species. However, no evidence is provided to suggest that the harvesting for international trade is exceeding the level that can be continued in perpetuity, or that it is likely to reduce the population to a level at which it would become threatened by other influences.
Other information		
Threats	The main threats to the species are habitat degradation, destruction and fragmentation, over-collection for the pet trade, predation and mortality on roads. Of these, habitat destruction (especially from pollution and drainage) would appear to be the most important threat, and responsible for turtle	Meylan (2000) and Lovich (2000) concur that habitat loss is a major threat to the species, and Buhlmann (2000) notes that the species does not live in man-made aquatic habitats. Natural habitat succession may also be a significant threat to some populations (Graham, 1995). Global

	Supporting Statement (SS)	Additional information
	declines over much of its range. Global warming is also cited as a possible future threat. The commercial pet trade has been cited as being responsible for spotted turtle declines in over half of its range, although there is no distinction made in the SS between domestic and international trade.	warming is unlikely to be as serious a threat as suggested in the SS (Burke, 2000). It appears that international trade poses an extremely small threat to this species.
Conservation, management and legislation	The species is protected from harvest at the state and provincial level throughout the majority of its range. It is fully protected in 12 out of 20 states in its range in the USA, partially protected in three other states, and unprotected in the remaining five states. There are no international trade control measures. In Canada, the species is partially protected by the recent implementation of the new Fish and Wildlife Conservation Act. *Clemmys guttata* is not listed in the US Endangered Species Act (1973), but is listed as Vulnerable by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). The SS notes that populations in Vermont, Maine, New Hampshire and Illinois have been monitored to various degrees.	TRAFFIC North America (2000) comment that there is substantial illegal harvest of the species, and subsequent laundering of animals between states in the USA. This is due to inconsistent state regulations on the harvest and trade of the species, and the relatively low priority given to reptiles with regard to enforcement and prosecution (Hoover and Franke, in prep.).
Similar species	The Bog Turtle (*C. muhlenbergi*) is listed in Appendix I, and the Wood Turtle (*C. insculpta*) is listed in Appendix II.	The Bog and Wood Turtles are both North American species, although they are easily distinguished from *C. guttata*.
Captive breeding	The species is apparently bred in captivity in China.	A review of the trade data for 1996 to 1999 shows that an increasing proportion of the export trade in the species may consist of captive-bred animals. Of the 178 exports in 1996, none were captive bred, 13 of 509 exports in 1997 were captive bred, 93 of 188 exports in 1998 and 7 of 50 exports in 1999 were recorded as captive bred (TRAFFIC North America, 2000).
Other comments	The Government of Canada and states of the US were consulted during preparation of the proposal. All were supportive of the inclusion of the species in Appendix II.	The domestic demand for *C. guttata* appears to be significant. A review of 236 reptile dealer price lists in the USA published between 1980 and 1996 revealed 48 price lists (20%) offering the species for sale (Hoover, 1998).

Reviewers: K. Buhlmann, V.J. Burke, J. Iverson, J.E. Lovich, P.A. Meylan, TRAFFIC North America.

Transfer of African Spurred Tortoise *Geochelone sulcata* from Appendix II to Appendix I. Proponent: France.

Summary: *Geochelone sulcata* is the third largest tortoise in the world. Individuals can reach a maximum weight of over 100 kg, and carapace length of over 800 mm. The species is widely distributed within the Sahel region of Africa, from southern Mauritania and northern Senegal to northern Ethiopia and Eritrea. Breeding occurs during or just after the rainy season, when around 20 eggs are laid in a single clutch. Sexual maturity is not reached until around 25 years of age, and whilst the average life span of wild individuals is not known with certainty, the oldest recorded specimen in captivity reached 54 years of age. Although the status of the species is largely unknown, it appears to occur naturally at low densities throughout its range. Anecdotal evidence suggests that many range States have experienced declines in numbers of this species recently, mainly caused by drought, habitat degradation and collection pressure, often to meet domestic demand. The major range State exporters are Mali and Sudan, although by far the largest exporter is the USA, mainly exporting captive-bred specimens. The main importers are Japan, the USA and several Western European countries. The species is the subject of an ongoing Significant Trade Review that began in 1996, and consultations with Mali are ongoing. International trade is mostly in live animals, and CITES trade data show increased levels of trade in recent years, although much of the current trade is in specimens reported as ranched or captive-bred. This proposal seeks to transfer the African Spurred Tortoise from Appendix II to Appendix I in accordance with Resolution Conf. 9.24, Annex 1 criteria B i) and B iv).

Analysis: Following Resolution Conf. 9.24, it appears that there is insufficient information available to determine whether the species meets the biological criteria for inclusion in Appendix I. Although the population does not appear to meet the guidelines for a small population, estimates of population size have suffered from a lack of detailed information. As the species is widely distributed across the Sahel region of Africa, it seems unlikely that it has a restricted area of distribution; however populations are fragmented and localised, and the area of occupancy is unknown. The species appears to have suffered population declines, and although the quantification of these declines is conjectural, they may have been of sufficient magnitude to meet the guidelines for a declining population in criterion C. In cases of uncertainty regarding either the status or impact of trade on a species, Annex 4a of Resolution Conf. 9.24 recommends the Parties to act in the best interests of the conservation of the species. The species is subject to international trade, and although the majority of current trade appears to be in captive-bred or ranched animals, the species clearly meets the trade criteria for inclusion in Appendix I.

	Supporting Statement (SS)	**Additional information**
Taxonomy	There are no subspecies, but it seems that there is significant variation between the western and the eastern populations. One scientific synonym is noted: *Testudo calcarata*.	*Geochelone sulcata* is one of 11 species in the genus. Klemens (2000) comments that there is no scientific evidence for any variation between populations, and adds a number of synonyms: *Chersine calcarata, Testudo sulcata, Testudo radiata* var. *senegalensis, Geochelone senegalensis, Peltastes sulcatus, Centrochelys sulcatus*.
Range	The species is widely distributed within the Sahel region of Africa, from southern Mauritania and northern Senegal to northern Ethiopia and Eritrea. The northern limit of its distribution is the Sahara desert, whilst the southern limit is less well defined, but descends to 4° north in the Sudan. Range States: Burkina Faso, Cameroon, Central African Republic, Chad, Eritrea, Ethiopia, Mali, Mauritania, Niger, Senegal and Sudan. Possibly also Benin, Nigeria and Togo. Unconfirmed sightings in Saudi Arabia and Yemen are likely to be of introduced specimens.	Reviewers concur with the range States listed in the SS, although Klemens (*in press*) notes that the range in Chad extends well north of the Sahel into the oases of the central Sahara Desert, and into north-central and north-eastern Chad.
IUCN Global Category	Vu A1cd	

	Supporting Statement (SS)	Additional information
Biological criteria		
A) Small wild population	Recent estimates of population status suggest a total population of between 18 000 and 20 000 individuals, with the largest populations in Mauritania, Parc du W in Niger, Sudan and northern Central African Republic.	Lambert (2000) and Klemens (2000) note that the population levels given are extremely rough estimates. The estimated population size would not appear to meet the guidelines for a small population.
B) Restricted area of distribution	The species is found in a band 500 km wide, from Mauritania and Senegal to Eritrea and Ethiopia.	Lambert (1999) notes that the species occurs in a band between 500 and 700 km wide. Klemens (2000) adds that the distribution may be even wider than 700 km. Under the CITES criteria, the population would not appear to have a restricted distribution.
i) fragmented or localised population	The SS provides anecdotal information and evidence of habitat destruction to suggest that populations of the species are becoming more fragmented.	Klemens (2000) comments that populations of the species are localised and concentrated in areas of suitable habitat.
iv) decrease in distribution, population, habitat or reproductive potential	See criterion C below.	
C) Decline in number of wild individuals	The SS presents a dramatic decrease in the number of African Spurred Tortoises, from as many as 100 000 individuals 50 years ago to the current estimated population size of around 20 000 individuals. However, as there have been few comprehensive surveys completed, much of the evidence to support this observation is anecdotal.	Klemens (2000) comments that although there have been declines, especially in the western part of the range, the quantification of these declines is conjectural.
i) ongoing or historic decline	Recent declines are reported in Mali and Senegal, from field surveys conducted by Lambert, Pritchard and Devaux, but no quantifiable evidence is presented in the SS.	The species has not been seen in the Gambia since the end of the 19th century, when it was reported to be common (Lambert, 2000).
ii) inferred or projected decline	There has been a decrease in available habitat, due to desertification and disturbance from livestock. Commercial exploitation has increased in recent years. Many individuals are also held in captivity in range States, where the tortoise is often regarded as a symbol of longevity and veneration.	Lambert (2000) agrees that habitat has decreased, although comments that more research is needed to accurately assess habitat requirements of the species, and the extent to which habitat has declined. Klemens (in press) reports on the continuing consumption of the species in Chad.
D) Status suggests inclusion in Appendix I within five years	The SS suggests that the population will continue to decline over the next five years.	

<table>
<tr><th></th><th>Supporting Statement (SS)</th><th>Additional information</th></tr>
<tr><td>Trade criteria</td><td></td><td></td></tr>
<tr><td>The species is, or may be, affected by trade</td><td>The species has been in international trade for several decades, and there has been an increase in numbers of specimens collected from the wild over the last 10 years. Net reported imports from CITES Annual Report data since 1987 were as follows: a total of 1 754 net imports between 1987 and 1991 (annual average of almost 440); 471 in 1991; 915 in 1992; 1 195 in 1993; 2 109 in 1994; 3 703 in 1995; 5 097 in 1996; 838 in 1997.

The SS notes that juvenile specimens can no longer be found in range States from which individuals are collected, although there is no evidence provided in support of this statement.</td><td>The species is reported to be heavily collected in some West African countries, and to be eaten in times of food shortage, in several range States (TRAFFIC East/Southern Africa, 2000).

A re-analysis of recent gross trade data from CITES Annual Reports (submitted by November 1999) shows similar figures to the net import data presented in the SS (see table below). However, these gross import figures also include specimens reported as captive-bred, ranched and re-exports. If these categories are removed and only wild-caught and individuals of unknown source are included in the analysis, the numbers apparently taken from the wild appear to have trebled in 1995 and 1996 compared with reported imports from1994. The drop in trade levels during 1997-1998 may be affected by the lack of Japan 1997-1998 data (TRAFFIC East/Southern Africa, 2000).

Between 1988 and 1998 the major range State exporters were Mali (total of 4 286 individuals, an average of 429 per year) and Sudan (total of 2 256 individuals, an average of 226 per year). However, as Mali only acceded to CITES in 1994, the data may be an underestimate. In the same period, the United States exported 12 500 individuals, and Ghana and Togo both exported almost 2 000 individuals, many of which were reported as captive bred or ranched. TRAFFIC East/Southern Africa (2000) note that approximately half of the individuals exported between 1988 and 1998 were produced in captivity, although there is likely to be uncertainty over whether these individuals are ranched (F1 generation offspring) or captive-bred (F2 and subsequent offspring). However, the majority of specimens exported from African States are wild-caught (TRAFFIC East/Southern Africa, 2000).

During 1987-98 a total of 270 confiscated/illegal specimens were reported in trade (TRAFFIC East/Southern Africa, 2000).
Lambert (2000) comments that the international trade is unlikely to be sustainable, except by captive breeding.

Table to Compare Data on Reported Imports of G. sulcata:
<table>
<tr><th>Source</th><th>1990</th><th>1991</th><th>1992</th><th>1993</th><th>1994</th><th>1995</th><th>1996</th><th>1997</th><th>1998</th></tr>
<tr><td>SS</td><td>461</td><td>548</td><td>918</td><td>1195</td><td>2109</td><td>3703</td><td>5097</td><td>838</td><td></td></tr>
<tr><td>Gross</td><td>344</td><td>511</td><td>950</td><td>1376</td><td>2421</td><td>5156</td><td>5097</td><td>1085</td><td>716</td></tr>
<tr><td>Wild/ Unknown</td><td>259</td><td>336</td><td>683</td><td>313</td><td>631</td><td>2215</td><td>1609</td><td>255</td><td></td></tr>
</table>
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	Supporting Statement (SS)	Additional information
Other information		
Threats	The two main threats are commercial exploitation and habitat loss, from both desertification and human disturbance. Increasing human populations and livestock grazing have depleted the habitat in many areas.	Reviewers concur with the threats described in the SS. Moore (1997) also notes that controlled dry season burning may cause substantial threats to the grass and scrub habitat of the species, and Klemens (2000) adds that local consumption is also a threat to the species.
Conservation, management and legislation	Although there is a monitoring programme in Senegal (run by an NGO), the species is subject to few management measures in other range States. There is a breeding and release centre established in Senegal. The species is fully protected in Central African Republic, Ethiopia, Niger and Senegal, and partially protected in Burkina Faso, Mali, Mauritania and Togo. In Benin it is classified as small game.	*Geochelone sulcata* has been listed on CITES Appendix II since 1977. The species was subject to a Significant Trade review in 1996, and at their 12th meeting the Animals Committee agreed to further range State consultation, but no primary or secondary recommendations were agreed. At the 14th meeting of the Committee the Secretariat was asked to consult with Mali on the basis for their exports. Since 1995, numbers of ranched or captive-bred specimens have been increasing in trade. The following quotas have been circulated to the Parties: Ghana - 750 ranched individuals since 1996; Togo - 500 ranched specimens since 1998 and Benin - 30 ranched specimens since 1999. There are not likely to be significant wild populations of the species in these countries, and CITES Annual Report data are not yet available to assess the extent to which actual exports have corresponded to quota levels.
Similar species	*Geochelone sulcata* is easily distinguishable from other tortoises.	There can sometimes be confusion in the eastern limits of the range with large specimens of *G. pardalis*, whose shells are abraded smooth (Lambert, 2000). Klemens (2000) notes that the much smaller Chaco Tortoise *G. chillensis* of Argentina and Paraguay closely resembles *G. sulcata*, and may cause problems with monitoring trade, as it is an Appendix-II listed species.
Captive breeding	Breeding of this species in captivity is relatively easy, and may be able to meet the demand for specimens in trade. The USA produces sufficient numbers to satisfy domestic demand, and the majority of individuals exported in some years have been from captive breeding facilities. For captive breeding operations to be successful they must be regulated and the specimens must be reliably and permanently marked.	The species breeds readily in captivity in the USA, and there is the potential for non-range State captive breeding operations to supply a majority of the demand (Klemens, 2000). TRAFFIC East/Southern Africa (2000) comment that an Appendix-I listing would dramatically reduce commercial exports for some years, until commercial captive breeding establishments are registered, or populations are downlisted for ranching purposes. TRAFFIC North America (2000) note that under Appendix I, a significant proportion of the demand for *G. sulcata* could in the future be met by captive breeding operations.

	Supporting Statement (SS)	Additional information
Other comments		Lambert (2000) comments that there is little known about dispersal in the wild or about reproduction and recruitment. Klemens ((ed) in press) agrees, but notes that based on our basic understanding of the biology of these large tortoises, almost any offtake of adults or sub-adults from the wild is likely to be non-sustainable. The amendment may also help reduce the possibility of illegal trade form Mali to Ghana, Togo and Cameroon, which is suspected from the CITES Annual report data, and records of illegal seizures since 1987 (TRAFFIC North America, 2000). Klemens (2000) comments that the ease in which the species is bred in captivity provides no justification for the removal of wild tortoises for commercial purposes.

Reviewers: M. Klemens, M.R.K. Lambert, TRAFFIC East/Southern Africa, TRAFFIC North America.

Transfer of Pancake Tortoise *Malacochersus tornieri* from Appendix II to Appendix I. Proponent: Kenya and the United States of America.

Summary: The Pancake Tortoise is a small terrestrial tortoise which inhabits the rock crevices of outcrops in arid and semi-arid savannas of Kenya and Tanzania. It has a very specific microhabitat requirement and is discontinuously distributed within its range. Habitat destruction and degradation, and collection for the pet trade are considered to be the major threats. It is classified as Vulnerable by IUCN. Isolation of suitable habitat, and the species' low dispersal ability and recruitment rate, make recovery of depleted populations unlikely. The species was listed in Appendix II in 1975. The Pancake Tortoise is exploited primarily for the pet trade. From 1981 to 1995 Kenya prohibited export of the species. Tanzania started to record exports in 1985 and thereafter numbers increased to an annual peak of 5 318 specimens exported in 1991. Following the Phase I Significant Trade Process in 1992, the CITES Standing Committee endorsed the recommendation that Parties do not accept any imports of the species until Tanzania had introduced a moratorium on trade, conducted a population survey, and established a sustainable use management programme. In 1993, Tanzania suspended all exports of wild-caught specimens and restricted exports to specimens derived from captive production. In 1998, the Secretariat organised a workshop in Tanzania where it was agreed that Tanzania could export the remaining stock of captive-born specimens. However, in 1999 a CITES Secretariat mission found that the level of inspections and control on the four tortoise farms had been minimal and the national authority lacked technical expertise. The Management Authority has now created a ranching supervisory post and sent staff to study ranching and farming. Since 1992, no trade in wild specimens has been reported from Tanzania, although ranched specimens have been exported in relatively small numbers since 1995. Reports of exports from Tanzania may well have been inflated, as analysis of CITES export permits in 1997-1998 showed that over 36% were cancelled or transferred to other permits. Kenya resumed exports in 1996; in 1997 ranched specimens accounted for around a quarter of the 918 specimens exported. In 1998 only ten wild specimens were exported. In 1995 and 1997 Zambia and Mozambique, although not generally thought to be range States, reported exports of 600 and 2 125 specimens respectively, but these specimens do not appear to have entered international trade. Despite a European Union (EU) ban on importation of the species since 1988, several EU members have reported importing the species. The species is proposed for inclusion in Appendix I In accordance with the biological criteria of Resolution Conf. 9.24 Annex 1, because it has a restricted area of distribution and the number of individuals has been declining (Bi, iii, iv and Ci).

Analysis: Following Resolution Conf. 9.24 Annex 1, there appears to be insufficient information on population size to determine whether the species meets criterion A. However, it is likely to meet criterion Bi due to its fragmented populations, and although it has a large area of distribution, its area of occupancy is probably relatively small. The species probably meets the Biii and Biv criteria as it is likely to be vulnerable due to its low fecundity and specialised habitat requirements. Although the rate of habitat destruction is not documented, reviewers concur that the decline in habitat availability is likely to continue, possibly at an accelerated rate. However, it is not clear if criterion C is met, as IUCN has estimated the rate of population decline to be 20% in ten years, whereas the CITES criteria suggest a guideline of a 50% in two generations (roughly 20 years) might be appropriate. In cases of uncertainty, Resolution Conf. 9.24 Annex 4 recommends Parties to act in the best interests of the conservation of the species. The species is in trade, but trade in wild-caught specimens is now prohibited in Tanzania.

	Supporting statement (SS)	**Additional information**
Range	Kenya and Tanzania.	Wandera (2000) believes Mozambique and Zambia are probably within the species' range.
IUCN Global Category	VU (A1bd)	

	Supporting statement (SS)	Additional information
Biological criteria		
A) Small wild population	There are no known estimates of the total population or number of individuals in the wild.	Malonza (1999), studied the populations of Nguni and Nuu in the Mwingi District, Kenya. Estimated population size for three study sites (800 m x 200 m plots) with 'high quality habitat characteristics' (i.e. well configured rock crevices, high vegetation cover and lower levels of human habitat destruction and exploitation) are as follows: Kawelu, 39; Wingemi, 27 and Karumbi, 19. Sites that have been affected by indiscriminate over-collection of Pancake Tortoises in addition to high human population densities include: Kalanga corner, Kalanga and Ivuusya, having population estimates of 0, 2 and 5 respectively. The estimated total population for the ten randomly selected sites (out of 30 study sites) in the District is between 121 and 233 individuals (Malonza, 1999). There have not been any recent surveys in Tanzania (TRAFFIC East/Southern Africa, 2000).
B) Restricted area of distribution	The species has a large distribution. However, its area of occupancy is likely to be small.	
i) fragmented or localised population	The species requires rock crevices of suitable size located in thorn scrub and savanna of the Somalia-Masai floristic region.	The distribution is naturally fragmented (Howell, 2000).
iii) high vulnerability due to biology or behaviour	Isolation of suitable habitats coupled with limited dispersal abilities and low recruitment rates make recovery of depleted populations unlikely. In the wild generally a single egg is laid, several times a year.	The species shows very strong site fidelity (Malonza, 2000). Once the presence of the species has been detected, it is relatively easy to remove all individuals from a particular rock outcrop (Howell, 2000).
iv) decrease in distribution, population, habitat or reproductive potential	In 1995, the species' habitat in Tanzania was reported to be overgrazed by cattle and goats. However, it was not possible to determine whether this impacted the survival of the populations. In Kenya, populations are threatened by clearance of thorn scrub for agriculture purposes. Localised habitat destruction occurs when live specimens are removed from rock crevices for trade.	Kenya: the species' known range exists virtually outside protected areas, however the full extent of the range has not been established. Wandera (2000) reports that between 5-10% of the species' habitat occurs in national parks and nature reserves where no harvest is allowed. The rate of habitat loss is expected to accelerate. This may further reduce the species' ability to disperse to suitable habitat and cause a reduction in genetic variability (Malonza, 2000). Tanzania: the species is known to occur in three National Parks (Malonza, 2000). In Tanzania, habitat loss is expected to continue at least at the current rate or possibly higher. It appears unlikely that the species can survive in areas damaged through collection (Howell, 2000).
C) Decline in number of wild individuals	The proposal quotes the IUCN Red List Criteria - 20% decline in ten years or three generations.	

	Supporting statement (SS)	Additional information
i) ongoing or historic decline	Results of preliminary surveys indicate that in less than 10 years of intensive collection, the tortoise has become severely threatened throughout its range in Tanzania, but relatively healthy populations may exist in remote areas.	In Kenya, the number of mature individuals is not known, although there is no doubt that the population is decreasing (Malonza, 2000; Wandera, 2000).
Trade criteria		
The species is, or may be, affected by trade	Domestic use is reported to be very limited. Harvest for the pet trade is reported to be the primary threat to this highly desirable species. An individual can be sold for up to USD 400 in the USA. In 1981, Kenya banned the export of the species. Then in 1988, the EU prohibited imports of this species and in 1995 the CITES Standing Committee recommended that Parties should not accept commercial shipments of the species from Tanzania. Nevertheless, several countries in the EU have reported importing this species. The SS also mentions that Tanzania had established an annual export quota of 20 specimens, which according to WCMC has been exceeded. The SS notes from Table one and two that trade is increasing, however, the reported import and export data are contradictory. Large numbers of Pancake Tortoises have been exported from Zambia and Mozambique (non-range States) suggesting illegal trade in specimens collected in Kenya or Tanzania. In Tanzania, recent studies have shown that collection has decreased population densities and changed age-class compositions towards a larger number of juveniles in wild populations. The species is reported to be exploited at unsustainable levels and depleted in suitable habitats. Isolated populations that exist in remote and inaccessible areas may be at risk if intensive collection continues.	From 1978-1981 Kenya was the only range State exporter of Pancake Tortoises, with recorded imports from Kenya averaging 575 per annum. After Kenya banned exports in 1981, no further imports were recorded from range States until 1985, when 75 specimens were reported as imports from Tanzania. Annual imports from Tanzania then rose to over 2 000 in 1987 and almost 1 500 in 1988. In 1989 The EU prohibition of imports coincided with a reduction in reported imports from Tanzania to 387 specimens. However in 1991, the US reported over 4 500 animals imported from Tanzania. The numbers of reported imports from Tanzania then dropped again to 605 in 1992 and since then there have been no further reports of live wild caught animals imported from Tanzania. However, in 1995 Zambia reported exports of 600 specimens and in 1997 Mozambique reported exports of 2 125 wild specimens, although neither were thought to be range States. Although reported as exports, these shipments have not been recorded as imports and are not actually thought to have entered trade (CITES Secretariat, 1999). These large shipments from Zambia and Mozambique probably account for most of the discrepancy between imports and exports as shown by Tables 1 and 2 of the SS. Howell (2000) is concerned with the lack of follow up on these reports of alleged smuggling to Zambia and Mozambique. From 1988-1998 the major importers were USA and Japan. The demand from Japan is increasing (Wandera, 2000). Since 1995 Kenya and Tanzania seem to have developed farming of this species and in 1995 the import from Tanzania of 50 ranched specimens was recorded. By 1997, the reported imports of ranched specimens from Tanzania had risen to 404. Analysis of Tanzania's export permits issued during 1997-1998 showed that over 36% of issued consignments were cancelled or transferred to other permits. Whilst figures for these years were adjusted, permits for previous years may have presented inflated figures. Data from Tanzania's 1998 Annual Report in progress shows exports of 190 specimens from farming (TRAFFIC East/Southern Africa, 2000).

	Supporting statement (SS)	Additional information
		Analysis of Kenya's Annual Reports in progress show the following reported exports of live specimens for the 1988-1998 period: 50 (wild) in 1996, 918 (250 of these were ranched) in 1997, 10 (wild) in 1998 (TRAFFIC East/Southern Africa, 2000). The SS refers to an annual export quota of 20 specimens for Tanzania. This quota has been superseded by Standing Committee decisions and a 1999 quota for export of 1 190 captive-bred specimens and for year 2000 allowance of trade in specimens of no more than 5cm. Trade in wild-caught specimens is prohibited (CITES Secretariat, 1999). As there have not been any wild-caught exports from Tanzania since 1992, theoretically there should be no possibility that commercial exports have affected wild populations since then. The only possible trade related threat in Tanzania is illegal trade, the extent of which is unknown (TRAFFIC East/Southern Africa, 2000). Similarly for Kenya, Malonza (1999) states that there is no doubt that illegal wild collection is occurring and current volumes and trade trends from Kenya may not be sustainable given the species' biology. Howell (2000) too is concerned that the number of specimens reported as taken from the wild (Klemmens and Moll in SS) is unsustainable, but as shown above these are largely taken illegally.
Other information		
Threats	The primary threats to the Pancake Tortoise are increasing trade and habitat destruction. In a recent study of Tanzanian populations no significant threats other than commercial collection were identified.	Habitat alteration through shifting agriculture, was identified as the major threat to the species in Kenya (Malonza, 1999).
Conservation, management and legislation	Kenya banned the export of the species in 1981 (without written permission of the Minister for the Environment and Natural Resources). Tanzania protects the species under the Wildlife Conservation (National Game) Order, 1974. Tanzania had also established an annual export quota of 20 specimens.	Since, 1997, the Kenyan Wildlife Service wildlife utilisation policy (user rights) has permitted exports of Pancake Tortoises. The policy applies to the export of wild, ranched and captive-bred specimens. In 1993, the Management Authority of Tanzania suspended all exports of wild-caught specimens and restricted exports to specimens derived from captive production (TRAFFIC East/Southern Africa - Tanzania, 2000). Howell (2000) reports that although Tanzania's legislation may be adequate, it is ineffectual, for example, there is no supervision of trappers in the field. As far as is known the authorities have not carried out any population monitoring in the wild, but this is definitely needed in both Kenya and Tanzania (Howell, 2000).
Similar species	The species is monotypic and easily distinguished from other species in its family.	

	Supporting statement (SS)	Additional information
Captive Breeding	There are no known operations breeding the species in a closed system (producing F2) for commercial purposes on a large scale.	Currently there are four licensed exporters captive producing ("farming") tortoises in Tanzania and two similar operations in Kenya, one exporting specimens. The Kenyan operations are part of a pilot project (TRAFFIC East/Southern Africa-Kenya, 2000). In 1998, the Secretariat organised a workshop in Tanzania where agreement was reached that Tanzania could export the remaining stock of captive-born specimens (1 190 specimens). Trade in captive specimens of a specific age class will then be permitted in following years (CITES Secretariat, 2000). In 1999, a CITES Secretariat mission found that the level of inspections and control on the four tortoise farms had been minimal whilst technical expertise was lacking in the national Authorities. Since then the Management Authority has created a ranching supervisory post and sent staff to South Africa to study ranching and farming (TRAFFIC East/Southern Africa, 2000). Howell (2000) accepts that tightly controlled captive breeding/ranching is in theory possible, but based on experience in Tanzania, he believes that the political and managerial will is not present to make the financial and administrative investments necessary to succeed. He believes that if large illegal offtake continues, the benefit of exporting captive-bred animals will decline.
Other comments		Wandera (2000) supports the proposal based on the precautionary principle. However, the lack of scientific data should be addressed. Malonza (2000) supports the proposal, but believes that the threat to the species from habitat destruction on private lands still needs to be addressed. Howell (2000) believes that an Appendix-I listing, if enforced, should reduce the pressure on wild animals. However, he cautions that there may be negative impacts for example, inappropriate return of seized animals to the wild.

Reviewers: K. Howell, P. K. Malonza**,** TRAFFIC East/Southern Africa, P.O. Wandera.

Doc. No.: 11.40

Transfer of that part of the Caribbean population of *Eretmochelys imbricata* inhabiting Cuban waters from Appendix I to Appendix II, for purposes of allowing 1: the export of one shipment of all registered management stocks of shell accumulated from Cuba's management programme between 1993 and March 2000 (up to 6900 kg) to Japan for total consumption within Japan with no re-export; and 2. An annual quota to Japan or to other Parties with equivalent controls, which will not re-export, not more than 500 specimens. Proponent: Cuba and Dominica.

Doc. No.: 11.41

Transfer of that part of the Caribbean population of *Eretmochelys imbricata* inhabiting Cuban waters from Appendix I to Appendix II, for the exclusive purpose of allowing the export of one shipment of all registered management stocks of shell accumulated from Cuba's management programme between 1993 and March 2000 (up to 6900 kg) to Japan for total consumption within Japan with no re-export. All other specimens, including wild stocks in Cuban waters, will be treated as specimens of species in Appendix I and trade in them shall be regulated accordingly. Proponent: Cuba.

Summary and introduction

The Hawksbill Turtle *Eretmochelys imbricata* is one of six extant species of sea turtle in the family Cheloniidae. It is a circumtropical species, nesting on beaches of tropical seas in the Atlantic, Indian and Pacific Oceans and feeding primarily on benthic invertebrates associated with coral reefs. Nesting occurs on islands and mainland coasts, and in recent times has been generally diffuse, often with only single females emerging on any one beach during any one night; at some sites up to ten females may emerge in one night, and very exceptionally larger numbers have been recorded. It is one of the smaller sea-turtles, with a maximum straight carapace length (SCL) of 90 cm. Life-history is characterized by a slow growth-rate, a long life-span, a long age to maturity and high fecundity. Mature females typically nest every two to four years and lay multiple clutches (2-5) in a season. Clutch size ranges from 70 to 180 eggs (Groombridge and Luxmoore, 1989, Pritchard and Mortimer, 1999). In many parts of their range Hawksbills, in common with other sea turtles, seem to show a highly skewed sex-ratio, with females constituting 60% or more of the population (Owens, 1996). In a sample of just under 6 800 females from the Cuban fishery, 4% appeared mature at size 51-55 cm; 50% by 76-80 cm and 100% after 80 cm (Moncada *et al.*, 1999).

Although the broad outlines of the species' natural history, as provided above, are generally agreed, more research is needed on growth rates in the wild, age at maturity and annual survivorship at different life-history stages. This arises from a number of factors, including the difficulty of studying Hawksbills at particular stages of their life (most notably as young immatures, when they are pelagic), the lack of a universally accepted, reliable method of ageing wild individuals and the fact that some important aspects of biology are likely to vary with varying environmental conditions and, perhaps, intrinsic differences in populations across the extensive global range of the species. The generally dispersed nature of nesting (in both time and space) in recent times and the difficulty of reliably censusing animals in the water make estimating population sizes over large areas problematic (Groombridge and Luxmoore, 1989).

The species has been recorded as nesting in over 80 range States or overseas territories and may occur in around 25 more (Baillie and Groombridge, 1996). It has previously been assumed that Hawksbills were more sedentary than most sea turtle species, and that foraging and nesting grounds for individual turtles were generally in close proximity. Studies of tagged and satellite-tracked individuals now indicate that Hawksbills may undertake long-range movements although the regularity of these movements in any given population remains unclear. Studies of mitochondrial DNA also indicate that foraging populations, at least in some areas, may be composed of individuals from several regional nesting colonies, with the composition of different foraging populations changing over time (Bass, 2000). With particular regard to the current proposals, it is now generally accepted, as stated in the supporting statements, that the Caribbean regional population is a mosaic of subpopulations of different sizes, that nest in different areas and have overlapping ranges of movement.

Hawksbills have been and continue to be exploited by humans for their shell, meat, skin, and eggs. International trade in the species has been chiefly in the shell ("bekko"). Other human impacts on the species include disturbance or destruction of nesting beaches, degradation of foraging habitat and bycatch in fisheries (Groombridge and Luxmoore, 1989). There is agreement that, globally, Hawksbills are considerably depleted compared with historical levels.

The species is currently classified by IUCN as Critically Endangered A 1 abd+2bcd (Baillie and Groombridge, 1996). This is based on “an observed, estimated, inferred or suspected reduction of at least 80% over the last three generations, based on …. direct observation, an index of abundance appropriate for the taxon, [and] actual or potential levels of exploitation; and a reduction of at least 80%, projected or suspected to be met within the next three generations, based on … an index of abundance appropriate to the taxon, extent of occurrence and/or quality of habitat; [and] actual or potential levels of exploitation”. This listing has been questioned (Mrosovsky, 2000, Webb 1999 and see in Meylan and Donnelly, 1999). A status justification is provided in Meylan and Donnelly (1999).

The Hawksbill Turtle has been listed in the Appendices since 1975. At that time the Atlantic population (including that in the Wider Caribbean Region) was included in Appendix I as *Eretmochelys imbricata imbricata* and the Indo-Pacific population in Appendix II, as *E. i. bissa*. In 1977 the entire species was included in Appendix I. Recorded international trade volumes in bekko remained high until 1992, in large part because considerable volumes were imported by Japan, which acceded to CITES in 1980 but took a reservation on the Appendix-I listing of Hawksbill. Cuba acceded to CITES in 1990 but also lodged a reservation on the Appendix-I listing of Hawksbill. Japan withdrew its reservation and ceased commercial imports of bekko in 1992. Commercial exports from Cuba ceased at the end of 1992 (IUCN/SSC and TRAFFIC, 1997).

Harvest within Cuba

Hawksbill harvest within Cuba stretches back many hundred years and formal management measures have been in place since at least 1936 (Broad, 2000). Between 1935 and 1994 it is estimated (on the basis of export data for shells for the period 1935-1967 and on official catch statistics for 1968-1994) around 170,000 animals corresponding to some 8600 mt live body weight were harvested (Carillo *et al.*, 1999). From 1968 to 1992 the fishery was managed and regulated as a commercial fishery in four fishing zones with annual catch targets set each year. During the period 1968-1990 an average of 4744 animals was officially recorded as harvested annually (min. 3 198 in 1970, max. 6 445 in 1985). Starting in 1990 as a part of a fisheries rationalization programme the fishery was phased down to its current level of fewer than 500 animals a year in total taken at two sites, one (Cocodrilos) on the south-west tip of the Isle of Pines (Isla de la Juventud) off the southern coast of western Cuba and the other at Nuevitas off the northern coast of central Cuba. The latter works from four small settlements (Punta Ganado, Cayo Romano, Cayo Guajaba and Los Pinos) (Broad, 2000 and see supporting statement).

Definition of the population

Proposals 11.40 and 11.41 define the population for which a transfer is sought as “that segment of the regional Caribbean population bounded by the geographic limits of Cuban waters and includes *E. imbricata* resident within Cuban waters and immigrants and emigrants, only while they are located within Cuban waters and under the jurisdiction of Cuba”.

In assessing whether the proposal might adhere to the criteria laid down in Resolution Conf. 9.24, and whether the current fishery and proposed annual export quota under proposal 11.40 might be sustainable, the following are relevant:

i. The (presumably variable) “standing population” of Hawksbills in Cuban waters at any one time.

ii. The Cuban nesting population.

iii. The larger metapopulation or series of subpopulations from which those Hawksbills taken by the Cuban fishery are drawn that are not part of the Cuban nesting population.

For each of these both the present population and past, present and predicted future trends are relevant, as is the proportion of the standing population that is composed of animals from the resident Cuban nesting population.

Composition of the foraging population

Mitochondrial DNA studies have indicated that haplotypes (distinctive genetic variants) associated with nesting populations in Belize, Mexico, Puerto Rico, the US Virgin Islands and Antigua constitute a significant portion of the Cuban foraging populations (Bass, 1999; Díaz-Fernandez *et al.*, 1999). In addition, a sub-adult Hawksbill tagged at Great Inagua, Bahamas, in 1992 was captured off Banes on the north coast of eastern Cuba in 1997 (Bjorndal and Bolten, 1998). Other tag returns document movements by hawksbills to Cuba from the Yucatan (Mexico) and the US Virgin Islands (Meylan, 1999b). More recent analyses by Bass documents that a haplotype previously observed on the foraging ground in Cuba has been identified in female Hawksbills nesting at Tortuguero, Costa Rica. It is thus very probable that Hawksbills from nesting populations other than those already identified also contribute to the Cuban foraging population (Bass, 2000).

Note

A highly divergent range of views was expressed by reviewers of this proposal. Some strongly supported it. Others are strongly opposed.

The precautionary measure in Paragraph A. of Annex 4 of Resolution Conf. 9.24 notes that when considering proposals to the appendices, the Parties shall, in the case of uncertainty, either as regards the status of the species or as regards the impact of trade on the conservation of a species, act in the best interest of the conservation of the species. The Convention defines “species” as any species, subspecies, or geographically separate population thereof. Uncertainty in this case extends to future management of the species in all relevant range States, including the proponent.

The population as defined in the proposal includes specimens that appear to have a range of nesting origins, including sites outside Cuban waters.

Because an annual quota is requested, the precautionary measures in paragraph C of Annex 4 to resolution Conf. 9.24 will apply. These set out review procedures which can result in transfer of the population back to Appendix I if significant compliance problems or potential detriment to a species are identified.

Resolution Conf. 9.24 notes in Annex 3 that listing of a species in more than one Appendix should be avoided in general in view of the enforcement problems it creates. When split-listing does occur, this should generally be on the basis of national or continental populations.

Analysis of proposal 11.40: Following Resolution Conf. 9.24, concerning the biological criteria for inclusion in Appendix I, it appears that the population of Hawksbills as defined in the proposal is unlikely to meet those criteria in paragraphs A or B of Annex 1 of Resolution Conf. 9.24. There is insufficient information to determine whether the population meets the criteria of paragraph C. Following paragraph B 2.c) of Resolution Conf. 9.24, detailed management measures are described in the supporting statement and effective enforcement controls appear to be in place in the exporting country. The effectiveness of control mechanisms in the proposed importing country has been questioned.

Analysis of proposal 11.41: Note: This proposal differs from proposal 11.40 in that no annual export quota is requested. The proposal requests a transfer from Appendix I to Appendix II for the sole purpose of allowing the export of a stockpile of Hawksbill shell accumulated prior to CoP 11.

Following Resolution Conf. 9.24, concerning the biological criteria for inclusion in Appendix I, it appears that the population of Hawksbills as defined in the proposal is unlikely to meet those criteria in paragraphs A or B of Annex 1 of Resolution Conf. 9.24. There is insufficient information to determine whether the population meets the criteria of paragraph C. Following paragraph B 2.c) of Resolution Conf. 9.24, detailed management measures are described in the supporting statement and effective enforcement controls appear to be in place in the exporting country. It appears that comparable measures are not in place in the importing country.

	Supporting Statement (SS)	Additional information
Range	Cuba Global range: territorial waters of 100+ nations with nesting in at least 60 nations.	
IUCN Global Category		CR A 1 abd+2bcd
Biological criteria		
A) Small wild population	The SS cites an estimate of over 100 000 non-hatchling Hawksbills as required to sustain the harvest that took place in the period 1968-1990. The SS quotes some figures for censused foraging juvenile, sub-adult and adult Hawksbills in various countries including Cuba, with the Cuban figure based on juveniles seen on one 3 km transect off what is believed to be the major nesting area in Cuba. The SS states that all data confirm that the wild population of Hawksbills is increasing. **Size of the Cuban nesting population** The SS quotes an estimate of some 1 700-3 400 nests annually in Cuba, taken from Moncada *et al.* (1999). This estimate is based on a series of extrapolations from surveys undertaken during the 1990s (chiefly from 1994 onwards), principally in the Doce Leguas Keys, believed to be the major nesting site of the species in Cuba.	See "Introduction to Hawksbill proposals" above for a discussion of what constitutes this population. **Size of the Cuban nesting population** The estimate for the number of non-hatchlings required to sustain the 1967-1990 fishery is based on a series of assumptions of which the most important is that the harvested population was essentially at equilibrium. Carrillo *et al.* (1999) indicate that for the period when adequate data are available (1980 onwards) catches were roughly maintained with no major increase in fishing effort. Sex-ratio of the harvested population remained constant overall. However, mean weight of Hawksbills harvested declined significantly over this period, indicating that longer-term changes were taking place in the population. It is unlikely, therefore, that the population was at equilibrium. There appears to be insufficient information on the extent of suitable habitat and on foraging Hawksbill population densities to allow any realistic extrapolation from these to estimate an overall population in Cuban waters. Estimating the size of the adult breeding population from the number of nests depends on a further series of extrapolations based on the number of times an average female nests in one year, the average number of years between nesting seasons for each individual female and the sex-ratio of the adult population. The assumptions behind the extrapolations made in the supporting statement have been challenged by some reviewers noting that no more than 251 nests were ever counted in any one year (although surveys were partial in all years) (Eckert, 2000; Meylan, 2000; Mortimer, 2000). **Size of the other populations from which Hawksbills in the Cuban foraging population are thought to be drawn**

	Supporting Statement (SS)	Additional information
		Summaries of status in the Caribbean are provided in Meylan (1999a), with further details for the Yucatán Peninsula, Mexico in Garduño-Andrade *et al.* (1999). Ross (2000) notes that estimates from accumulated nesting beach counts concur that adult nesting Hawksbills in the Caribbean region exceed several thousand and total populations (including sub-adults) probably many thousands. Meylan (1999a) estimated that approximately 5 000 females nest annually in the Caribbean.
B) Restricted area of distribution	The SS indicates that the area of distribution of Hawksbills nationally, regionally and globally is not small.	Reviewers note that restricted areas of distribution are not applicable to sea turtles as they move widely, even when populations are seriously depleted.
C) Decline in number of wild individuals i) ongoing or historic decline	The SS states that the size and structure of the pristine population of Hawksbills in Cuban waters is unknown and adds that estimating population size for any marine turtle is unknown.	Annex 5 to Resolution Conf. 9.24 suggests that for some species in trade a decrease of 50% within five years or two generations, whichever is the longer, may be an appropriate guideline (not a threshold) of what constitutes a decline. Cuban biologists, on the basis of counts of growth rings in scutes and hypothesised rapid growth rates in warm waters typical of those around Cuba, have suggested a generation time (average age of parents in the population) of around 20 years (Carrillo *et al.,* 1998). Meylan and Donnelly (1999) considered 35 years to be the average generation time of Hawksbills based on growth rates and known reproductive histories of hawksbills (Meylan and Donnelly, 1999)**.** Whichever figure is taken, there are no reliable population estimates, or quantitative trends, for the Cuban foraging populations over this time period (40-70 years). The maintenance of a fishery with apparently a reasonably constant catch per unit effort for this population over the period 1967-1992 (discussed above) might indicate that any decline that might have been taking place over the shorter period (i.e. from 40 years ago to the present) was relatively slow. With regard to the longer period (i.e. from 70 years ago to the present) and the wider set of subpopulations that contributes to the Cuban foraging population, it is generally accepted that at least until the early to mid-1980s, Hawksbills were depleted, sometimes considerably so, with respect to historic levels. However, there is no clear information on the timing of that depletion or rates of decline in the period from 1930 onwards. It is also unclear to what extent the relatively recent recovery of some important populations (particularly that in Mexico) has allowed the overall size of this population to approach the level it had in 1930.
Trade criteria		

	Supporting Statement (SS)	Additional information
The species is, or may be, affected by trade	There is international demand for Hawksbill products	
Precautionary measures		
B2b: CoP satisfied with: I) implementation of Article IV	The current fishery uses 19 inch (48 cm) mesh nets. There is a closed season of three months (May-July) coinciding with reported nesting of Hawksbills on the Isle of Pines. Little if any nesting is reported in the region of Nuevitas (the second harvest site). The fishery does not therefore target nesting females. There is an annual catch limit of 500 Hawksbills. If this is met the harvest at both sites is closed until the following season. Actual catch since the current programme has been initiated averages slightly fewer than 400 animals per year. According to the supporting statement there is some incidental catch at the two harvest sites (reportedly around 20 animals per year, mostly juveniles). If live the animals are released; if dead, they are used and the Hawksbill totals are added to the total directed catch in measuring whether the quota has been met. Data presented in the supporting statement indicate that of just over 800 Hawksbills taken at the two sites (including incidental catch) in 1997 and 1998, around 10% were under 60 cm SCL. The supporting statement notes that if turtles under 65 cm SCL are caught alive they are released but that if they are drowned they are used regardless of size. The supporting statement to proposal 11.40 indicates a series of corrective actions to be undertaken to account for unforeseen events, involving declines in either harvested Hawksbills over 70 cm SCL or annual nesting in the Doce Leguas region. In the event of a 20% reduction in either of these over three years, the harvest at the affected sites will be reduced by 50% a first stage response and maintained at that level until the decline has been rectified. If declines in either exceed 50% in one year or 40% in two years and are not explicable by management or seasonal biases, all harvesting will cease until the apparent declines have been rectified.	Richardson (2000) notes that, if the fishery does not specifically target reproductive females, its sustainability premise may prove to be correct. Eckert (2000) notes that no statistical or biological justification is given for the proposed threshold and that no indication is given of how any natural fluctuations based on biological events or environmental circumstances will be accounted for. Ross (2000) notes that use of catch statistics from a small traditional fishery is a novel and possibly effective means of monitoring turtle populations. He considers that testing of this technique would be a most valuable additional component of the proposed activities. Information on protected areas is lacking in the supporting statement. Ross (2000) notes that protection of nesting beaches should be an integral part of any management programme. Chaloupka (2000) considers the supporting statement to be flawed with regard to population status and believes that more robust status and trend monitoring programmes should be in place. Márquez (2000) believes there should be co-ordinated regional management and monitoring of the species.
B2b: CoP satisfied with: ii) enforcement controls	**Enforcement within Cuba** The SS details a system of control for management of shell stocks within Cuba involving the photographing of each individual shell-piece, labelling with uniquely numbered non-reusable stickers and double-packaging into heat-sealed plastic bags.	**Enforcement within Cuba** Broad (2000) stated that, overall, fisheries and trade controls relevant to Cuba's CITES listing proposal appeared to offer a high degree of security, and considered that infiltration of illegally-fished turtle shell into the legal shell stock would be very difficult. He noted that control systems and wider economic factors were such that there seemed to be little incentive or opportunity for those involved in the fishery or the regulation of trade in its products even to try to infiltrate illegally-fished

	Supporting Statement (SS)	Additional information
		turtle shell into the legal stock. In particular fishermen are paid a fixed wage and there are a series of cross-checks that allow verification of the stock controls at all levels. He did note that there were no comprehensive centralized records or seizures and prosecutions related to illegal turtle fishing and trade but reported that available information on the regulatory regime, general enforcement effort and incentives under the Cuban economic system suggested there were unlikely to be serious problems. Ross (2000) also notes that detailed and rigorous system proposed (and currently functioning within Cuba) should make addition of shell from other sources extremely difficult.
	Enforcement within Japan Businesses engaged in the sale of bekko (not including whole carapaces or stuffed Hawksbills), including importers, manufacturers and wholesales, but excluding retailers, must register with the Environment Agency and the Ministry of International Trade and Industry (MITI). Registered traders are required to register stocks of bekko and keep records of bekko sales transactions for a period of five years**.** The SS describes procedures to be followed in the event of the proposal being accepted.	**Enforcement within Japan** Control of domestic trade in Hawksbill in Japan is covered by the 1992 Law for the Conservation of Endangered Species of Wild Fauna and Flora (LCES), which covers sale, transfer and display for sale, but not possession, of species listed in Appendix I of CITES. Stuffed Hawksbills and whole Hawksbill carapaces are covered by this law, although those imported legally before the reservation on the Appendix-I listing of the species was withdrawn in 1992 and which have been registered can be traded domestically. All such specimens are covered by a registration system. The registration system does not require sea turtles to be identified to species level (TRAFFIC Japan, 2000). As of December 1999 there were 234 registered bekko dealers compared to 243 in July 1995. The total registered stock of bekko held by the dealers in July 1998 was 102.7 mt. In 1995 the registered stock was 188.4 mt (TRAFFIC Japan, 2000). If proposal 11.41 is accepted, import restrictions in Japan will reportedly be altered to allow the import of 6.9 mt of bekko. If either 11.40 or 11.41 is accepted the procedures will be altered for the above. The Government of Japan has apparently no plans to introduce further domestic trade controls, although it is considering advising the Japan Bekko Association (which had 108 members in 1998) to stamp all shell pieces with a common seal or label. It would not be possible to distinguish bekko after processing or at the retail level (TRAFFIC Japan, 2000). Records of bekko stockpiles and transactions are reportedly not centrally compiled electronically (TRAFFIC Japan, 2000). Seven cases of illegal trade in bekko have reported in the period 1994-1999. The largest of these was a seizure of 2700 kg at Osaka seaport in 1995, reported to originate in Indonesia. Just less than 600 kg from the Dominican Republic was seized in March 1994. The remaining seizures were from Singapore (4) and Spain (1) (the shell from the latter was

	Supporting Statement (SS)	Additional information
		reported to have originated in the Dominican Republic) and amounted to some 440 kg (TRAFFIC Japan, 2000). Some reviewers have questioned the efficacy of current controls in Japan (Mortimer, 2000).
Threats	The SS notes that there is incidental catch elsewhere in Cuban waters. It is illegal to hold parts of Hawksbills outside the two harvest sites and so it is difficult to assess the extent of this catch, but the supporting statement speculates that it is under 400 animals per year, mostly juveniles.	As noted in the supporting statements and agreed by reviewers, there is evidently widespread use of Hawksbills in much of the Caribbean region, including in States that have nesting populations that are believed to contribute to the Cuban foraging population. TRAFFIC has documented wide use of Hawksbill and other sea turtles in a number of nations and territories in the northern Caribbean region. Although fully protected by domestic legislation, Hawksbills are taken illegally for their meat and eggs in the Bahamas, Dominican Republic, Jamaica, Mexico, Puerto Rico and occasionally in the US Virgin Islands. Hawksbill shell items are sold in contravention of national legislation on a wide scale in the Dominican Republic and to a lesser extent in Jamaica, the Yucatán and other coastal areas in eastern Mexico (TRAFFIC North America, 2000). Some of this use undoubtedly includes international trade in the form of tourist import of souvenirs. Regional trade in sea turtle eggs has been reported to include Mexico, Guatemala and El Salvador (Muccio, 1998) and sea turtle meat and eggs has been seized in the USA from flights originating in Costa Rica, Guatemala, Nicaragua and El Salvador (Hoover, 1999). Reviewers have drawn attention to global and regional deterioration in the status of coral reefs on which Hawksbills depend (Meylan, 2000; Mortimer, 2000).
Conservation, management and legislation	The SS provides a list of legislation covering Hawksbill in Cuban waters. It notes that since 1961 taking of eggs and turtles by private persons has been prohibited. Relevant laws were strengthened in 1996, with heavier fines and penalties. It notes that low-level illegal subsistence use take place, with nests occasionally taken by unknown people on offshore islands.	The Hawksbill is covered by a number of other relevant multinational agreements, including the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (Cartagena Convention), the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) and the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere. Neither the Cartagena Convention Protocol, concerning Specially Protected Areas and Wildlife (SPAW Protocol) nor The Inter-American Convention for the Protection and Conservation of Sea Turtles, concluded in 1996, both of which would cover the species are yet in force (Eckert, 2000).
Other comments		Mortimer (2000) and Meylan (2000) believe**)** that the legalisation of international trade in Hawksbill shell, even on a very small scale, will negatively impact the species and consider that the Precautionary Measure of Annex 4 (A) should apply, believing that such trade will

	Supporting Statement (SS)	Additional information
		encourage those in other countries to increase harvest of the species. Eckert (2000) also considers that the CITES Parties should remain committed to an Appendix-I listing for this species. Chaloupka (2000) questions the assertion in the supporting statement that Cuban Hawksbill populations are increasing, noting, for example, that the increased catch per unit effort since 1996 reported at the Isle of Pines appears to reflect a decreasing catch effort rather than an increase in catch with a constant fishing effort. Such a pattern might not necessarily be the result of an increasing population. Des Clers (2000) believes the supporting statement to be detailed and comprehensive and provides sufficient information in the management programme to have confidence in it. He further considers that the regulation and controls proposed for the trade go much further than require by Article IV of the Convention. Ross (2000) commends the standard of the supporting statement and observes that the proposed sale of the stockpile is of no conservation detriment and will support conservation and management at the regional level. He notes that the proposed continuing international trade of restricted national harvest of up to 500 individuals could be considered as a pilot project subject to monitoring and closely scrutinised both with Cuba and on nesting beaches elsewhere. The monitoring and response procedures outlined in the supporting statement should ensure that irreversible population declines cannot result from this proposal. He considers the export of the stockpile alone (proposal 11.41) to have no further conservation implications, and therefore believes it should be permitted. Bass (2000) notes the difficulty in interpreting the criteria of Resolution Conf. 9.24.

Reviewers: A.L. Bass, M. Chaloupka, B. des Clers, K.L. Eckert, Y. Kaneko, R. Márquez-M., A. Meylan, J.A. Mortimer, J. Richardson, P. Ross, TRAFFIC Japan, TRAFFIC North America.

Transfer of Quince Monitor Lizard *Varanus melinus* from Appendix II to Appendix I. Proponent: Germany.

Summary: Described in 1997, this Monitor Lizard is especially attractive, small (approximately 1 m), tame and easy to handle in captivity, making it appealing for the live reptile trade. The species is not in demand for its skin or meat at either national or international level, but several thousand specimens are thought to have been exported during recent years for the live pet trade. At present the species does not breed well in captivity, so the only supply is from wild-caught individuals. The main destinations have included USA, UK, Germany, and Japan. All *Varanus* spp. were list in Appendix II in 1975, except four species that were included in Appendix I. The lack of even the most general information on the species' ecology and trade levels make it difficult to assess the impact of trade. Maintenance in Appendix II under an export quota, if properly implemented could stimulate the collection of further biological and trade information. The proposal seeks to include this newly described species in Appendix I on the basis of a small and declining population that occurs in a restricted area of distribution, and habitat which may also be declining.

Analysis: Following Resolution Conf. 9.24 there appears to be insufficient information to conclude that the species has a small population, restricted area of distribution or has declined in accordance with the numerical guidelines. Given the known area of distribution, the fact that it may occur on other islands, and the density estimates from similar species in the genus, it seems unlikely that the species meets biological criteria A, B or D for inclusion in Appendix I. Given levels of habitat destruction in the species' area of occurrence, it is not clear whether or not it satisfies the numerical guidelines for criterion C. The species is clearly in demand for trade, although the impacts of this trade cannot be readily assessed due to the lack of ecological information on the species. However, other similar sized localised endemic members of the genus generally occur at densities that suggest, when combined with the likely area of distribution of *V. melinus*, that current levels of trade may be unlikely to impact the species significantly. However, the species may be close to meeting the Bi and iv criteria, based on a restricted area of distribution with occurrence at very few locations (Bi), and decrease in area of distribution, number of individuals, area or quality of habitat (Biv). However, the species' distribution may include many small and relatively undisturbed islands in the Sula Archipelago, in which case criterion B would not be met. The specimens in trade to date have largely escaped trade monitoring efforts. In cases of uncertainty Resolution Conf. 9.24 recommends Parties act in the best interests of the conservation of the species.

	Supporting Statement (SS)	**Additional information**
Taxonomy	The discovery of *V. melinus* in 1997 was probably linked to the opening up of new harvesting areas, as traditional collection areas became inaccessible due to severe forest fires.	
Range	Indonesia: Accurate information on the range of this species is lacking. It is thought to be restricted to the Sula Archipelago where it seems to inhabit the islands of Mangole, Taliabu, possibly Sanana and the Bokowan and Banggai island groups. The species may also occur on Halmahera and Sulawesi. Obi island is now believed to be a collection centre prior to export.	Bayless and Adragna (1999) note that these islands were virtually unexplored until fires forced animal dealers away from traditional collection areas to search for 'new' natural resources. Tepedelen (1999) reports that collectors have confirmed the presence of the species on Bowokan and Banggai islands. Auliya (1999) also considers that Pelang island is probably within the species' range.
IUCN Global Category		The species has not yet been assessed.

	Supporting Statement (SS)	Additional information
Biological criteria		
A) Small wild population	There are no population estimates available. Although the species has been described as rare, the basis for this description is not clear. In contrast, Indonesian traders say that the species is common in the Sula Archipelago.	Webb (1999) notes that if the species is similar to *V. indicus* as suggested, it would be difficult to study due to its cryptic nature, making it easy to conclude that the species is rare, when this might not be the case.
i) population or habitat decline	The SS argues that a decline in population numbers would be expected as a result of increased removal of the species for the pet trade (this information is not referenced). Although detailed habitat requirements are not known, observations in captivity indicate that it may be a swamp dweller or inhabitant of similar habitat. It seems to occur in lowland forest areas and also near to human settlements. Logging has destroyed large tracts of the northeastern and western interior lowland forest of Taliabu, where *V. melinus* were found. In 1991, an ornithological survey of Taliabu failed to locate any primary lowland forest habitat.	Rates of population decline cannot be inferred with much confidence when there are no indications of population size. Without information on the distribution, it is difficult to assess the significance of habitat loss. Auliya (1999) feels that field work documenting the species' biology and ecology, in different habitats (e.g. primary, secondary, cultivated) is necessary to determine if the species can survive and reproduce in these areas. However, Tepedelen (1999) considers the threat posed by habitat loss throughout the species range to be insubstantial. He adds that habitat loss is generally confined to larger islands, rather than the many smaller islands of the Sula Archipelago where he believes the species also occurs. Furthermore, given the similarity of the species to *V. indicus*, he points out that *V. melinus* may even thrive in disturbed habitat.
ii) small sub-populations	Not known.	
B) Restricted area of distribution	Occurring on some of the islands of the Sula Archipelago, the species has a very restricted geographical distribution. Information provided in the SS indicates that the species may occupy an area of distribution of less than 10 000 km^2.	The species may occur in less than five separate localities within a restricted range (Iskandar, 1999). As an island dwelling species with reasonable swimming abilities, Webb (1999) considers that the species may be more widely distributed than documented in the SS.
i) fragmented or localised population		
iii) high vulnerability due to biology or behaviour		The species' attractiveness for the live reptile trade and the current difficulty with breeding in captivity may make it vulnerable to over collection (Iskandar, 1999).
iv) decrease in distribution, population, habitat or reproductive potential	See Ai – habitat reduction.	
C) Decline in number of wild individuals	A decline is inferred on the basis of habitat loss and projected on the basis of harvest.	
ii) inferred or projected decline		
D) Status suggests inclusion in Appendix I	No information.	This cannot be assessed reliably on the basis of current knowledge.

	Supporting Statement (SS)	Additional information
within five years		
Trade Criteria		
The species is, or may be, affected by trade	There are no records of national use of the species. Nor is there any demand for its skin or meat in international trade. However, the species is desirable for the international pet trade. After collection, specimens are exported from Jakarta and Bali via the transit island, Obi. There are no official trade data for *V. melinus*. For a few years before description, the species was apparently traded as *V. indicus, V. indicus 'kalabeck'*, and *V. salvator*. Estimates of the number of live *V. melinus* imported to the USA prior to the species' description, range from 100 by Hoover to 500 by confidential sources. Several countries have reported importing *V. melinus* in small numbers. In Indonesia in 1997, the price of a specimen was around USD 2 000-3 000, after several shipments the price reduced to around USD 500. About 30 specimens are known to have been offered for sale illegally in the Czech Republic for around USD 500 each. The US demand for live reptilians increased 20 times during the period 1983 to 1992. The EU has reported a steady increase in imports of at least 25 *Varanus* species and subspecies from 1990 to 1996. The demand for Monitor Lizards in Germany has exceeded supply since 1993.	Auylia (1999) reports that as local people have several uses for the widespread *V. salvator*, it is possible that there is as yet undocumented use of *V. melinus* for its skin, meat or organs for medicinal purposes. However, Tepedelen (1999) asserts there is no such local use. Other similar sized localized endemic members of the genus generally occur at densities that suggest, when combined with the likely area of distribution of *V. melinus*, that current levels of trade may be unlikely to impact the species. Iskandar (1999) believes that although it is possible that the species has been exported under a different name (a common practice to avoid export regulations), traders are generally knowledgeable about the species they are trading. Ziegler (1999) reports that initial trade levels for *V. melinus* have been higher than for other newly discovered species in the *V. indicus* group. This may indicate initial ease of collection and may suggest that the species is not rare (TRAFFIC Southeast Asia, 2000). Iskandar (1999) estimates the number of specimens exported to be in the thousands. Tepedelen (1999) believes that prior to description, export levels were closer to 100 to 200 specimens and that only a few animals were sold to collectors in Indonesia at the exceptionally high price of USD 2 000. Iskandar (1999) comments that the decrease in price reported in the SS may be an indication that the demand created by the most enthusiastic hobbyists has been filled. Since 1996 at least 460 specimens have been transported to Bali for export, some as *Varanus* spp. (Erdelen and Yuwono, 1999). However as no export quota has been set for *V. melinus* by the Indonesian CITES Authorities, exporters in Jakarta have apparently stopped buying from the collectors in Sula (Tepedelen, 1999). A few specimens may reach Jakarta for export through smuggling in hand luggage and animals offered for sale on the Internet may have been exported before the species description, or may not actually be available (Tepedelen, 1999).
Other Information		
Threats	Threats to this species include habitat loss and degradation, removal by local hunters, as well as occasional killing by forest workers, who regard the species as a pest.	

	Supporting Statement (SS)	Additional information
Conservation, management and legislation	*V. melinus* is not included in the latest quota produced by the national authority. Any export licences issued in the past would have been under different names (*V. indicus*, *V. indicus 'kalabeck'* and *V. salvator*). According to some US dealers, Indonesia has apparently imposed a voluntary ban on exports. There is a great need for ecological surveys and trade monitoring.	Tepedelen (1999) believes that a sustainable national quota based on survey information, should be established for *V. melinus*, as at present, the species is effectively prevented from entering the export trade as no quota has been set for this newly described species. However, Auliya (1999) considers that national control may be unrealistic given the remoteness of the islands where the species occurs.
Captive Breeding	The SS reports that there are no known cases of successful captive breeding. In zoos and private collections, captive specimens tend to remain healthy and copulate frequently, though the majority of eggs laid are infertile. More information on habitat, ecology and diet is necessary to improve captive breeding techniques.	Erdelen and Yuwono are examining options for captive breeding in Indonesia (Erdelen and Yuwono, 1999) and several US zoos have purchased groups of animals with the intent to reproduce the species in captivity (Tepedelen, 1999).
Similar species	There is a possible, but unlikely, confusion with the Philippine endemic *V. salvator cumingi.*	Webb (1999) states that varanids are not readily identifiable to non-experts.
Other	Most scientists consulted welcomed the transfer of this species to Appendix I. Keepers and traders would prefer a small quota.	Iskandar (1999) and Auliya (1999) support the proposal. Webb (1999), Erdelen and Yuwono (1999) and Hudson (2000) cannot support the proposal due to lack of information on which to base a decision. Tepedelen (1999) does not support the proposal and believes a sustainable export quota would provide the best management for this species. Kluge (1999) believes the information in the SS to be accurate and comprehensive and doubts that the trade levels presented could be sustainable.

Reviewers: M. Auliya, W. Erdelen and F.Yuwono, R. Hudson, D.T. Iskandar, A.G. Kluge, K. Tepedelen, TRAFFIC Southeast Asia, G. Webb, T. Ziegler.

Inclusion of Timber Rattlesnake *Crotalus horridus* in Appendix II. Proponent: United States of America.

Summary: The Timber Rattlesnake is a migratory inhabitant of remote terrain whose habitat varies regionally. In the north-east and midwest USA it occupies rocky outcrops in deciduous forests and in the south deciduous and pine woodland as well as river bottoms, swamps and floodplains. The species is widespread, occurring in 31 states, and is reported to be significantly reduced in at least 20 states. A delayed age of first reproduction (nine to ten years), high first-year mortality, low frequency of reproduction (breeding once every three to four years) and low recruitment make the species vulnerable to over-collection. Communal over-wintering dens of the northern populations are highly vulnerable to targeted exploitation and malicious killing. The species is variously classified in the USA as 'critically imperilled' to 'vulnerable' in 16 states primarily in the northern and midwestern regions and 'apparently secure' to 'secure' in ten states primarily in the South. The species is captured at 'rattlesnake roundups'. Very little of the commercial trade in skin, meat, curios and gall bladders of rattlesnake appears to involve *C. horridus*; *C. adamanteus* and *C. atrox* account for most of the trade, the latter comprising 85% of the total annual rattlesnake take. However, there is substantial trade in rattlesnake products that is recorded at the genus level only. Levels of recorded international trade appear to be low, averaging 49 live snakes and 234 boots (and pieces cut for boots) per year for the last seven years. International trade levels are in decline and are regarded as having less impact on the species than domestic use and other factors. Strengthening the enforcement of domestic trade legislation would appear to be a conservation priority for this species. The USA submitted a proposal to include the species in Appendix II at the 10th Conference of the Parties in 1997, which was withdrawn. This proposal seeks to include *C*. *horridus* in Appendix II on the grounds that international trade will reduce populations to a level where the species will be threatened by other factors or exceed the level of harvest that can be continued in perpetuity.

Analysis: Following Resolution Conf. 9.24, the criteria for inclusion in Appendix II do not appear to be met by this species. Criterion A (of Annex 2a) cannot be assessed, as insufficient information is presented on population size or rates of decline. Criterion Bi is apparently not met as the harvesting of individuals from the wild for international trade is at such low levels compared with the likely overall distribution of the population. Finally, criterion Bii does not appear to be met, as harvest for international trade seems to be currently only a minor threat, and does not appear to be reducing the population to a level where other factors would threaten its survival. Although populations have been reduced across much of the species' range, international trade of wild caught specimens appears to be at such low levels that inclusion in Appendix II would likely have little impact on preventing it becoming threatened further.

	Supporting Statement (SS)	**Additional information**
Taxonomy	Up to four different forms of *C. horridus* have been recognised based on morphological, geographical and colour variations, however there is no general agreement on the subspecific taxonomy of *C. horridus*. Therefore, the proposal treats all forms as a single species.	
Range	USA - the species occurs in 31 states and is widespread east of the Rockies. The distribution is markedly fragmented, particularly at the margins of its range.	
IUCN Global Category		The species is not considered to be threatened by IUCN.
Biological criteria and Trade		
B) Harvesting for international trade has, or may have,	There are no population estimates available for this species. Evidence from long term monitoring, studies and observations by hunters indicate that *C. horridus* populations are declining throughout much of their range. The	Distribution is fragmented in peripheral parts of the range, but less so in central areas (Brown, 1997; Dodd, 1997).

	Supporting Statement (SS)	Additional information
detrimental impact on population i) exceeds sustainable yield ii) reduces population to potentially threatened level	species' generally low reproductive rate and high first-year mortality make it vulnerable to over-exploitation. According to long-time observers and snake hunters, den populations are down to 15-40 % of levels typical of 40 years ago, and that "only 25% are believed to have populations of 45 or more snakes" (the minimum number considered viable). Only relict populations remain in most northeastern States, where much habitat has been lost. Communal winter denning make the species susceptible to over-collection. Snakes do not den in the south. The SS reports that Northeastern populations are unlikely to be able to sustain any level of harvest for trade, but subsequently refers to a study that concluded populations are likely to recover if gravid females are not collected. None of the States that permit commercial harvest monitor their populations. For the three year period 1992-1994, the USA exported 194 live *C. horridus*, 1 418 boots or pieces cut for boots, and 472 other items. During the years 1995-1999, 170 live specimens, 238 boots or pieces cut for boots, and 86 other items of *C. horridus* were exported.	The species is reportedly less sought-after in the leather industry than other rattlesnake species, presumably because it lacks the distinctive diamond pattern most commonly associated with rattlesnakes (Enge, 1994). Based on the data presented, a substantial decline in international trade in live animals, skins and skin products of *C. horridus* can be noted. The low level of international trade is widely regarded as having far less impact on the species than domestic use and other factors (IUCN Species Survival Commission and TRAFFIC Network, 1997; Chiszar, 2000). However, although little international trade in *C. horridus* is recorded, there is substantial trade in rattlesnake products that is recorded at the genus level only, at least some of this may consist of *C. horridus* (TRAFFIC North America, 2000). Anecdotal information indicates that there is a demand for rattlesnake gall bladders, for use in traditional medicine (Fitzgerald and Painter, 1999; Chiszar, 2000). Franke (1999) estimates that many thousands of rattlesnake gallbladders leave the USA each year for sale in Asia. *C. horridus* and *C. adamanteus* are targeted at rattlesnake roundups in the South but only small numbers of gallbladders from these species are exported. If gallbladders are being exported, such activity is not being declared to the US Fish and Wildlife Service, and is thus illegal (TRAFFIC North America, 2000).
A) Trade regulation needed to prevent future inclusion in Appendix I	It is unlikely that the species will meet any of the criteria for inclusion in Appendix I in the near future.	
Other information		
Threats	Major threats to the long term survival of *C. horridus* include habitat degradation and destruction, collection for rattlesnake roundups and commercial skin and pet trades, intentional killing and mortality on highways. In the Northeast much of the habitat has been lost to development and in the Southeast extensive habitat modification and destruction has taken place in the last 50 years.	*C. horridus* is used primarily in five rattlesnake roundups in Pennsylvania, Georgia and Alabama, where it is estimated that 200 animals per event per year are taken (TRAFFIC North America, 2000). There are at least 12 organised hunts that take Northern populations of *C. horridus*. Roundups occur in West Virginia and Pennsylvania, and for harvesting purposes in southern parts of the range, most notably Georgia. Although national use is stated to be probably not enough to threaten the survival of the species there is believed to be potential for significant regional impact (Brown, 1997). Although there is a great deal of information regarding the commercialisation of rattlesnake skins, meat, curios and gall bladders, very little of this trade appears to involve *C. horridus*, with *C. adamanteus* and *C. atrox* comprising most of the trade. *C. atrox*

	Supporting Statement (SS)	Additional information
		probably accounts for 85% of the annual rattlesnake harvest (Fitzgerald and Painter, 1999). Fitzgerald and Painter (1999) estimate that 15% of the domestic trade in rattlesnakes and rattlesnake products originate in roundups.
Conservation, management and legislation	*C. horridus* is protected in 18 States, partially protected in four states, while ten states offer no protection. It is classified as 'critically imperilled' to 'vulnerable' in 16 states primarily in the Northern and Midwestern regions and 'apparently secure' to 'secure' in ten states primarily in the South. Ten to twenty percent of the species' habitat is protected in parks, reservations and private land.	
Similar species		Although the trade in whole animals or undyed skins should not pose difficulties, the trade in small curios, meat and gallbladders poses a substantial identification problem for enforcement personnel (TRAFFIC North America, 2000).
Captive breeding		Twenty-seven of the 72 live *C. horridus* exported in 1999 were recorded as captive bred or F1 (TRAFFIC North America, 2000).
Other comments	Chiszar (2000) and Timmerman (2000) are in general agreement that the biological information in the SS is accurate and comprehensive.	Franke (1999) believes that listing of *C. horridus* alone may act as a distraction to the problem of uncontrolled commercial exploitation and export of the entire genus; also there is great difficulty in distinguishing between meat and gallbladders of the different species. Though the SS indicates that the states are wholly supportive of the proposal, 10 of the 32 range states in the USA currently offer no domestic protection (TRAFFIC North America, 2000).

Reviewers: D. Chiszar, J. Franke, TRAFFIC North America.

Deletion of Sonoran Green Toad *Bufo retiformis* from Appendix II. Proponent: The United States of America.

Summary: There appears to be virtually no commercial demand for this desert dwelling toad species which occurs in Mexico and the USA. It was listed in Appendix II in 1975. Since 1994, the US Management Authority has not issued any export permits, and they are unaware of any illegal trade. An unknown number of toads may be taken as pets locally. The species is almost entirely protected in Arizona, USA as most of its range is found on tribal lands; in Mexico it is listed as 'rare' and requires a permit for collection. Mexico recommended removing this species from the Appendices in the Periodic Review of Animal Taxa Included in the Appendices.

Analysis: No evidence exists to suggest that this species is in demand for commercial trade or that there is potential international demand for specimens. Therefore the species does not qualify for inclusion in the Appendices.

	Supporting Statement (SS)	**Additional information**
Range	Continuous from west-central Sonora, Mexico, to south-central Arizona, USA.	
IUCN Global Category		LR/nt
Biological and trade criteria for Appendix II retention		
B) Harvesting for international trade has, or may have, detrimental impact on population i) exceeds sustainable yield ii) reduces population to potentially threatened level	The US is unaware of any legal or illegal commercial trade or substantial harvest of this species. Only one record of international trade, from 1979, is documented from a non-range State in CITES Annual Report data. Since 1994, the US Management Authority has not issued any export permits, and they are unaware of any illegal trade. An unknown number of toads may be taken as pets locally. There are no population estimates available. However, no declines have been reported and the population in Arizona is considered stable. Limited surveys in 1996 found the species at almost all historic localities and at some new sites. Little information is available on Mexican populations. The species occupies a variety of vegetation communities and 95% of its US habitat is on tribal land, where there is no significant evidence of threats to its habitat. Potential threats include conversion of land to agriculture and urbanisation.	There appears to be virtually no commercial demand for this species within the USA. Trade does not appear to be having any actual or potential impact on this species (TRAFFIC North America, 2000). The species has a limited distribution which may make it vulnerable (Sullivan, 1999). Buhlmann (2000) notes that the surveys quoted in the SS are likely to indicate previously undocumented sites, rather than an expansion in range.

	Supporting Statement (SS)	Additional information
A) Trade regulation needed to prevent future inclusion in Appendix I	There is no evidence to suggest that this species is in demand for commercial trade.	
Retention in Appendix II to improved control of other listed species		
Specimens resemble other species and are difficult to distinguish, or most of taxon is already listed	*B. retiformis* is the only species in the family Bufonidae in the USA and Mexico to be listed in the Appendices.	
Criteria for inclusion in Appendix I		
Trade criteria	This species is not in demand for commercial trade.	
Biological criteria	The species has a restricted area of distribution but receives adequate protection in the majority of its range.	
Other information		
Threats	There are no known or documented threats to this species.	Apparently there are fewer permanently flowing streams and seasonal streams in Arizona than were present 100 years ago. Water withdrawal could have a substantial negative impact on desert amphibian populations (Buhlmann, 2000).
Conservation, management and legislation	In Mexico, the species is listed as 'rare' and a scientific collecting permit is required for collection in Mexico; this appears to afford adequate protection. Current protection measures at the State, Federal and tribal levels in the USA also appear to be adequate.	

Reviewers: K.A. Buhlmann, B. K. Sullivan, TRAFFIC North America.

Inclusion of the genus *Mantella* in Appendix II. Proponent: United States of America and the Netherlands.

Summary: The genus *Mantella* comprises around 17 species of small, terrestrial, often brightly coloured frogs from Madagascar. One species, *M. aurantiaca* has been included in Appendix II since 1995. Four further species were proposed for inclusion in Appendix II at CoP 10; this proposal was withdrawn on the understanding that a proposal for listing the entire genus would be prepared for consideration by COP 11. Nomenclature of the genus is somewhat unstable and several currently recognised species exist in more than one colour morph. Many species, particularly the more colourful ones, are popular with keepers of reptiles and amphibians, chiefly in Europe and North America. Available data indicate that recent annual trade in those species not currently included in Appendix II amounts to several tens of thousands of individuals annually, almost all of this export of wild-collected individuals from Madagascar. Although knowledge of the current status of most species remains incomplete, there is general consensus that most are adversely affected by habitat loss and several, at least locally, by excessive collection for export. No significant local use of the species is known; there is believed to be limited export for scientific purposes, numerically insignificant compared to export for the pet trade.

Analysis: Following Resolution Conf. 9.24, the majority of species in the taxon appear to meet the criteria for inclusion in Appendix II under Annex 2a (ie. that current levels of trade may be unsustainable). In view of the similarity of many species and the taxonomic uncertainty surrounding specific designations within the genus, the remainder meet the criteria for inclusion under Annex 2b, in that their inclusion would improve control of the former species, and of *Mantella aurantiaca* (already included in Appendix II).

	Supporting Statement (SS)	**Additional information**
Taxonomy	Nomenclature follows a more recent source than the standard amphibian reference recommended in Resolution Conf. 10.22.	Although taxonomy within *Mantella* is unstable, the genus is clearly defined (Vences *et al.*, 1999). A number of other names are used in trade (Glaw, 1999; Vallan, 1999).
Range	The genus is endemic to Madagascar.	
IUCN Global Category		Not assessed.
Biological and trade criteria		
B) Harvesting for international trade has, or may have, detrimental impact on population i) exceeds sustainable yield ii) reduces population to potentially threatened level	Eleven out of 16 species other than *M. aurantiaca* (including two unnamed) recognised in SS are recorded as exported in non-trivial amounts (approximately 100 or more for the period 1994-1998). There is evidence of at least locally unsustainable harvest levels for *M. cowani* and *M. viridis*; some unsustainable harvest strongly suspected for *M. laevigata, M. nigricans, M. baroni, M. pulchra* and *M. madagascariensis*. Harvest believed likely to reduce populations of *M. bernhardi* to potentially threatened level.	In the period 1996-1998, the USA imported just over 50 000 specimens of non-CITES listed *Mantella* (TRAFFIC Europe, 2000); in 1997-1998, the member states of the EU imported just over 10 000. All species recognised at that time appear to be in trade, although *Mantella* in trade (other than *M. aurantiaca*) are often not recorded to species level and some named species (*M. haraldmeieri, M. nigricans* and *M. bernhardi*) have only been recorded in very small numbers (TRAFFIC Europe, 2000). At least some species are captive-bred outside the range State. However, production in general is insufficient to meet demand and some species (e.g. *M. laevigata* and *M. viridis*) are reportedly very difficult to breed in captivity (Vallan, 2000). Retail prices for *Mantella* spp. other

	Supporting Statement (SS)	Additional information
		than *M. aurantiaca* are generally in the range USD14-50, although prices for *M. bernhardi, M. cowani* and *M. haraldmeieri* are said to have increased (to USD60-80) in recent years owing to scarcity (Staniszweski, 1999). Zimmerman (1999) reports that mantella frogs contain similar alkaloids to those in dendrobatid or poison arrow frogs and so may be in demand as a source of these compounds.
Species should be included to help control trade in other species in Appendix I or II	All species have appeared in trade. Taxonomic confusion within the genus, the existence of as yet unnamed species, the potential discovery of new forms, the difficulty for non-experts of distinguishing between some species and the use of spurious scientific names in trade all indicate that control of trade will be most effective at genus rather than species level.	Zimmerman (1999) notes that all species in the genus *Mantella* spp. should be included in Appendix II and that some may be considered for Appendix I.
Other information		
Threats	Habitat loss and over-collecting are recognised as threats to a number of *Mantella* species. Seven of the species are believed confined to primary forest, three others possibly are; habitat requirements of the others are either not precisely known or, in one case, (*M. betsileo)* not in primary forest.	Vallan (2000) notes that habitat for all species is either fragmented or very small. Vences *et al.* (1999) considered all species to be to some degree under threat with the exception of *M. betsileo*, which has a wide range, occurs outside primary forest and has relatively low appeal as a collector's animal.
Conservation, management and legislation	Ten of the species have one or more populations within a protected area and one other (*M. haraldmeieri*) probably does.	
Similar species		None in Madagascar. The genus resembles South and Central American arrow-poison frogs (*Dendrobates* and allied genera) (Appendix II).

Reviewers: F. Glaw, TRAFFIC Europe, D. Vallan, H. Zimmerman.

Introduction to Shark Proposals

Three proposals to include various shark species in either Appendix I or Appendix II are under consideration. The Whale Shark (Doc. 11.47) and Basking Shark (Doc. 11.49) are proposed for inclusion in Appendix II, and the Great White Shark (Doc. 11.48) for inclusion in Appendix I.

In 1994, CITES Adopted Resolution Conf. 9.17 which called for the Animals Committee to collect information on the biology and trade in sharks to assess their status. Reports on biology and trade were presented to the 13th meeting of the Animals Committee by both the IUCN SSC Shark Specialist Group and the TRAFFIC Network. At the same time, the United States compiled information collected from range States. The Animals Committee reported to the Parties on progress with implementing Resolution Conf. 9.17 at CoP 10 where the Food and Agriculture Organisation (FAO) was urged to compile further information. As a result of these initiatives it became clear that neither FAO nor the World Customs Organisation (WCO) collect data on sharks that is species specific with respect to catches or commodities in trade. Consequently, the usefulness of both FAO and WCO data is limited in terms of identifying species specific conservation requirements.

Nonetheless, it is clear that sharks are being caught in substantial numbers through directed fisheries and bycatch. Recognising the need for management of shark fisheries, the FAO community has developed the International Plan of Action for Sharks (IPOA-Sharks). The IPOA-Sharks notes the lack of available catch, effort, landings and trade data, and encourages States to assess the status of shark stocks within their Exclusive Economic Zones (EEZs) and those fished on the high seas, and to determine if there is a need to develop a National Plan of Action. This IPOA-Sharks was adopted by the 23rd session of the FAO Committee on Fisheries (COFI) in February 1999 and adopted by the FAO Conference in November 1999. The objective of the IPOA is to ensure the conservation and management of sharks and their long-term sustainable use. The IPOA requires that States that adopt the Plan identify and pay special attention to vulnerable or threatened species and facilitate the identification and reporting of species specific biological and trade data. States are asked to report on their assessment and on progress made with the implementation of the IPOA and that of the Shark Plan if they develop one. States are requested to have Shark Plans by 2001.

Adoption of the IPOA-Sharks is a welcome step in shark management, but as the IPOA is voluntary, its implementation is not guaranteed. At present, CITES offers the only effective means of monitoring international trade in individual species included in Appendix II.

Inclusion of a species in CITES Appendix II not only requires a Party to monitor trade, but also to make a non-detriment finding, i.e. to establish that trade will not be detrimental to the survival of the species. This requires a method of assessing indices of offtake against indices of population status, which is likely to require consultation with national fisheries agencies. In the case of marine species CITES requires a non-detriment finding not only for export of Appendix II species, but also for purposes of introduction from the sea. CITES has defined introduction from the sea as meaning transportation into a Party State of specimens of any species listed in the Appendices which were taken in the marine environment outside the jurisdiction of any State. To clarify the extent of State jurisdiction and other issues, Document 11.18 on introduction from the sea will be considered by Parties at CoP 11.

Inclusion of Whale Shark *Rhincodon typus* in Appendix II. Proponent: United States of America.

Summary: The Whale Shark is an epipelagic, plankton eating, highly migratory, pantropical species. It occurs in oceanic and coastal tropical and warm-temperate waters of the Atlantic, Pacific and Indian Oceans and is the world's largest fish, growing to at least 15 m in length. Very little is known about its reproductive patterns, it is generally thought to be long-lived, late maturing (at 9 m, 30 years) and generally thought to have a low fecundity, although a female was recently discovered with 300 embyos comprising three different size classes. The Whale Shark is naturally rare, and numbers appear to fluctuate locally on an annual basis. Short-term declines in sightings and catch per unit effort recorded in some States coupled with an inferred increase in demand for meat and the general increase in demand for all shark fins has raised concern that international trade may be affecting the species. There is demand for Whale Shark meat in Taiwan, Malaysia and elsewhere in Asia that is supplied by international trade from India and domestic trade in the case of Taiwan; the former trade from the Philippines and Maldives is now prohibited under national legislation. Ecotourism based on this species has been reported from Mozambique, Philippines, Australia and Thailand, and a code of conduct for ecotourism operations has been developed in Australia. The species is protected in the waters of Honduras, the Maldives, some US waters, the Philippines and Western Australia. Reports of landings come from coastal fisheries largely within territorial waters and certainly within Exclusive Economic Zones (EEZs), although the species may also be taken in pelagic fisheries. The FAO Conference has recognised the need for improved management of shark fisheries with adoption of the International Plan of Action for Sharks (IPOA-Sharks). This Plan, although voluntary in nature, encourages nations to assess their shark resources, take action to manage directed and incidental fisheries and to develop regional action plans. The proposal seeks to include the Whale Shark in Appendix II on the basis that unless international trade is subject to strict regulation, it will satisfy the population decline criterion for inclusion in Appendix I (criterion C of Annex 1 of Resolution Conf. 9.24) in the near future. In so doing, the species would qualify now for listing in Appendix II under criterion A on Annex 2a of Resolution Conf. 9.24. The proposal also maintains that the species qualifies for listing in Appendix under criterion Bi, on the basis that is is known, inferred or projected that harvesting has, or may have, a detrimental impact on the species.

Analysis: Following Resolution Conf. 9.24 the species is reported in international trade. However, there appears to be insufficient information on population size and decline rates to demonstrate that the species does or does not meet criterion A (Annex 2a of Resolution Conf. 9.24) for inclusion in Appendix II. The case for inclusion in Appendix II due to an unsustainable harvest (criterion Bi) is less clear. To date, reports of declines following harvest have been localised and short term, generally over four to five years, and so the declines cannot be separated from natural short-term variation in local abundance. However, as the evidence of trade impacts is inconclusive it is possible that harvesting for international trade may have a detrimental impact on the population, thereby satisfying criterion Bi. However, the species is likely to be extremely vulnerable to direct exploitation due to its conservative life history. Improved monitoring of populations and catches and further research would help determine the impact of trade on this species. In cases of uncertainty, Resolution Conf. 9.24 recommends the Parties act in the best interests of the conservation of the species. Implementation of an Appendix II listing would be challenging.

	Supporting Statement (SS)	Additional information
Taxonomy	No scientific synonyms are recorded in the SS.	*Riniodon typus* Smith 1828 (Compagno,1984).
Range	The SS lists the known and potential range States for the species: Angola, Anguilla, Antigua, Argentina, Ascension, Australia, Azores, Bahamas, Bahrain, Bangladesh, Barbados, Barbuda, Belau, Belize, Benin, Bermuda, Brazil, Cambodia, Cameroon, Cape Verd Republic, Chile, China, Colombia, Congo, Costa Rica, Cuba, Curaçao (and other Caribbean possessions), Democratic Republic of the Congo, Djibouti, Dominica, Dominican Republic, East Timor, Ecuador, Egypt, El Salvador, Federated States of Micronesia, Fiji, France (New Caledonia and other South Pacific	

	Supporting Statement (SS)	Additional information
	possessions; Clipperton Island; Guadaloupe, French Guiana, French Polynesia, Gabon, Ghana, Grenada, Guatemala, Guinea, Guinea Bissau, Guyana, Haiti, Honduras, India, Indonesia, Iran, Iraq, Ivory Coast, Jamaica, Japan, Kenya, Kiribat, North Korea, South Korea, Kuwait, Liberia, Madagascar, Malaysia, Maldives, Marshall Islands, Martinique (and other Caribbean possessions), Mauretania, Mauritius, Mexico, Morocco, Mozambique, Myanmar, Namibia, Nauru, Netherlands (Netherlands Antilles, New Zealand (including South Pacific possessions), Nicaragua, Nigeria, Northern Marianas Islands, Oman, Pakistan, Panama, Papua New Guinea, Peru, Philippines, Portugal (Madeira, Qatar, Reunion, Sao Tome and Principe, Saudi Arabia, Senegal, Seychelles, Sierra Leone, Singapore, Solomon Islands, Somalia, South Africa, Spain (Canary Islands and Caribbean and South Pacific possessions), Sri Lanka, St. Helena, St. Kitts-Nevis, St. Lucia, St. Vincent and the Grenadines, Sudan, Surinam, Tanzania, The Gambia, Togo, Tonga, Trinidad and Tobago, Turks and Caicos, Tuvalu, UK, United Arab Emirates, Uruguay, USA, Vanuatu, Venezuela, Vietnam, Virgin Islands, Western Samoa, Yemen.	
IUCN Global Category	DD, but considered rare (WCMC 1999). No specific supporting reference is provided and WCMC (1999) notes that the species is naturally rare.	Stevens (2000) notes that the species is relatively uncommon, rather than rare. The IUCN SSC Shark Specialist Group executive committee has recommended that the species be classified as VU (A2d) (Fowler, 2000).
Biological and trade criteria		
A) Trade regulation needed to prevent future inclusion in Appendix I	No evidence is presented of global population size, the species does not have a restricted area of distribution and there is little evidence of population decline although some local population declines may have occurred.	Interpretations of local population declines are challenged by reviewers (Simfendorfer 2000; Stevens 2000). The reported local population declines may simply be due to variation in Whale Shark dispersion patterns.
B) Harvesting for international trade has, or may have, detrimental impact on population i) exceeds sustainable yield ii) reduces population to potentially threatened level	Basic reproductive parameters are unknown. Whale Sharks are generally thought to be long-lived, late maturing and have a low fecundity and possibly biennial reproduction; although a recent observation of one female containing 300 embryos has been interpreted to suggest that the species may be fast growing and extremely prolific. The Whale Shark has been fished for fins and meat in at least ten tropical countries, with a recent market for fresh meat reported from Taiwan. Population size, status and the impacts of past and existing fisheries are unknown. However, in the Philippines catch per unit effort has recently declined from 4.4 to 1.7 sharks per boat and from 10 to 3.8 sharks per boat over a four year period. Similar declines in sighting rates are reported from Taiwan, Maldives and possibly Thailand although none of these declines appear to be statistically significant. In 1998, 1 000 specimens were	Taylor (1994) speculated that the Whale Shark may live up to 100 years. The species has been recorded in groups of up to hundreds of sharks (Compagno, 1984). Groups in Western Australia consisted mainly of immature males, suggesting that the species exhibits separation by sex and age class (Stevens *et al*., 1999). A Whale Shark photo identification system has been developed to recognise individuals by skin patterns, which should allow the collection of further information on population dynamics, migration patterns etc. (Stevens *et al.*, 1999). According to Simfendorfer (2000), Taylor (1996) described a large decline in the sighting rate at Ningaloo Reef from about eight sharks per boat day to almost zero over a period of five years but the rate subsequently rose again to previous levels, even though there was no local fishing for Whale Sharks. Taylor (1996) considered that environmental factors may play an important part in local abundance.

	Supporting Statement (SS)	Additional information
	reportedly harvested by three villages in India in one year. The fishery for Whale Shark liver oil in the Maldives has been closed. International trade in whale shark meat has been recorded between Taiwan and the Philippines, but data on volume and trends are not available. Whale Shark fins have also been recorded for sale in Hong Kong and meat has been traded from India to Taiwan, Malaysia and elsewhere in Asia. Insufficient information is available to determine whether the population is reduced to a potentially threatened level.	His results suggest that there can be natural variation in abundance in localised areas and this must be considered when assessing the status of populations. Recent radio-tagging studies have shown that individuals may migrate between the waters of several range States (Eckert, 2000). Although recent large catches have been reported from India, there is insufficient information to detect any trends in catches (TRAFFIC India, 2000). The Whale Shark fishery in coastal waters of Taiwan took 272 individuals during the 1996 season (Chen *et al.*, 1997), but again there are insufficient data to detect trends in catches. The wholesale (US$6.3-9.4 per kg) and retail (US$15.6 per kg) price in 1998 in Taiwan did not differ much from that in 1997 (TRAFFIC Taipei). TRAFFIC Taipei also reports that frozen Whale Shark meat is apparently obtained from outside coastal waters of Taiwan, but is not recorded in customs statistics. There is some evidence of recent illegal trade from the Philippines with the seizure of a shipment of 1 900kg of Whale Shark meat bound for Hong Kong (TRAFFIC Taipei). Most harvest appears to be from coastal waters so is not subject to provisions relating to introduction from the sea, although the species can be encountered in very deep water far from land (Compagno, 1984).
Other information		
Threats	The species may be more susceptible to exploitation due to longevity, delayed maturation and low fecundity.	According to Simfendorfer (2000), the main threat to the Whale Sharks is harpoon fishing in Asia. However, Coleman (1997) notes that Casey *et al.,* (1992) considered the Whale Shark to be at potential risk from pelagic fisheries. The anti tumour-inducing properties of whale shark liver oil have been investigated in China (Zhang *et al.*, 1988).
Conservation, management and legislation	The species is legally protected in the Philippines but enforcement is difficult. It is also protected in the Maldives and Honduras, Western Australia, Florida State waters and the US non-State waters of the Gulf of Mexico. Mexico and Kenya are considering adopting some form of protection for the species. Tagging studies by NGOs are under way in some areas.	In Western Australia, Simfendorfer (2000) notes that protection was introduced to safeguard what was considered a rare and important species, and also the developing ecotourism industry even though the take of whale sharks was almost non-existent. The population of this species is monitored at Ningaloo Reef in Western Australia using sightings reports from ecotourism boats, independent boat surveys, and aerial surveys by the Western Australian Department of Conservation and Land Management (CALM). The species is reportedly also protected in the US Atlantic territorial waters (Musick, 2000). In November 1999 the FAO Conference agreed the International Plan of

	Supporting Statement (SS)	Additional information
		Action for the Conservation and Management of Sharks (IPOA-Sharks). The IPOA notes the lack of available catch, effort, landings and trade data. It encourages States to assess the status of shark stocks within their EEZs and those fished on the high seas and then to determine if there is a need to develop a National Plan of Action. States are asked to report on this assessment and on progress made with implementation of the Shark Plan, if they develop one. States are requested to have Shark Plans by 2001. The IPOA is entirely voluntary.
Similar species	Fins can be identified by their large size, and the muscle cells in meat are also large. Meat and fins from very small Whale Sharks could possibly be confused with those of other sharks.	It is not clear that muscle cells of whale sharks can be distinguished from those of other large sharks.
Other comments	Inclusion in Appendix II would allow monitoring of international trade and its impacts.	Kaneko (2000) notes that the FAO IPOA-Sharks will become fully operational shortly and will encourage nations to identify biological parameters and monitor trade volume and pattern, and concludes that CITES listing may be premature. In contrast, Seret (2000), notes that inclusion in Appendix II would allow monitoring and collection of further information. In some areas Whale Sharks are used to indicate the presence of tuna and other fish (Stretta and Slepoukha, 1983; Seret, 2000).

Reviewers: Y. Kaneko, J. Paxton, B. Seret, C. Simfendorfer, J. D. Stevens, TRAFFIC Oceania, TRAFFIC Taipei, P. Walker.

Inclusion of Great White Shark *Carcharodon carcharias* in Appendix I. Proponent: Australia and United States of America.

Summary: The Great White Shark is a widely distributed species of coastal and offshore shelves in temperate and sub-tropical areas. It is thought to have local populations that show some evidence of migratory behaviour. It is a large (5 m) marine predator, vilified for its attacks on humans. It is thought to have a low reproductive rate, reaching sexual maturity at 9-10 years of age and producing between two and ten pups after a 12 month gestation period once every two to three years. The species is relatively long-lived. The Great White Shark is uncommon compared to other sharks and anecdotal evidence from sports fisheries, and protective beach meshing programmes in Australia, California and South Africa suggest that numbers are declining. The species is not targeted by large commercial pelagic fisheries, but may be taken as bycatch. In addition to bycatch, the main sources of recorded mortality seem to be sport fishing and the curio trade. The high prices for teeth and jaws in the curio trade are thought to stimulate directed take of this species in coastal fisheries. However, the general trade in shark fins has increased substantially since the 1980s and Great White fins have been reported in trade in Hong Kong, Singapore and Liberia, although trade volumes are unknown. In response to concerns about the increasing trade in shark fins, the FAO Conference has recognised the need for improved management of shark fisheries with the adoption of the International Plan of Action for the Conservation and Management of Sharks (IPOA-Sharks). This Plan, although voluntary in nature, encourages nations to assess their shark resources, take action to manage directed and incidental fisheries and to develop regional action plans. The species is protected by specific legislation in several range States. The proposal seeks to include the species in Appendix I on the basis that the population is small in relation to that of other species and may have declined by at least 20% over the last three generations, hence meeting the following criteria of Resolution Conf. 9.24: criterion Ai and criterion Cii.

Analysis: Following Resolution Conf. 9.24, with respect to the trade criterion, there are reports of Great White Shark products in trade and although the level of this trade is not clear, it seems to be largely limited to the curio trade where the high prices suggest a significant demand. Regarding the biological criteria for inclusion in Appendix I (Resolution Conf. 9.24 Annex 1), there does not appear to be evidence that the species meets criterion A, as the wild population would appear likely to be higher than the level suggested by the numerical guidelines. Neither is the species likely to have a sufficiently restricted distribution to meet criterion B. For criterion C, using the guideline levels there appears to be insufficient evidence to infer a decline of 50% over two generations (as required if the population is not judged to be small). Finally, for criterion D, there does not seem to be any evidence to suggest that the species will satisfy the criteria within five years. Although the species does not apparently meet the biological criteria for inclusion in Appendix I, it is likely to be vulnerable to exploitation due to its low fecundity. Improved monitoring of populations and catches and further research would help determine the impact of trade on this species. In cases of uncertainty, Resolution Conf. 9.24, Annex 4A recommends that the Parties act in the best interest of the conservation of the species.

	Supporting Statement (SS)	**Additional information**
Taxonomy	Scientific synonyms and common names are included in appendix A to the SS.	Additional synonyms: *Squalus carcharias* Linneo, 1758; *Carcharodon rondeletii* Muller-Henle, 1841; *Carcharodon lamia*, Bonaparte, 1839. (Vacchi and di Sciara, 2000). Italian and Spanish reviewers note inaccuracies in the listing of common names (Vecchi *et al.,* 2000; Barrull and Mate, 2000).

	Supporting Statement (SS)	Additional information
Range	Coastal and offshore areas throughout temperate and subtropical regions in the northern and southern hemispheres. The following range States are listed in appendix C to the SS: Argentina, Australia, Bahamas, Brazil, Canada, Chile, China, Democratic Republic of Congo, Cuba, France, Ghana, India, Indonesia, Japan, Democratic People's Republic of Korea (North Korea), People's Republic of Korea (South Korea), Marshall Islands, Mexico, Panama, Philippines, Portugal, Russia, Senegal, Seychelles, USA, New Zealand.	From the broad description of the species' range, it appears that there may be additional range States, but there is currently insufficient information to confirm this.
IUCN Global Category	VU	VU A1bcd+2cd.
Biological criteria		
A) Small wild population	No data is available on total population numbers, but the species is generally agreed to be uncommon to rare compared with most shark species. The Australian population is estimated to number < 10 000 mature individuals.	Stevens (2000) notes that the Australian population is not estimated to be less than 10 000 mature individuals, that figure is the population size for the Vulnerable category of threat. No further information is available.
i) population or habitat decline	Studies from protective beach meshing programmes and evidence from sport fisheries suggest numbers may be declining in North America, South Africa and Australia.	See section C, below. Stevens (2000) notes that declines in Great White Sharks caught by sport fishers off South Australia, may be due to changes in shark behaviour, the sharks are apparently now found further offshore, and because there is less targeting of Great Whites than in the 1950s.
v) high vulnerability due to biology or behaviour	Pregnant females are rarely reported and the species may have an unusually low fecundity rate for elasmobranchs. The size at maturity is around 4.5 m and possibly 2-10 pups are produced after a gestation period of over 12 months. It is thought that the females do not reproduce every year.	Its low fecundity, long gestation period, slow growth and late maturity make the species vulnerable to exploitation and habitat change (Barrull and Mate, 2000). Based on an age of female maturity of nine years, a maximum age of 36 years and average annual female pup fecundity of 3.5 (after Caillet *et al*, 1985) Smith (2000) calculates that after harvesting to Maximum Sustainable Yield levels, the rate of increase will be 2-4% per year, similar to the rates calculated for dolphins and small cetaceans, and in contrast to rates of 34% for Pacific sardine.
B) Restricted area of distribution	The Great White Shark is widely distributed, but most abundant near the seal colonies along the Central Californian Coast, the shelf waters of the mid-Atlantic Bight, the Great Australian Bight, and the Cape and Kwa-Zulu Natal provinces of South Africa. Smaller specimens are mostly restricted to temperate waters. The species is migratory within its range and may move out of its range on a seasonal basis.	Reviewers question the assertion of a Mediterranean breeding area concluding that more research is needed (Vecchi *et al.*, 2000; Barrull and Mate 2000). The species does not appear to have a restricted distribution.
iv) decrease in distribution, population, habitat or reproductive potential	Coastal areas are preferred habitat and human development in these areas may reduce habitat quality for Great White Sharks.	Tuna overfishing in the Mediterranean will affect the Great White Shark, as tuna is the main prey species (Barrull and Mate 2000).
C) Decline in number of wild individuals	Studies from beach meshing programmes and evidence from sport fisheries suggest numbers may be declining in North America, South Africa and Australia. The Australian population is estimated to have declined by	Stevens (2000) notes that there are almost certainly natural fluctuations in Great White abundance in some areas. Kaneko (2000) questions interpretation of the Natal Coast data. Further investigation shows that

	Supporting Statement (SS)	Additional information
	10% over the past three generations (about 30 years). Sport fishing data records a decline in the proportion of Great White Sharks compared to other shark species and there have been declines in reported sightings.	Cliff *et al* (1996), in discussing their results of a statistically significant decline in catch rate from 1973 to 1993, note that the biological significance of this result is uncertain and the result may be due to a sampling artefact. However, they conclude that the mortalities associated with the beach netting are likely to have a significant impact on a top predator such as the Great White Shark. The species is classified as Vulnerable on the basis of a past and future decline of 20% over three generations (Baillie and Groombridge, 1996). USFWS (2000) quotes local decline rates of 68% along the eastern coast of the US and a decline of over 96% in Australian waters calculated from relative catch proportions of Great White Sharks to all other sharks.
D) Status suggests inclusion in Appendix I within five years	No information provided.	
Trade criteria		
The species is, or may be, affected by trade	As large fishing fleets do not target Great White Sharks, information on the volume of catches and landings is rare and in many cases, shark products are not identified to species level. However, the species has been recorded in use for leather, for its liver oil, and as a source of meat and fins. The most prized products are jaws and teeth valued at USD15 000-USD50 000 and USD600 respectively. The general trade in all shark fins, as shown by FAO records of imports, has increased from 31 tonnes in 1980 to 335 tonnes in 1990. Great White fins are preferred in Hong Kong and known to be in trade in Singapore; and the meat is the most valuable shark meat in South Korea. In many cases shark products are not identified to species level. Inadequate population data means it is impossible to know what percentage of the population is killed, hence precautionary measures should be considered in assessing the proposal.	US and African exporters apparently sell jaws and teeth for export (Barrull and Mate, 2000). Great White curios are advertised for sale on the Internet (http://www.jtssharksteeth.com/). Due to the lack of identification of shark products in trade, there is little evidence of international trade in other products. The species is also a focus for ecotourism, which if properly controlled can be non-invasive and lucrative, although such ventures require proper controls (Burgess, 1998; Fergusson *et al*., in prep.). The majority of annual captures worldwide of the species are made incidentally through commercial fisheries operating longlines, setlines, gillnets, trawls, fish traps and other gear. The Great White Shark is rarely represented in the elasmobranch bycatch of offshore oceanic pelagic fisheries. However, the species is targeted for trophies and saleable curios in coastal fisheries.

	Supporting Statement (SS)	Additional information
Other information		
Threats	Direct and incidental fishing; declining prey abundance; protective beach netting; intensified trophy fishing; habitat degradation; increasing economic value as numbers decline, and development of a black market.	Accumulation of high concentrations of potentially toxic chemicals in shark tissue may lower immune defences or reduce biological fitness (Barrull and Mate, 2000). Three specimens were caught in protective beach nets in Australia in both 1996 and 1998 and a further eight caught during 1999 (Paxton, 2000). In response to the threat of the potential development of a black market, mentioned in the SS, Kaneko (2000) notes Appendix I listing would decrease supply and could result in a black market.
Conservation, management and legislation	Most range States do not regulate catches or trade. The species is protected in South Africa, Namibia, the Maldives, Commonwealth waters of Australia; the US waters of the Atlantic Ocean and adjacent seas and California and Florida state waters, although the level of enforcement varies. An agreement between Australia and Japan specifies data to be recorded on all sharks caught by Japanese tuna longliners within the Australian EEZ. The FAO International Plan of Action for the Conservation and Management of Sharks (IPOA-SHARKS), will encourage the adoption of national action plans for shark stocks, but is voluntary. Population monitoring and research is conducted in South Africa and Australia.	
Similar species	Jaws, teeth and fins of large individuals are easily identified, although large fins may still be confused with those of the Whale Shark and Basking Shark. Jaws, teeth and fins of smaller individuals may be confused with those of other species. The proponents are preparing an identification guide.	
Other comments:	The species is widely distributed and has some degree of transoceanic movement, so that international co-operation would enhance the success of domestic measures.	Although the species does not appear to meet the criteria for inclusion in Appendix II, both Fowler (2000) and Musick (2000) suggest the species should be considered for inclusion in Appendix II.

Reviewers: M. Francis, Y. Kaneko, J. Barrull, I. Mate, M. Vecchi, G. Notobartolo di Sciara, F. Serena, J. Paxton, J. D. Stevens, C. Simfendorfer, P. Walker.

Doc. No.: 11.49

Inclusion of Basking Shark *Cetorhinus maximus* in Appendix II. Proponent: United Kingdom.

Summary: The Basking Shark is a large (up to 13.7 m in length) plankton-eating fish that is widely distributed in coastal and continental shelf waters of temperate zones in the northern and southern hemispheres. It is thought to have a life-span of around 50 years and grows and reproduces very slowly unlike many bony fish, bearing up to six live young approximately every four years. The species is classified by IUCN as Vulnerable, due to past and future exploitation by fisheries and probable small population size, although many aspects of its life history are unknown. The Basking Shark migrates seasonally to coastal areas in the spring and summer in response to plankton abundance, which can also vary annually. Its habit of 'basking' at the surface makes it vulnerable to harpoon fisheries. The species has been targeted by directed fisheries for centuries, but these directed fisheries in the past in EU, Japanese, Norwegian and US waters have rarely produced more than 2 000 fish per year for around ten to 20 years before stocks disappear and then recovery may take around 100 years before exploitation starts again. Currently, the only directed fishery in operation appears to be the Norwegian fishery. Products in trade include, oil, meat, and fins. Despite the use of many parts of the basking shark and the historical reason for the harvest having been for liver oil, in light of their conservative life history, the global demand for shark fins remains a threat to the sustainability of this species. There is evidence of opportunistic finning of this species when encountered due to the high value of a set of fins. However, due to the lack of reporting of shark products to the species level, there is relatively little information on trade in this species. The species is protected to some degree by legislation of New Zealand, UK and US waters and the 30th FAO Conference has recognised the need for improved management of shark fisheries with agreement of the International Plan of Action for Sharks (IPOA-Sharks). This Plan, although voluntary in nature, encourages nations to assess their shark resources, take action to manage directed and incidental fisheries and to develop national and regional plans. It is clear that CITES reporting of international trade would help countries develop their national Shark Plans, with respect to this species, but the identification of products in trade such as meat, oil, cartilage and even fins will be challenging. To help with enforcement the Proponent has committed to developing an identification guide. The majority of landings of this species are likely to be from coastal fisheries and so will not be subject to the provisions relating to introduction from the sea. However, where a Party is allowed to fish in the Exclusive Economic Zone of another Party, the situation regarding the issue of CITES permits would require clarification. Reviewers generally note that the supporting statement is comprehensive in content. The species is proposed for inclusion in Appendix II on the basis that the harvesting of specimens from the wild for international trade has a detrimental impact on the species by exceeding the level that can be continued in perpetuity.

Analysis: Following Resolution Conf. 9.24, although the species is not necessarily now threatened with extinction, it appears to meet the criteria for inclusion in Appendix II under Annex 2a, paragraph, Bi. Basking Shark products are reportedly in international trade, and fisheries have apparently resulted in long term localised declines in numbers. Implementation of an Appendix II listing would be challenging.

	Supporting Statement (SS)	**Additional information**
Taxonomy	It has been suggested that there are four species of basking shark, but until DNA studies are completed, it seems more likely that there is a single species.	Additional synonyms: *Squalus maximus* Gunnerus, 1765*; Selache maxima* Cuvier, 1817; *Polyprosopus rashleighanus* Couch, 1862; *Squalus* or *Cetorhinus rostratus* Cornish, 1870; *Selache rostrata* Pavesi, 1874 (Serena *et al*., 2000).
Range	Major Range States: Argentina, Australia, Brazil, Canada, Chile, China, Denmark, Ecuador, Faeroes, France, Greece, Iceland, Ireland, Italy, Japan, Democratic People's Republic of Korea (North Korea), Republic of Korea (South Korea), New Zealand, Norway, Peru, Portugal, Russian Federation, South Africa, Spain, Sweden, Turkey, UK, USA, Uruguay.	From the broad description of the species' range, it appears that there may be additional range States, but there is currently insufficient information to confirm this.
IUCN Global Category	VU (A1a,d, A2d) declining populations, due to fishery exploitation, slow	

	Supporting Statement (SS)	Additional information
	recovery rates and the potential for future declines	
Biological and trade criteria		
B) Harvesting for international trade has, or may have, detrimental impact on population i) exceeds sustainable yield ii) reduces population to potentially threatened level	Unlike many bony fish, the Basking Shark has a conservative life-history pattern with a life-span of around 50 years, a late age of maturity and production of up to six live young approximately every four years. Basking sharks migrate seasonally but are site-faithful and effectively part of local stocks, vulnerable to depletion by fisheries. The natural short term variations in abundance of Basking Sharks may be in response to changing water temperatures, plankton abundance or fishing in different areas. Detrimental harvest is shown by examples of fishery collapse in the 19th century in Scottish and Irish waters, and during the 20th century in Japanese, Irish, Norwegian, Scottish and US waters. Anecdotal evidence of declines is also presented for Canadian and Chinese waters. Norwegian fishery landings fluctuated during the peak 20 years of harvest. The calculation of mortality and exploitation rates from a Scottish Basking Shark fishery produced rates that no fish could withstand for long. The only current directed fishery for this species, mentioned in the SS, is the Norwegian fishery. The species is clearly in demand for international trade; basking shark fins, cartilage and meat have all been reported in trade during the 1990s. New Zealand and Norway have exported or imported liver oil. Fin exports have been recorded from Ireland to Spain and Norway, from Scotland to Norway and from Norway to Japan and Singapore. Norwegian fin exports to Japan rose from 0.96 tonnes in 1992 to 7.218 tonnes in 1993 and 26.859 tonnes in 1994, and were worth around USD130/kg of processed fin in 1996. Customs data do not record international trade to species level for sharks so there is relatively little information on quantities of Basking Shark products in trade, but there is clear evidence that they are in trade.	Long-term monitoring of plankton abundance, from 1950-1995, has shown an increase in phytoplankton in the northeast Atlantic and the North Sea and a corresponding decrease further north in the north northeast Atlantic coinciding with the spread of colder waters further north (Reid *et al*.,1998). Such changes could affect basking shark numbers and distribution and should be compared with fishery data. Recent modelling using known growth parameters suggests that a population of Basking Sharks exposed to a Maximum Sustained Yield (MSY) level of fishing and then allowed to rebound would only increase its numbers by about 2% per year, similar to the rates of 4% calculated for dolphins and small cetaceans and in contrast to rates of 34% for Pacific sardine and (Smith, 2000). This is further evidence that Basking Shark populations can be adversely affected by local over harvest. Shark finning is apparently not practised in Italy and the low commercial value of the fish does not outweigh the costs of possible gear damage (Serena *et al*., 2000). Indeed, Angell (2000) contends that in future there will be few incentives for Norwegian vessels to target Basking Shark, as trade volumes are currently low, with a virtually non-existent demand for liver oil, although there is a high demand for fins in Japan and other Oriental markets.
Other information		
Threats	Targeted and bycatch pose the main threat to the species but collisions with vessels and harassment by shark watchers also take their toll.	Basking Sharks caught as bycatch have also been reported from Argentina (Van der Molen *et al*., 1998).
Conservation, management and legislation	The species is protected or partly protected within the territorial waters of UK, USA, and New Zealand, and in Florida state water. The species is listed under the Barcelona Convention for the Protection of the Mediterranean Sea (1976) and will be protected when this comes into force. The Mediterranean population has been added to Appendix II of the Berne Convention On Conservation of European Wildlife and Natural Habitats. The only known fisheries management for this species incorporates an annual	Under UNCLOS (the United Nations Convention on the Law of the Sea) this species qualifies as a highly migratory species (HMS) or straddling stock and could also come under the jurisdiction of the Bonn Convention (Pawson and Vince, 1999). Protected in Italian National Law under Italy's ratification of the Barcelona Convention and under Italy's IPOA there are plans to

	Supporting Statement (SS)	Additional information
	quota for the Norwegian catch in the EC. The quota of 800 tonnes liver weight in 1982 was reduced, to 400 tonnes liver weight (approximately 800-1 000 fish) in 1985, then to 200 tonnes, and has been 100 tonnes (or about 200-300 sharks per year at an average weight of 0.4-0.5 tonnes oil per shark) since 1994. Little monitoring occurs, Norway and New Zealand record catches. Various public sightings schemes operate in the UK. In November, 1999 the FAO Conference adopted the International Plan of Action for the Conservation and Management of Sharks (IPOA-Sharks), recognising the lack of available catch, effort, landings and trade data. It encouraged States to assess the status of shark stocks within their EEZs and those fished on the high seas, and determine if there is a need to develop a National Plan of Action. States are asked to report on their assessment and on progress made with implementation of the IPOA and that of the Shark Plan if they develop one. States are requested to have Shark Plans by 2001. The IPOA is entirely voluntary.	introduce temporal and spatial restrictions on gill netting to reduce bycatch of this species (Serena *et al*., 2000). In November 1999, 96,000km^2 of the north west Mediterranean were set aside as a cetacean sanctuary around the Tuscan Archipelago National Park (Serena *et al*., 2000). Italy has been monitoring sightings of large cartilaginous fish in the Tyrrhenian and Ligurian Seas since 1985. Two reviewers suggest that development of management under the IPOA-Sharks may be more appropriate than through CITES (Angell, 2000; Kaneko, 2000). However, whilst the voluntary IPOA may encourage regional co-operation, CITES has the advantage of promoting international co-operation between producers and consumers.
Similar species	The Basking Shark is distinctive and unlikely to be confused with another species, unlike the Whale Shark its skin is not spotted. Adult fins are large and unlikely to be confused with those of any other species and can be distinguished from rounded whale shark fins.	It is not clear how the meat and cartilage will be identified (Angell, 2000). The guide being compiled by the Proponent should address identification of these other products.
Other comments		Basking Sharks can be used as indicators of plankton blooms, that in turn attract concentrations of commercial bony fish (Simms *et al*., 1998). The SS is regarded as comprehensive so far as they can tell, by several reviewers (Paxton, 2000; Serena *et al*., 2000; Seret, 2000; TRAFFIC Oceania, 2000; Walker, 2000). Angell (2000) and Kaneko (2000) consider the species is not threatened with extinction.

Reviewers: J. Angell, Y. Kaneko, J. Paxton, B. Seret, C. Simfendorfer, J. D. Stevens, F. Serena, M. Vecchi and G. Notobartolo, TRAFFIC Oceania, P. Walker.

Inclusion of the Coelocanth genus *Latimeria* spp. in Appendix I. Proponent: France and Germany **Doc. No.: 11.50**
and
Inclusion of the Menado Coelacanth *Latimeria menadoensis* in Appendix I. Proponent: Indonesia. **Doc. No.: 11.51**

Introduction to proposals 11.50 and 11.51: There are two proposals concerning changes to the listing of Coelacanths in the Appendices: Proposal 11.50 to include the Genus *Latimeria* spp. in Appendix I and Proposal 11.51 to include *Latimeria menadoensis* in Appendix I. These proposals have been submitted in response to the discovery in Indonesian waters of specimens of what has now been described as a new species (*L. menadoensis*). Genetic studies suggest that *L. menadoensis* and the orginal species *L. chalumnae*, are more closely related to a common ancestor than to each other, raising the possibility that further species remain to be discovered. Thus, proposal 11.50 by seeking to include the entire Genus *Latimeria* spp. in Appendix I, if accepted, would ensure that any subsequent finds of species in the genus are automatically protected by CITES. In contrast proposal 11.51 submitted by the range State of the new species, only proposes the inclusion of *L. menadoensis*. As so little is known about *L. menadoensis*, both proposals will be considered together in this analysis.

Summary: Coelacanths, *Latimeria* spp. are a group of fish which originated over 400 million years ago and were thought to have been extinct for over 70 million years until the Comoran Coelacanth, *L. chalumnae* was discovered in 1938. The Comoran Coelacanth was dubbed a living fossil, being so unlike any fish species of today, with limb-like fins that provide an anatomical link with early tetrapods. Coelacanths are large drift predators, that live at great depths (approximately 180 m) and are restricted by water temperature. *L. chalumnae*, with an estimated population size of approximately 500 individuals, is known to bear from five to 19 live young which develop over a 13 month gestation period and is thought to reach ages of 22 years. *L. chalumnae* was included in Appendix II in 1987 and transferred to Appendix I in 1989 amidst fears that the international trade for museum specimens could be impacting the population. The Comoros acceded to CITES in 1994. In 1997 new records of a Coelacanth, fished off north Sulawesi in 1997 were at first thought to represent a new population of the Comoran Coelacanth but in 1999, the specimen was named as a new species, *Latimeria menadoensis*, the Menado Coelacanth. Little is known of the new species although genetic studies suggest the two species are more closely related to a common ancestor than to each other. Indeed there is speculation that the area of origin of these new specimens may be distant from north Sulawesi, and that the common ancestor is yet to be discovered. As it is a new species, there is reputedly much interest in obtaining specimens of *L. menadoensis*. The proposal seeks to include the genus *Latimeria* spp. in Appendix I, on the basis that a new species of a hitherto extremely rare genus has been described that is likely to be in demand for the specialist trade. Reviewers generally concur about the threatened status of the species and the potential threats from trade.

Analysis: Following Resolution Conf 9.24, the genus is likely to meet Appendix I criterion A, on the basis that both species probably have a very small population, which may be declining and are vulnerable due to delayed maturity and specialised reproductive patterns. Each species of the genus is restricted to, at most, a few populations and so the genus probably also meets criterion B. The proponents also infer the population is declining (criterion C) although evidence for this is less clear. Inclusion of the genus, rather than simply the new species would ensure that any further species awaiting discovery would be included in the Appendices automatically.

	Supporting Statement (SS)	Additional information
Taxonomy	*L. chalumnae* and the newly discovered *L. menadoensis*	*Malania anjouanae* (Smith, 1953) is reportedly a synonym of *L. chalumnae* (Balon, 2000; Janvier, 2000). For proposal 11.51, the Class should be Sarcopterygii. The description of the Indonesian specimens as a new species has been controversial (Janvier, 1999, Holder *et al.,* 1999) and Thomson (2000) maintains they are not definitely separated.

	Supporting Statement (SS)	Additional information
Range	*L. chalumnae* –Comoros, S. Africa (extinct) *L. menadoensis* – Menando Tua Island, North Sulawesi, Indonesia.	Reviewers note that the specimen of *L. chalumnae* found off South Africa is generally acknowledged to have drifted from the Comoros population, so the species is not technically extinct in South Africa, as there is no evidence of a South African population (Erdmann, 2000; Jewett 2000). Specimens of *L. chalumnae* have been reported from Madagascar and Mozambique, but it is likely that these have been swept from the Comoros (Jewett, 2000)
IUCN Global Category	*L. chalumnae* – E	*L. chalumnae* – E A2cd C2b *L. menadoensis* – NE (Hilton-Taylor, 2000.)
Biological criteria		
A) Small wild population	*L. chalumnae* – 500 individuals; *L. menadoensis* – small, only two individuals recorded, but generally one to two specimens caught per year as bycatch.	Erdmann (2000) notes that Fricke *et al. (*1995) only estimated the population of Njazídja to include around 200 specimens, and did not estimate the total population for the Comoros; there are no population estimates for Nzwani (Bruton, 1995). *For L. menadoensis*, Erdmann (2000) reports that interviews indicate a 20-25 year history of Coelacanth catches in the Bunaken National Park, with an average catch rate of one fish per year since deep shark nets were first used in the 1970s.
i) Population or habitat decline	*L. chalumnae* – Grand Comore population may have decreased by 30%. *L. menadoensis* – population trend unknown.	Both species are associated with deepsea caves, in volcanic rock in Comoros and in limestone rock in Sulawesi. Habitat for *L. menadoensis* may be threatened by plans for large scale gold mining in north Sulawesi which could smother habitat with submarine disposal of tailings at 200 m (Erdmann, 2000).
ii) Small sub-populations	*L. chalumnae* is reportedly restricted to two small breeding populations. *L. menadoensis* – No data.	For *L. menadoensis* a further two specimens have been reported 370 km south of the original finds (Fricke *et al*., 2000).
v) High vulnerability due to biology or behaviour	*L. chalumnae* has a low fecundity. *L. menadoensis* – No data.	*L. chalumnae* has a late age of maturity 12-20 years, is a live bearer with 5-26 pups recorded after a gestation period of around 13 months, and is long-lived (Bruton, 1995; see also Froese and Palomares, 2000). This low fecundity together with small population sizes suggest the genus meets criterion A.
B) Restricted area of distribution	*L. chalumnae* – Comoros Archipelago, at depth range of 150 to 300 m, below the 18ºC isotherm. *L. menadoensis* – north Sulawesi at a depth of 150 m and temperature of 17-20ºC.	Until January 2000, all specimens of *L. menadoensis* had been recorded from Bunaken National Park. The recorded area of distribution has increased, with the discovery of another two specimens 370 km to the south of those already recorded and the area of distribution is unlikely to be large. The possibility that the fish recorded in north Sulawesi could have originated from an area in the southern Philippines and been swept in by ocean currents cannot be discounted (Fricke *et al*., 2000).
i) Fragmented or localised	Individuals of *L. chalumnae* found outside the Comoros Archipelago are	*L. chalumnae* is only recorded from the Comoros Archipelago, although

	Supporting Statement (SS)	Additional information
population	thought to have been swept away by the powerful Mozambique current, but the species is generally regarded as localised to Gran Comore and Anjouan. *L. menadoensis* at the time of proposal submission had only been reported from one location.	recently several specimens have apparently been fished from Madagascan and Mozambiquan waters. Any populations may be limited by the lack of suitable underwater caves (Jewett, 2000).
iv) Decrease in distribution, population, habitat or reproductive potential	The Grand Comore population of *L. chalumnae* may have decreased by 30%. *L. menadoensis* - No data.	The restricted area of distribution of the two species, the reported population decline in the Comoros and the potential limitation through availability of undersea caves suggest that the genus meets criterion B.
C) Decline in number of wild individuals	The Grand Comore population of *L. chalumnae* may have decreased by 30%.	
i) Ongoing or historic decline	The Grand Comore population of *L. chalumnae* may have decreased by 30% since 1938.	
ii) Inferred or projected decline	It is projected that any trade will damage the populations of both species, but this is not substantiated.	The Nzwani population has decreased, but evidence for the other populations is not available. However, given the high prices that have been paid in the past for Coelacanths, it is likely that the genus meets criterion C.
Trade criteria		
The species is, or may be, affected by trade	Coelacanths are reportedly unpalatable and are generally caught as bycatch. They may be saleable for aphrodisiac properties, or for the global museum trade or the aquarium trade. In earlier decades, specimens of *L. chalumnae* were brought by the Comoros Government for USD300-400 and sold on to the museum trade for up to USD2 000 per specimen. Currently no incentives are offered for *L. chalumnae.* There is alledged to be an illegal trade in *L. chalumnae*. Two specimens were apparently offered for USD130 000 in Germany in 1992.	Total recorded landings of Coelacanths increased initially from an annual average of 1.9 in the 1950s to 4.9 in the 1960s, 4.8 in 1970s and 4.0 in 1980s (Bruton and Coutouvidis, 1991). CITES data from 1990-1998 indicate an average reported import rate of 2.56 bodies per year, lower than previously, although one body imported by Portugal from Mozambique in 1998 has been overlooked in the data. CITES data indicate 21 individuals of *L. chalumnae* in trade during 1991-98, but as the Comoros did not submit annual reports during 1990-98, these figures may be an underestimate. Furthermore, the origin of specimens exported by Mozambique, the largest exporter during 1991-98 (11 specimens) is unclear (TRAFFIC East Southern Africa, 2000). To date no specimens have been maintained in captivity, and reviewers caution that attempts to maintain the species could severely deplete stocks, before any success is achieved (Balon, 2000; Thomson, 2000).

	Supporting Statement (SS)	Additional information
Other information		
Threats	The main threats include: bycatch and global ocean warming, as *L. chalumnae* are generally found in water below 18°C.	Use in traditional medicine as it is thought to be long-lived and to ensure longevity; reviewers note this use should be discouraged (Balon, 2000; Maisey, 2000; Thomsen, 2000). Jewett (2000) notes that if not protected, Coelacanths will be fished to extinction.
Conservation, management and legislation	No information on the national legal status of *L. chalumnae* is available. Indonesia is reportedly proposing implementing fishing regulations in Bunaken National Park	Indonesian Law No. 7/1999 which bans the use of deep-set shark gill nets in Bunaken NP is confirmed in Proposal 11. 51 (Erdmann, 2000). *Latimeria chalumnae* is included on Annex A of the EC Regulation No.338/97.
Similar species	*L. chalumnae* and *L. menadoensis* are apparently distinguishable on colour. They may be confused with some spp of Serranids (Rockcod), and are occasionally traded as deep-water Grouper.	Erdmann (2000) and Jewett (2000), both contend that *L. chalumnae* and *L. menadoensis* are not easy to tell apart on morphological differences.

Reviewers: M.V. Erdmann, S. Jewett, E. Balon, P. Janvier, J. G .Maisey; P.C. Heemstra, K.S. Thomson, TRAFFIC East Southern Africa.

Inclusion of all species in the genus *Poecilotheria* in Appendix II. Proponents: Sri Lanka and the United States of America.

Summary: *Poecilotheria* is a genus of arboreal tarantulas, restricted to the threatened forests of southern and central Sri Lanka and southern and northeastern India. They are little studied and information concerning their population size, distribution and ecology is sparse. Serious concerns exist about the status of *Poecilotheria* spp. in the wild, primarily due to a decline in the availability of suitable forest habitat. Due to their size and spectacular markings, international demand from the pet trade for *Poecilotheria* is known to exist. They are likely to be a specialist item, however, because of their venom and aggressiveness. The level of exports in wild-caught specimens from the range States is unknown. Over the last five years, 2 694 live *Poecilotheria* have been imported into the USA. The majority of recorded trade into Europe and the USA appears to be in captive-bred specimens. All species have been bred in captivity, although captive populations of some species are reported to be small. Both India and Sri Lanka prohibit the export of wild *Poecilotheria* spp. Local harvesting is not regulated in either country. The genus is proposed for inclusion in Appendix II in accordance with Article II 2 (a) and Resolution Conf. 9.24, Annex 2a. According to the supporting statement, *Poecilotheria* spp. are in high demand and vulnerable to commercial harvesting. Consequently, it can be projected that harvesting of wild specimens for international trade may have a detrimental impact on the genus, (i) by exceeding over an extended period the level that can be continued in perpetuity (criterion Bi), and (ii) by reducing population levels to a point at which survival of the various species would be threatened by other factors, primarily deforestation (criterion Bii).

Analysis: Following Resolution Conf. 9.24, criterion A of Annex 2a (it is known, inferred or projected that unless trade in the species is subject to strict regulation, it will meet at least one of the biological criteria for inclusion in Appendix I in the near future), ongoing deforestation suggests that the genus may already meet one of the criteria for inclusion in Appendix I (criterion C, Annex I, a decline in the number of individuals in the wild, inferred on the basis of a decrease in area of habitat). Rates of habitat loss for the specific forest types in which *Poecilotheria* occur have not, however, been documented. International trade in *Poecilotheria* exists; the majority of legal trade into the USA and Europe is reported to be of captive-bred animals and the level of trade in specimens from the wild is unclear. Illegal trade is believed to take place. No information is available on the impact of harvesting for international trade on the genus in the wild, making it difficult to assess the genus against the criteria for inclusion in Appendix II (Annex 2a, criterion B).

	Supporting Statement (SS)	**Additional information**
Taxonomy	The genus *Poecilotheria* contains 13 species, two of which have been only recently described and not yet validated.	The taxonomy of *Poecilotheria* spiders is not clear-cut and new species are likely to be described in the future. Platnick (2000) queries the inclusion of *P. smith* as a species, suggesting that one of the synonyms *P. pococki* or *P. bara* should have been listed instead. *P. bara* may actually be a synonym for *P. subfusca* (Kirk, 2000). Synonyms of *P. regalis* should have included *Ornithoctonus gadgii* (Platnick, 2000).
Range	India, Sri Lanka.	
IUCN Global Category		The species has not been evaluated.
Biological and trade criteria		
A) Trade regulation needed to prevent future inclusion in	Very little information is provided in the SS on population status. Considering the biological criteria for inclusion in Appendix I (Res. Conf. 9.24, Annex 1), no estimates of total population size or area of distribution are available (criteria A and B). The species are, however, restricted	No additional data are available to determine whether *Poecilotheria* spp. will meet the criteria for inclusion in Appendix I in the near future, but there are severe concerns over their status (Charpentier, 1996; Marshall, 2000). Particular concern is raised about those species which do not

	Supporting Statement (SS)	Additional information
Appendix I	primarily to either xeric or mesic montane forests of southern and central Sri Lanka and of southern and northeastern India. Populations are predicted to be declining (criterion C), on the basis of habitat loss. Estimates of natural forest remaining in India and Sri Lanka are as low as 10 to 13%, and forest loss continues. Charpentier (1996) predicts that *Poecilotheria* spp. will become extinct by the year 2005, due to habitat loss.	adapt well to secondary habitats (Charpentier, 1996). Data on forest loss are not, however, specific to those forest types in which *Poecilotheria* spp. are thought to occur (Raven, 2000). Kirk (2000) considers that Charpentier's (1996) statement, concerning the probable extinction of *Poecilotheria* spp., is probably overly pessimistic, although he does believe that some species may go extinct.
B) Harvesting for international trade has, or may have, detrimental impact on population i) exceeds sustainable yield ii) reduces population to potentially threatened level	No information is provided on the extent of harvesting of *Poecilotheria* spp. in either India or Sri Lanka, or on levels of export from the range States. Over the last five years, 2 694 live *Poecilotheria* have been imported into the USA, and 392 live specimens exported. The actual levels of trade into the USA, and other countries, may be higher than that reported. Pet trade companies advertise both wild-collected and captive-bred specimens of *Poecilotheria* spp. Prices for captive-bred specimens range from USD20 for spiderlings to USD250 for adults; prices for wild-caught individuals are apparently higher. Demand is reported from Canada, USA, UK, Germany, Belgium, Holland, Switzerland, Sweden, Norway, Hong Kong, Greece, Italy, France and Japan, although no documented evidence is provided. All known *Poecilotheria* spp. have been successfully bred in captivity but captive breeding is insufficient to satisfy demand from the pet trade. Captive populations are small and suffer from lack of genetic variation. In captivity, *Poecilotheria* spp. have relatively short live spans (up to seven years), high mortality rates prior to reaching maturity, and low reproductive rates (compared with *Brachypelma* tarantula spp.). Consequently, sustainable harvesting rates for this genus may be low, making it vulnerable to commercial harvesting. Harvesting is thought to have reduced population levels to a point at which survival of the various species is threatened by other factors, primarily deforestation.	*Poecilotheria* spp. are in international demand for the pet trade, and to a lesser extent for their venom. Demand by pet keepers for this genus is thought to be high (Raven, 2000). Contrary to the information in the SS, commercial exports of wild specimens from both India and Sri Lanka are illegal. There are no reports of widespread trade in this genus in India, although it may be used for ornamental purposes in southern India (TRAFFIC India, 2000). Legal international trade has been reported into the USA and Europe (TRAFFIC India, 2000). The majority of *Poecilotheria* tarantulas offered for trade in Europe are from captive-bred sources, while 78% of those imported into the USA are reported as captive-bred (with an additional 7% of unknown source) (data from 1995 to 1999, TRAFFIC India, 2000). Only one import into the USA between 1995 and 1999 mentions India as the country of origin (for 10 individuals). A survey of pet shops in Hong Kong found no *Poecilotheria* tarantulas for sale and trade was reported to be occasional only, usually in response to a specific request from customers (TRAFFIC East Asia, 2000). One trader reported a recent sale of *P. regalis* for approximately USD180. Current levels of legal international trade are likely to be under-estimated world-wide, and illegal trade is thought to be substantial (Kirk, 2000). Reports exist of the genus being imported into Switzerland, Denmark, and Germany in large numbers (over 1 000 specimens in total) (Kirk, 2000), but no evidence is available to confirm or refute these reports. Reports of illegal export to Germany and Japan have been reported from Sri Lanka (Bambaradeniya, 2000). A shipment of 18 live spiders in the family Theraphosidae (which includes *Poecilotheria* but the genus of the confiscated spiders is not known), and destined for Germany, was confiscated in Sri Lanka in 1997 (Bambaradeniya, 2000). It is not known whether this is in addition to the confiscation at Colombo airport, reported by Kirk (USFWS, 2000). De Silva (2000) considers it likely that many *Poecilotheria* spp. are illegally exported out of Sri Lanka. Marshall (2000) notes that some species (e.g. *P. fasciata* and *P. regalis*) breed freely in captivity and have self-sustaining, captive populations.

	Supporting Statement (SS)	Additional information
		Individuals of these species in trade are likely to be captive-bred. Other species, such as *P. rufilata* and *P. ornata*, are either not present in captivity or are more difficult to breed. Wild-caught *Poecilotheria* are always likely to be in demand, however, because breeders often look for fresh genetic stock, whether this is necessary for continued successful breeding or not. Wild-caught specimens are also reported to be generally larger and more impressive. Although *Poecilotheria* spp. produce smaller clutches and have shorter life spans than *Brachypelma* tarantulas, they do exhibit significant maternal care, which should increase offspring survivorship. In addition, *Poecilotheria* spiderlings are relatively large which may also increase survivorship. Thus, it is not clear that *Poecilotheria* spp. have a lower population growth potential than other tarantula species (Marshall, 2000).
Other information		
Threats	The genus is threatened by habitat loss, harvesting to supply the commercial pet trade, and, to a lesser degree, pesticides. Changes in forestry and agricultural practices, human encroachment, and firewood collection contribute to the loss of forest habitat. In Sri Lanka, mesic *Poecilotheria* spp. are not reported to thrive near human habitation or in reforested areas. Although one xeric Sri Lankan species adapts well to coconut plantations, some southern Indian species are not reported to adapt well to these conditions. The animal's preferred habitat is dead trees, an important fuel source in both India and Sri Lanka.	Habitat destruction is considered to be a major threat to this genus (Daniels, 2000; Marshall, 2000; Molur, 2000; Platnick, 2000, Whitaker, 2000). Although *Poecilotheria* spiders used to be seen regularly in Kalakkad-Mundanthurai and Nagarjuna-Srisailam Tiger Reserves, they are now rarely seen and this is thought to be due to habitat degradation (Molur, 2000). Habitat destruction may already, or may shortly, reduce population levels to a point at which the survival of some species will depend on captive breeding programs (Marshall, 2000).
Conservation, management and legislation	No current conservation programs are thought to be directed specifically at *Poecilotheria* spp in India or Sri Lanka.	No population surveys are planned either in India or Sri Lanka (Kirk, 2000). The genus is protected in India within Bhadra Tiger Reserve, Borivili National Park, Kalakkad-Mundanthurai Tiger Reserve, Siruvani Reserve Forest, Dandeli Wildlife Sanctuary, Madikeri Reserve Forest, Peechi Reserve Forest, Nagarjunsagar-Srisailam Tiger Reserve, and Melghat Tiger Reserve (Ahimaz, 2000; Borges, 2000; Molur, 2000). In India, the genus is not listed in the Schedules of the Wildlife Protection Act, 1972. Consequently, there is no domestic legal protection or regulation of harvesting. Export from India is, however, prohibited under the Export Import Policy valid for 1997-2002 (TRAFFIC India, 2000). In Sri Lanka, the genus is not listed in the Schedules of the Fauna and Flora Protection (Amendment) Act, No. 49 of 1993. Contrary to the information in the SS, collection of this genus is not therefore prohibited. Export from Sri Lanka is not allowed, however, under Section 40 of the Act, which prohibits export of any invertebrate without a permit. Such a permit is only issued for the 'promotion of scientific knowledge including

	Supporting Statement (SS)	Additional information
		supplies to foreign museums, and zoological gardens, in exchange for supplies to local museums and zoological gardens' (TRAFFIC India, 2000).
Similar species	All known *Brachypelma* spp. were listed on Appendix II in 1995, causing an increase in demand for *Poecilotheria* spp. There are concerns that listing all *Poecilotheria* spp. on Appendix II would shift the commercial pet trade demand to another tarantula species.	Tarantulas in the genus *Poecilotheria* are easily distinguished from those in other Theraphosid genera. There is some dispute as to whether the listing of *Brachypelma* spp. has increased demand for *Poecilotheria* spp. (Marshall, 2000).

Reviewers: B. Biswas, A.E. Decae**,** P.J. Kirk, M.G. Kumar, S.D. Marshall, S. Molur, N. Platnick, R.J. Raven, TRAFFIC India.

To harmonise exemptions related to medicinal products by combining the current Annotation #2 for *Podophyllum hexandrum* and *Rauvolfia serpentina* with Annotation #8 for *Taxus wallichiana* in the Interpretation of the Appendices I and II, to read as follows:

#?? Designates all parts and derivatives, except:
- **a) seeds and pollen;**
- **b) seedling or tissue cultures obtained in vitro, in solid or liquid media, transported in sterile containers;**
- **c) cut flowers of artificially propagated plants; and**
- **d) chemical derivatives and finished pharmaceutical products**

Proponent: Swiss Confederation, on behalf of the Plants Committee

Summary: The present proposal seeks to harmonise two existing annotations for CITES-listed medicinal plant species (Annotations #2 and #8), the revised annotation being applied to *Podophyllum hexandrum*, *Rauvolfia serpentina* and *Taxus wallichiana*. At the same time, the proposal seeks to provide a standard annotation that could be applicable to future listings. The supporting statement recommends further that when considering inclusion of medicinal plant species in Appendix II, the Parties consider making no exemptions or using such standardised annotations as appropriate to regulating trade in the interest of conservation of the species. The problem of species identification in the case of extracts when these are not labelled appropriately is noted. The proposal is supported by the Plants Committee.

Analysis: The emphasis of this proposal is the harmonisation of annotations for medicinal plant species listed in Appendix II in order to facilitate implementation of the Convention, particularly with regards to enforcement controls over products that may not be readily recognisable. Available information suggests that substantial trade in partially processed products (which may be definable as chemical derivatives) is taking place in each of the three species. In the case of *Podophyllum hexandrum* and *Rauvolfia serpentina* these are currently exempt from CITES controls. In the case of *Taxus wallichiana* they are currently covered by CITES, but would become exempted if the current proposal were accepted. Trade in such products may have conservation implications for that species. Chemical derivatives are not currently defined under the Convention. Those to be used in pharmaceutical processing may be expected to be clearly labelled and may thus meet the definition of the term 'readily recognisable part or derivative' as laid out in Resolution Conf. 9.6.

	Supporting Statement	**Additional information**
Discussion	The SS notes that the annotation regarding *Podophyllum hexandrum* and *Rauvolfia serpentina* (#2) differs from that regarding *Taxus wallichiana* (#8). The former excludes "chemical derivatives" whilst the latter excludes "finished pharmaceutical products". It notes that the chemical products concerned are different in each case and not easy to recognise when not labeled appropriately. It suggests that for enforcement reasons, plants included now or in the future in Appendix II because they are in trade for their medicinal properties should either not have exemptions, or should use a standard formulation for the exemptions as appropriate to regulate trade in the interest of the conservation of the species.	The term "chemical derivative" is not defined within Annotation #2, nor do the Convention, Resolutions or Decisions provide guidance regarding interpretation. According to Cunningham (1999), it is important to distinguish between "chemical derivatives and finished pharmaceutical products" and "herbal extracts or 'dietary supplements"' and to provide clear guidance regarding what is excluded or included under the annotation. The term "finished pharmaceutical products" would seem to be encompassed by the broader term "chemical derivative" (Mulliken, 2000). Further clarification would be useful regarding consideration of trade controls for chemical derivatives in the context of Resolution Conf. 9.6, which states: "the term 'readily recognisable part or derivative' as used in the Convention, shall be interpreted to include any specimen which

		appears from an accompanying document, the packaging or a mark or label, or from any other circumstances, to be a part or derivative of an animal or plant of a species included in the Appendices." It seems likely that products such as extracts would generally be well-labeled when traded internationally for the production of pharmaceutical products, and therefore 'readily recognisable' (Mulliken, 2000). No information is provided on the conservation or trade status of the species subject to the present proposal, or on the predicted impact thereon if the proposal is accepted. Wang *et al*. (1999) state that all members of the genus *Taxus* are greatly threatened [in China] due to their important clinical value.
Other comments		All three of the species covered by the present proposal are traded internationally, trade appearing to involve parts and derivatives in varying stages of processing, including extracts, raw and finished products (CITES Annual Report data; Duke, 1996; Olsen, 1999; Schippman, 1999; Sheldon *et al*., 1997). Sheldon *et al.* (1997) report that *Podophyllum hexandrum* continues to be "widely harvested for export of the extract". CITES Annual Report data record only one record of trade in *Taxus wallichina* and very little trade in *Podophyllum hexandrum* and *Rauvolfia serpentina*. Cunningham (1999) recommends that the term chemical derivative refer to synthetic chemical components but not to extracts of CITES-listed species. Schippman (1999) recommends that a study be undertaken to assess the amount and proportion of the trade represented by extracts for all three species, and further, that Annotation #2 be amended to "finished pharmaceutical products" in order that the trade in extracts is monitored for *Podophyllum hexandrum* and *Rauvolfia serpentina*.

Reviewers: A.B. Cunningham, D. Fu, L. Fu, D. Hong, M.S. Khan, Z. Li, A. Lu, N. Marshall, T. Mulliken, C.S. Olsen, H. Qin, S. Wang, X. Wang, Y. Wang, Q. Yang, J. Ying

Inclusion of *Panax Ginseng* (roots) in Appendix II. Proponent: Russian Federation

Summary: The genus *Panax* contains several medicinal species, widely used in traditional Chinese medicine, and increasingly popular in Western markets. They are fleshy rooted, herbaceous perennials, primarily growing in Asia, although two species are found in North America. *P. ginseng* occurs in the Russian Federation, China, People's Republic of Korea (South Korea) and possibly Deomcratic People's Republic of Korea (North Korea), but populations have been severely reduced, primarily by over-harvesting, and the species is now very rare in China and South Korea (its status in North Korea is uncertain). Harvests of wild Ginseng in the Russian Far East have declined over the last 30 years due to lack of availability (legal harvest in 1997 was 44 kg, while a zero quota was set in 1998). The majority of *P. ginseng* on the market is now from cultivated stock, grown in large quantities in South Korea, China and Japan. The species has been traded internationally in significant quantities for over a century; the majority of current international trade in wild root is from the Russia Federation to China, from where some of it is re-exported, primarily to other countries in Asia. Although legal exports from the Russian Federation have declined in recent years, substantial quantities are still exported illegally (500 kg or more each year). Wild *P. ginseng* is primarily traded as whole roots. Ginseng root is also included in a wide range of tablets, tonics, herbal liqueurs, chocolates, creams, cigarettes and shampoo. Wild-harvested Ginseng roots sell for higher prices than roots from cultivated plants. Woodsgrown Ginseng (defined as any plant raised using limited to intensive cultivation methods under a natural tree canopy in a forested environment) is harvested in both the Russian Federation and China. Populations of *P. ginseng* are also threatened by logging and forest fires. *P. ginseng* is proposed for inclusion in Appendix II in accordance with the provisions of Article II, paragraph 2(a). One *Panax* species, *P. quinquefolius*, is currently listed on Appendix II.

Analysis: Following Resolution Conf. 9.24, available information suggests that *P. ginseng* meets the criteria for inclusion in Appendix II. The species' range has been severely reduced by overharvesting of wild plants for international trade, which over an extended period appears to have exceeded the level that can be continued in perpetuity (Annex 2a, criterion B). The majority of *P. ginseng* in international trade is from cultivated stock. It is possible to discriminate visually between roots grown in the wild and those grown in cultivation, although differentiating wild and woodsgrown Ginseng root is more difficult. The proposal may also meet the criteria for inclusion in Appendix II under Resolution Conf. 9.24, Annex 2b (criterion A). Since it is difficult to discriminate between the roots of *P. ginseng* and *P. quinquefolius*, a closely related medicinal plant from North America, inclusion of *P. ginseng* on Appendix II with the same annotation as *P. quinquefolius* would also facilitate the enforcement of the Appendix II listing of *P. quinquefolius*.

	Supporting Statement (SS)	**Additional information**
Taxonomy	No subspecies are mentioned.	*P. ginseng* is known by a large number of common names, some of which are specific to the roots, cultivated roots or wild roots. Common names include Oriental Ginseng, Chinese Ginseng, Korean Ginseng, Far Eastern Ginseng.
Range	Russian Federation, China and the northern part of the Korean Peninsula (the species may now be almost extinct in China and Korea).	A few small populations remain in China (Pei, 2000). Although reported to be extinct in South Korea (WCMC, 2000), it is thought to still exist as highly reduced and fragmented wild populations (Maunder, 2000). The status of *P. ginseng* in North Korea is uncertain (Maunder, 2000).
IUCN Global Category		Not evaluated

	Supporting Statement (SS)	Additional information
Biological and trade criteria		
A) Trade regulation needed to prevent future inclusion in Appendix I	The species is known to have been traded internationally in significant quantities for a long time. Demand for *P. ginseng*, as a revitalising tonic, is increasing. Legal exports from the former USSR sometimes exceeded 50 kg in the 1960s and 1970s, but declined in the 1980s (only 5 kg were exported in 1987) due to lack of availability. Illegal trade to China from the Russian Federation is likely to be 500-600 kg per year. The impact of international trade on wild populations is thought to be substantial, and may lead to extinction of the remaining wild populations in the near future. Very little quantitative information is available on population status or trend, but stockpiles of harvested Ginseng have declined and in recent years. Collectors have been unable to fill their quotas, suggesting that natural populations have been depleted. The majority of *P. ginseng* is now found in two populations, the largest in the Primorsky area of the Russian Federation.	*P. ginseng* is traded as roots, either whole, sliced or powdered, and is included in a wide range of tablets, tonics, herbal liquers, chocolates, creams, cigarettes and shampoo (Knees and Read, 1994). Although *P. ginseng* is widely cultivated (see below) and exported to Asia, North America and Europe, cultivated Ginseng sells for lower prices, and the demand for wild-harvested Ginseng remains high. Annual harvests of wild *P. ginseng* from the Russian Federation have varied considerably over the years, but generally have declined since the 1960s (annual harvests averaged 235 kg in the 1960s, 169 kg in the 1970s, 43 kg in the 1980s and 66 kg between 1991 and 1993 (TRAFFIC Europe, 2000). The majority of the Ginseng harvested was for export, mainly to China and Korea (Zhuravlev and Kolyada, 1997). The level of illegal harvest in the Russian Federation has increased markedly since the 1990s, and in 1998 may have totalled 1500 kg (TRAFFIC Europe, 2000). Frequent smuggling of illegally harvested Ginseng has been reported from the China-Russian border. In 1997, Russian Far Eastern black market prices were as high as USD1 000 per 100 g for a 42 g root of *P. ginseng* (Melisch *et al.,* 1997). The amount of genuine wild *P. ginseng* harvested in China is thought to be small, as is the amount imported from North Korea into China (TRAFFIC Europe, in prep). A large proportion of the Ginseng traded as wild Ginseng from China and the Russian Federation is thought to be woodsgrown Ginseng roots (TRAFFIC Europe, in prep; Melisch, 2000). Hong Kong is currently one of the most important markets for wild *P. ginseng*, importing between 1992 and 1998 a total of 21 tons of 'wild Ginseng roots' from China (this probably includes woodsgrown Ginseng and the exact species composition of this total is not clear), 64 kg from the Russian Federation and 120 kg from North Korea (TRAFFIC Europe, in prep). In addition, an estimated 300 kg of wild *P. ginseng* originating from the Russian Federation and 25 kg from North Korea are estimated to have been imported into Hong Kong via China. At least half the *P. ginseng* imported into Hong Kong is consumed locally, the rest exported elsewhere in Asia. Wholesale prices for whole roots of wild *P. ginseng* are between USD17 220 and 75 770 per 100 g (TRAFFIC Europe, 2000). Extensive and uncontrolled harvesting to supply international trade in *P. ginseng* has resulted in declining wild populations and a reduction in

	Supporting Statement (SS)	Additional information
		the range of this species (Zhuravlev and Kolyada, 1997; Fu, 1992; Wang and Yang, in prep; TRAFFIC Europe, in prep). The total population size of the remaining *P. ginseng* populations is not, however, known. In China, *P. ginseng* is listed as endangered (EN, A1c, 2c, B2c) in the Red List of Angiosperms in China, as a result of habitat destruction and over-collection (Wang and Yang, in prep.). It is also listed as a seriously threatened medical plant species, with extremely reduced populations (Wang and Yang, 2000).
B) Harvesting for international trade has, or may have, detrimental impact on population i) exceeds sustainable yield	Over-harvesting has resulted in a contraction of the geographic range of this species. Although it grew, at the beginning of the 20th century, in northeast China and northern Korea, there have been no confirmed records in Korea since 1930, and Chinese populations are thought to be very severely depleted and possibly extinct. The distribution of *P. ginseng* in the Russian Federation is also thought to have decreased.	The current range of *P. ginseng* is thought to be a tenth of its former range, primarily as a result of over-harvesting (Zhuravlev *et al*., 1998). The decreasing proportion of large, high quality roots in the legal harvest is indicative of overexploitation and declining populations (Zhuravlev and Kolyada, 1997), although may be partly due to collectors selling larger, better quality roots to illegal traders (TRAFFIC Europe, in prep.). In China, *P. ginseng* is seriously at risk from over-harvesting and in grave danger of extinction in most areas including the Changbai Mountains Region (WWF and IUCN 1994-1995).
Other information		
Threats	Wild populations are also threatened by habitat change resulting from large-scale tree felling, frequent forest fires, and slope erosion.	
Conservation, management and legislation	A dramatic decrease in the wild stock of Ginseng has stimulated its cultivation in Korea, China, the Russian Federation and Japan. A large, industrial production facility for *P. ginseng* in the Russian Federation is currently not in use. *P. ginseng* is listed as an endangered species in the Russian Federation Red Data Book 1988. According to the Russian Law on Environment Protection, 1991, plant species listed in the Russian Federation Red Book, are exempt from commercial use, and activities that threaten populations of those plants are banned. In addition, under Government Decree (no 158, 1996), wildlife species listed on the Russian Federation Red Book are subject to special protection and their extraction is allowed only under exceptional circumstances. Collection of Ginseng roots took place in Primorsky Krai (which encompasses the majority of *P. ginseng* in the Russian Federation), under a quota system until 1997. A zero quota was issued in 1998. The Interagency Programme for regeneration of the Primorsky Ginseng population has been created; it aims to manage sustainable harvesting of Ginseng and prevent illegal trade. *P. Ginseng* habitat is officially protected in three reserves in the Russian Federation.	Cultivation of *P. ginseng* is widespread and has been practised in various East Asian countries for several hundreds of years. It also takes place, although on a smaller scale, in Europe (e.g. Germany; Caesar, 1998, Fäßler & Elers 1998). China, South Korea, and Japan are currently the largest producers of cultivated *P. ginseng* (Bailey, 1998; Zhuravlev and Kolyada, 1997). In 1998, South Korea, produced 11 478 tons of *P. ginseng* roots, 2 221 tons of which were exported to more than 60 countries and valued at USD67 million (Mills *et al*., 1999). In the Russian Federation, some five tons of cultivated *P. ginseng* were produced between 1985 and 1993 (TRAFFIC Europe, 2000). Since the 1990s, however, production has steadily declined and now totals a few hundred kilograms annually (Zhuravlev and Kolyada, 1997). In 1998, the Primorye State Committee of Environment Protection issued a zero harvest quota for *P. ginseng*. NGO support is given to the Russian authorities to control illegal wildlife trade in the Russian Far Eastern provinces of Khabarovsk and Primorye (Melisch *et al.,* 1997). In China, *P. ginseng* is classified as a Category I species, under the Regulation of Wild Medicinal Resources Protection of 1987. Consequently, export of wild *P. ginseng* is prohibited (TRAFFIC Europe, in prep).

	Supporting Statement (SS)	Additional information
		The species is protected in China primarily within the Changbai Mountains Nature Reserve (WWF and IUCN 1994-1995).
Similar Species	*P. ginseng* closely resembles *P. quinquefolium* (listed on Appendix II).	Taxonomy of the *Panax* genus is not resolved and although Mabberley (1997) notes that there are six species in the genus, there may be as many as 15. The three most commonly traded species are *P. ginseng*, *P. quinquefolius* and *P. notoginseng* (Bailey, 1998). *P. notoginseng* is widely cultivated in China (Wu, 2000). American Ginseng, *P. quinquefolius*, has been listed on Appendix II of CITES since 1975. The listing includes whole and sliced roots and parts or roots, but manufactured products containing *P. quinquefolius*, including powders, pills, extracts, tonics, teas and confectionary, are exempted from CITES controls. Trade in wild *P. quinquefolius* primarily comprises whole roots and root pieces (Robbins, 1998). *P. ginseng* and *P. quinquefolius* are very similar morphologically and it is difficult to distinguish traded specimens visually (Knees and Read, 1994). Roots can, however, be distinguished using genetic analysis (Ngan *et al*., 1999). There should not be difficulty distinguishing *P. ginseng* from the other Asian Ginseng species in trade (*P. notoginseng*, *P. japonicus*, *P. vietnamensis*), the other North American species (*P. trifolius*), or Siberian Ginseng (*Eleutherococcus senticosus).* *P. vietnamensis* and *P. zingiberensis* are considered to be Endangered by IUCN (Walter and Gillett, 1988). In China, *P. zingiberensi*, *P. pseudoginseng,* and *P. stipuleanatus* are all listed as Endangered on the Angiosperm Red list (Wang and Yang, in prep.). In China, *P. pseudoginseng* and *P. zingiberensis* are classified as Category III species under the Regulation of Wild Medicinal Resources Protection of 1987 (which means they are included among those species considered as "major and commonly used and wild medicinal species whose resources are reducing" (TRAFFIC Europe, in prep).
Other comments		Wild Ginseng is traded as whole roots 95% of the time (Robbins, 1998; TRAFFIC Europe, 2000), since once sliced or powdered its value is considerably reduced (Zhuravlev and Kolyada 1997). Discrimination of wild and cultivated roots is possible due to differences in root shape and structure (CITES Plant Committee, 1999; Zhuravlev and Kolyada, 1997; Lange, 2000). Wild roots are for example generally longer and slimmer, and the fine root hairs are not normally removed, as they are from cultivated roots (Lange, 2000). The pattern of scars at the top of the root is also different. Although wild *P. ginseng* is reported to have higher levels of ginsenosides, this is not considered to be a reliable method of differentiating wild and cultivated Ginseng (Zhuravlev and Kolyada, 1997). Differentiating 'woodsgrown' Ginseng roots (considered by CITES to be cultivated) from wild roots can be difficult (Robbins, 2000). The

	Supporting Statement (SS)	Additional information
		proportion of *P. ginseng* in trade which is woodsgrown rather than wild is not known, although it is reported to be common practice in the Russian Federation (Melisch, 2000). Although root is the main plant part in demand for medicinal purposes, leaves, stems, flowers and fruits are also used but in much smaller quantities (Zhuravlev and Kolyada, 1997). The biology of *P. ginseng* is thought to be similar to *P. quinquefolius*, which exhibits slow growth, low fecundity, and intolerance to disturbance, making it vulnerable to harvesting. The plant is killed as a result of harvesting, since it is the root that is removed.

Reviewers: D. Gagnon, C. Leon, S. Pei, TRAFFIC East Asia, TRAFFIC Europe, S. Wu.

Inclusion of the Monkey Puzzle Tree *Araucaria araucana* in Appendix I. Proponent: Argentina

Summary: *Araucaria araucana*, better known as the Monkey Puzzle Tree, is a long-lived, emergent conifer, endemic to the temperate forests of Chile and Argentina. The species is fire-adapted, occurring in an area of extreme volcanism. It has thick bark, the ability to regenerate through buds which sprout from the roots, and outgrow the canopy of its competitor *Notofagus* spp. to form single stands of *A. araucana*. The seeds are highly nutritious and have been used by local people for centuries as a dietary supplement for humans and livestock. Seeds are also an important food source within the ecosystem for rodents and the parakeet that acts as the main dispersal agent of the tree. Around 36% of the range of the species in Argentina is included in Pritected Areas and provincial legislation allows for varying seed collection quotas of up to 300 kg per indigenous family, totalling an estimated offtake of 5 000 to 20 000 kg per year. The tree is used for timber, and medicinal and food products in its native area and as an ornamental plant outside its natural range. In 1975, Chilean populations of the tree were included in Appendix I and the Argentine populations in Appendix II (Chile ratified CITES in 1975 and Argentina in 1981). According to the CITES Annual Report data, Argentina exported seeds in 1985 and 1988 and an unspecified amount of timber in 1998. In contrast, the majority of transactions recorded are exports from Chile, of small amounts of timber, seeds and live plants, the latter produced from artificial propagation. There is no requirement for Argentina to report transactions involving seeds as international trade in Appendix II seeds of this species is exempt from CITES control (Annotation #1 under CITES Article I biii). Nonetheless there are alleged reports of an increasing trade in seeds from Argentina, with a 600 kg shipment intercepted by national police. The species is included in nursery catalogues in Europe and North America, and is apparently easy to propagate, but this appears to be a specialist demand. It has been suggested that international trade could provide communities with an alternative source of revenue, but the apparent lack of demand for seeds amongst the plant nurseries surveyed suggests a very small market. The proposal seeks to include the Argentine population of *A. araucana* in Appendix I on the basis that the species' area of distribution is restricted and declining and that seed collection for international trade is reducing the reproductive capacity of the species.

Analysis: Following Resolution Conf. 9.24, assessments indicate that the area of distribution for this population is around 10 000 km^2 with an area of occupancy of around 1 800 km^2. Although information on the extent of decline is not provided, given the longevity of the species and the fact that logging and land clearance have occurred over the past 200 years the population appears to have declined at a rate consistent with the CITES numerical guidelines. Consequently, the species appears to meet criterion B for inclusion in Appendix I. With regard to the trade criterion for inclusion in Appendix I, international trade appears to be small in comparision with local use. There is little information provided to substantiate the claim that the level of seed collection for international trade is likely to cause a decrease in the species' reproductive potential. The Plants Committee endorsed this proposal at their ninth meeting and inclusion of this population in Appendix I would remove the problems associated with a split-listing for the species (See Annex 3 of Res. Conf. 9.24). In cases of uncertainty, Annex 4, paragraph A (Resolution Conf. 9.24) recommends the Parties act in the best interests of the conservation of the species. Seeds may not be easy to differentiate from those of *A. angutifolia*, which is not included in the Appendices.

	Supporting Statement (SS)	**Additional information**
Taxonomy	*Araucaria araucana* (Molina) C. Koch	Premoli (2000) notes that the author of specific names should be K. Koch not C. Koch.
Range	Chile and Argentina. Range of population in Argentina: L. Alumine to L. Lolog in Nequen Province.	Reviewers provide more detailed information on the distribution of the species in Argentina (Kitzberger, 2000; Mermoz, 2000; Premoli, 2000)
IUCN Global Category		Vu (B1+ 2c) (Farjoen and Page 1999).

	Supporting Statement (SS)	Additional information
Biological criteria		
A) Small wild population	No data supplied.	The SS cites criteria A iv, but this must be a typographical error for B iv.
B) Restricted area of distribution	The area of distribution in Argentina extends 200 km from north to south, but main forests occur in an area 150 km long to 30-50 km wide (37º 43' and 40º 23' south latitude). A measurement of the area of distribution is not given in SS, but from multiplying length and width measurements the maximum area in Argentina can be calculated as 10 000 km^2 (the CITES guideline level for inclusion in Appendix I).	Mermoz (2000) quotes two references on area of *A. araucana* within Argentina, Laclau (1997) who estimates the area to be 114 000 ha and Bran *et al*. (1999) who calculated 179 289 ha, these approximate to an area of occupancy of 1 800 km, well within the guideline level for biological criterion B. Kitzberger (2000) contends that only isolated groups, not important stands occur in Nahuel Huapi, thus the southern edge of distribution is more properly L. Meliquina to L. Hermoso. Distribution is fragmented in the east of the range due to a harsh climate. Premoli (2000) notes that the southernmost population is located on the eastern shores of L. Villarino, not the shore of L. Nahual Huapi. She also notes, together with Mermoz (2000), following Veblen, (1995) that small groups of trees outlying the present distribution, may have been dispersed by human intervention rather than being indications of relict populations.
iv) decrease in distribution, population, habitat or reproductive potential	The SS infers a decrease in area of distribution outside national parks, due to use for timber, development of commercial pine plantations, land clearance for tourism facilities and the setting of fires in recent years. The traditional collection of seeds by local communities for subsistence use when combined with collection for international trade is thought to be affecting the regeneration capacity of the trees. No references are provided.	Premoli (2000) recognises that the original distribution has been diminished by logging since European colonisation. Information on the regenerative capacity of the trees is contradictory. On the one hand the species is known to reproduce vegetatively after fire etc. The level of seed collection for use by local people can vary from 5 000 to 20 000 kg annually (Mermoz, 2000), in a good year a mature tree could produce around 2 kg of seed (Veblen, 2000). Mermoz (2000) considers that the international seed market does not generally pose a threat to the species, noting that offtake for international trade is likely to be much lower than for local consumption (see conservation section for quotas). Whilst Veblen (2000) notes that seed collection for use by local people is unlikely to be problematic, he cautions that collection for export at the levels quoted of 600 kg together with increasing tourism could threaten regeneration.
C) Decline in number of wild individuals	No data supplied.	
Trade criteria		
The species is, or may be, affected by trade	International trade in seeds is apparently increasing, although the only available figures are for a shipment of 600 kg intercepted in 1998 in transit to Belgium. However, in accordance with CITES Article I biii, international	Mermoz (2000) reports that the species is easily propagated in nurseries. Quoting Aagesen (1993) he notes that in the reserve areas, annual collection of seeds was estimated at up to 800 kg per family, with

	Supporting Statement (SS)	Additional information
	trade in seeds of this species is exempt from CITES control under Appendix II, so there is no requirement for Argentina to report transactions involving seeds. The species is also used nationally for timber and medicinal use.	a total annual offtake varying from 5 000 to 20 000 kg depending on the variability of seedset. Sale of seeds for the local market has apparently been increasing, along with international trade, but in recent years there has been more control of international trade. According to CITES Annual Report data, Argentina exported seeds in 1985 and 1988 and an unspecified amount of timber in 1998. In contrast, the majority of transactions recorded in CITES reports are of exports from Chile of small amounts of timber, seeds and live plants (TRAFFIC South America, 2000). The latter is generally produced from artificial propagation; even though the species has been included in Appendix I since 1975. The species is planted as an ornamental in North America, Europe and New Zealand and possibly elsewhere. However, there does not appear to be much demand for the species in North America (*in litt*. to TRAFFIC North America, 2000). In Europe it was stocked by 89 nurseries in 1997 (TRAFFIC Europe, 2000) and in New Zealand by 13 nurseries in 2000. Of nine retailers contacted throughout Europe, only one had had requests for seeds, the others all sell plants (TRAFFIC Europe, 2000).
Other information		
Threats	National use for timber, reafforestation with pines.	According to Kitzberger (2000), exotic pine plantations pose a threat through loss of habitat, and changes in fire regimes and hydrology. Premoli (2000) notes that great variation in annual seed production, short period of seed viability and fungal attack, as well as logging outside national parks could all threaten the species. Restriction to small isolated reserves can jeopardise survival if catastrophic events occur (Farjoen and Page, 1999).
Conservation, management and legislation	In 1948, a national law in Argentina stated that management and conservation of the Araucaria forests were of public interest. However, in 1991, the province of Neuquen declared that management and conservation were of provincial interest. Further provincial regulations detailing quotas for seed collection and use were passed in 1996 and 1998. Much of the area of distribution of the species in Argentina is included in Protected Areas. No information on population monitoring is included or the basis for setting seed quotas etc.	Mermoz notes that 36% of the area of Araucaria forest in Argentina is included in the Lanin National Park, 50 000 ha under the major protection category of National Park and a further 13 000 ha protected in national reserves. Seed extraction by local people is allowed in the reserves. In Zona Malleo the quota is 50 kg per family for consumption. In Zona Rucachoroi, the quota is up to 300 kg per family resident in the reserve for consumption and sale and up to 150 kg per family living outside the reserve as a traditional food. A population at the northern distribution limit is included in the Provincial Reserve Copahue. The Management Plan for this reserve allows use of the most compromised areas of forest, for a hotel and ski development. Veblen (2000), questions how effectively Disposicion No. 91/98 de la Provincia de Neuquen is enforced.

	Supporting Statement (SS)	Additional information
		Premoli (2000) notes that although the species is officially protected in Argentina, logging still occurs on a small scale outside National Parks.
Similar species	A congener, *A. angustifolia*, occurs in Argentina, over 2 000 km to the north. This species is not included in CITES, but is used for timber production from plantations in Argentina and Brazil. *A. araucana* seeds are so big that they are easily identified.	Gardner (2000) notes that seeds from *A. araucana* cannot be easily distinguished visually from those of *A. angustifolia*.
Other comments		Mermoz (2000) contends that the international trade in seeds does not constitute a threat to the survival of the species. She recommends analysis of the possibility of establishing a quota for international trade, so that local people could develop sale of seeds as an alternative to increase their income. Research in Chile suggests local participation could be encouraged to develop sustainable resource strategies for this species (Aagesen, 1998). However, it is not clear that seeds collected from national reserves can enter international trade.

Reviewers: T. Kitzberger, M. Mermoz, A. Premoli, TRAFFIC South America, T. Veblen.

Annotation to the Appendix II listing of *Echinopsis* spp., *Eulychnia* spp. and other Bolivian Cactaceae species, to exempt up to three specimens of rain sticks per person from CITES controls. Proponent: Chile

Summary: Rain sticks are handicraft products, often percussion instruments, made from the dead stems of columnar cacti species native to South America. All species of the family Cactaceae are listed on the CITES Appendices, with species used to manufacture rain sticks being listed on Appendix II. The proposal seeks an annotation to allow tourists to export up to three rain sticks in their possession without a CITES permit providing they are sourced from Chilean or Peruvian cacti of the genera *Echinopsis* and *Eulychnia*, and of unspecified species native to Bolivia. If accepted, the annotation would reduce the burden of range State Customs authorities as long as no other genera in Chile and Peru are involved. Since other species may be used to manufacture rain sticks, species identification problems may make the annotation difficult to enforce. The effect of the annotation on implementation by importing authorities is unclear, since they would need to apply different restrictions based upon the country of origin and the species involved. The Plants Committee endorsed this proposal.

Analysis: The proposed annotation to the current Appendix II Cactaceae listing does not appear to be the appropriate means to effect the required exemption for CITES export permits for tourists. Paragraph 3 of Article VII of the Convention already provides the means for range States to exempt the export of rain sticks from CITES controls when exported as personal effects, by communicating to the Parties that they do not require export permits. The Secretariat has advised (Notification No. 1999/97) that the proposed annotation is not legally possible under the terms of the Convention, and should be addressed either as an amendment to Resolution Conf. 9.18 (rev.), or via communication to the Parties that export permits are not required under Article VII 3 (b) (iii).

	Supporting Statement	**Additional information**
Background	There are three main species of columnar cacti, whose dead stems are used to manufacture "rain sticks" or "*palo de agua/lluvia*" in Chile, *Echinopsis chiloensis*, *Echinopsis skottsbergii* and *Eulychnia acida*. Three Peruvian species are harvested for the production of rain sticks, *Echinopsis cuzcoensis*, *E. pachanoi* and *E. puquiensis.* Surveys on the large-scale use of other species in these two genera have not been conducted, since their narrow cavity makes them unsuitable for the manufacture of rain sticks. The species used in Bolivia is not specified.	The term “rain stick” describes a tourist product, frequently a musical percussion instrument primarily produced from the genera *Echinopsis* and *Eulychnia*, although, other species such as *Opuntia fulgida* and bamboo (*Guadua* spp.) are sometimes used. Rain sticks are also produced in countries such as Colombia, Ecuador and Mexico. Sandison (1995) reports that harvesting involves the collection of loose pieces, the removal of dead plants and the pruning of dead branches from living plants, noting that that the low market value of rain sticks makes the labour required to cut and clean living stems uneconomical.
Status	There is an abundance of naturally dead raw material and no damage to the three Chilean species has been detected. According to a preliminary study by Hoffmann and Flores (1989), *Echinopsis chilensis* and *Eulychnia acida* are considered to be 'Out of Danger', and *Echinopsis skottsbergiii* is 'Vulnerable'. The conservation status of Bolivian and Peruvian species used for rain sticks is unknown, hence it is important to maintain some CITES trade controls. The export of a maximum of three rain sticks per person is not a commercial activity and does not threaten species survival.	Harvesting seems to involve only naturally dead material, hence the trade is assumed not to have a detrimental effect on the natural population. Nine species of *Echinopsis* and *Eulychnia* occurring in Bolivia, Chile and Peru are considered globally threatened (pre 1994 categories): *Echinopsis deserticola* (V); *E. glauca* (R); *E. litoralis* (V); *E. skottsbergii* (R); *E. spinibarbis* (V); *E. uebelmanniana* (V); *Eulychnia aricensis* (E); *E. iquiquensis* (R); *E. procumbens* (V) (Walter and Gillett, 1998).
Trade	Chilean trading companies established for the purpose of trade in rain sticks export ‘heavily’. This trade is CITES regulated. Trade data for 1993-1997 show the total export of 1 361 000 m of rain sticks, with an additional	According to CITES annual report data for 1993-1997, Peru reported a total export of 2 277 390 units, virtually all in the form of “carvings”. Imports reported from Peru during this period total 1 472 664 units.

	Supporting Statement	Additional information
	224 000 m exported in 1998.	The SS does not provide an estimate of the trade volumes of rain sticks exported as tourist specimens. CITES data indicate that for the vast majority, CITES reported trade consists of commercial shipments, and that trade in tourist specimens would appear insignificant in comparison. A recently conducted search on the Internet revealed that the retail cost of rain sticks can vary from USD5 to USD125, with an average price of approximately USD40 (TRAFFIC South America, 2000).
Enforcement		The Secretariat's provisional assessment of the proposals (Notification No. 1999/97) notes that the proposed annotation is not legally possible and should be resolved as an amendment to Resolution Conf. 9.18 (rev.) (Trade and Regulation of Trade in Plants), or through communicating to the Parties that export permits are not required (Paragraph 3 of Article VII (Exemptions and Other Special Provisions Relating to Trade). Resolution Conf. 10.6 (Control of Trade in Tourist Souvenir Specimens) recommends that a person in possession of tourist souvenir specimens of Appendix-II species covered by an export permit be exempt for personal effects when entering States other than the State of usual residence or when leaving States other than the State of export. The Plants Committee supported the proposal at its ninth meeting. If accepted, the annotation would reduce the burden of Customs authorities in the three range States if no other genera in Chile and Peru are involved. However, as noted above, other species are sometimes traded in the form of rain sticks. Identification of species may prove problematic and make the annotation difficult to enforce. The effect of the annotation on implementation by importing countries is unclear, since they would be applying different restrictions based upon the species involved and the country of origin. Most rain sticks leaving Chile are taken by tourists who are often unaware of the necessity for a CITES export permit. Rain sticks are also leaving Ecuador without permits due to a lack of knowledge about the species, and local authorities have recently suspended export until further species information is available (TRAFFIC South America, 2000).

Reviewers: S. Oldfield, TRAFFIC South America.

Deletion of *Kalmia cuneata* from Appendix II. Proponent: United States of America

Summary: *Kalmia cuneata* is a member of the heather family or Ericaceae and is a small, deciduous shrub that grows in moist, acidic soils in south-eastern USA. It has a relatively small range and has been classified as Rare by IUCN (pre-1994 category). However, several very large populations are known in North Carolina, and this, combined with a low level of threat, indicates that the species is in no danger of extirpation. The species is reported to be relatively easy to propagate but somewhat difficult to grow well and of very little interest to horticulture. It is not known to have any other commercial use. No international trade in either wild-collected or artificially propagated specimens has been recorded by CITES since the species was included in Appendix II in 1983, nor is the species known to be collected for commercial domestic use. The proposal aims to delete *K. cuneata* from Appendix II on the basis that there is no probability of trade taking place in specimens of wild origin, as recommended by Resolution Conf. 9.24 paragraph f, after the second RESOLVES. The Plants Committee has endorsed this proposal.

Analysis: Following Resolution Conf. 9.24 because the species does not ever appear to have been in international trade, nor is there any likelihood of any international demand for wild-collected specimens, it does not meet the criteria for inclusion Appendix II. The species does not appear to meet the biological criteria for inclusion in Appendix I.

	Supporting Statement (SS)	**Additional information**
Taxonomy	Synonym *Chamaedaphne cuneata*.	
Range	USA, chiefly in North Carolina. SS provides detailed information.	
IUCN Global Category		R in 1997 (pre-1994 category) (Walter and Gillett, 1998).
Biological and trade criteria for retention in Appendix II		
B) Harvesting for international trade has, or may have, detrimental impact on population i) exceeds sustainable yield ii) reduces population to potentially threatened level	There is no international trade in the species. It is reportedly easy to propagate artificially from seed under an appropriate regime.	The species is somewhat difficult to cultivate successfully and regarded as of minimal value as an ornamental (Boyer, 2000). Any meagre demand for the species outside the range State could easily be met with artificially propagated specimens.
A) Trade regulation needed to prevent future inclusion in Appendix I	No.	There is no documented or projected international demand for this species.

	Supporting Statement (SS)	Additional information
Retention in Appendix II to improve control of other listed species		
Specimens resemble other species and are difficult to distinguish, or most of taxon is already listed		No similar species are included in the Appendices.
Criteria for inclusion in Appendix I		
Trade	The species is not in international trade.	
Biological criteria	Although of limited range, the species appears to be locally abundant and secure in at least part of its range.	There are several very large populations in North Carolina. This, combined with low levels of threat, indicates that the species is in no danger of extirpation (Boyer, 2000; TNC/ABI 2000).
Other Information		
Threats	Habitat loss owing to land development, conversion to agriculture or silviculture, and fire suppression are identified threats. However, the species is not listed under the US Endangered Species Act and recent studies indicate that it is more abundant than once thought.	
Conservation, management and legislation	The species is protected in North Carolina under the State's Plant Protection and Conservation Act (1979).	

Reviewers: J. Amoroso, B. Pittman, TRAFFIC North America.

Inclusion of Happy Tree *Camptotheca acuminata* in Appendix II. Proponent: China

Summary: *Camptotheca acuminata* is a fast-growing deciduous tree found in temperate regions of southeast China. A derivative of *C. acuminata*, Camptothecin (CPT), is in demand both nationally and internationally as a medicine, for its anti-tumour properties. Both the range and population size of wild *C.acuminata* have been severely reduced as a result of over-harvesting for CPT production, clearance for agriculture, and felling for firewood. While *C. acuminata* is now thought to be rare in the wild (the total population may be less than 4 000 trees), it is widely planted in China as a roadside tree. Plantations also exist in a number of other countries, including Australia, Brazil, Japan, Sri Lanka and the USA. Levels of harvest and export have apparently increased significantly since the medical significance of CPT became widely appreciated in the late 1980s and 1990s. The majority of export from China appears to be in the form of CPT or seeds. In 1998, 50 kg of seeds (including 0.5 kg derived from wild trees) were exported, as well as approximately 1 000 kg of CPT. The proportion of CPT currently derived from wild trees is unknown, but given the abundance of cultivated trees, compared with the rarity of wild trees, is likely to be small. A number of cancer treatment drugs based on CPT, either on the market or in development, are being produced by large pharmaceutical companies based outside China. One of these, Topotecan, is traded worldwide with sales exceeding USD110 million per year. The majority of CPT-based drugs appear to be based on CPT derived from *C. acuminata* plantations outside China. The capacity exists to synthesise CPT artificially. The species is proposed for inclusion in Appendix II in accordance with Article II 2 (a).

Analysis: Following Resolution Conf. 9.24 (Criterion A, Annex 2a), it appears that *C. acuminata* may already meet the criteria for inclusion in Appendix I, on the basis of a small total population size, numbering less than 5 000 individuals, and reported declines in area of distribution and the number of individuals in the wild (criteria Ai, Biv, and Ci, Annex I). The species may also meet criterion Bi of Annex 2a for inclusion in Appendix II. Few data are available on trends in population size, but both the size and range of the population appear to have been reduced by overharvesting for CPT production, primarily since the 1980s, in combination with clearance for agriculture. The extent to which harvests from wild populations continue, however, is unclear. Given that the major pharmaceutical companies obtain CPT from plantations outside China, the proportion of CPT and *C. acuminata* products traded internationally which derives from wild products is thought to be relatively small. Seed of species on Appendix II is not automatically regulated by the Convention and a specific annotation to include seed should be considered if *C. acuminata* is included on Appendix II.

	Supporting Statement (SS)	**Additional information**
Taxonomy	Two varieties are mentioned. Tenuous Leaf Happy Tree (*C. a.* var. *tenuifolia*) and Round Leaf Happy Tree (*C. a.* var *rotundifolia*). Two new species have been described but the SS states that they are not recognised by most taxonomists.	Only one species is included in Mabberley (1997). Li (2000) considers the genus to comprise three species, *C. acuminata*, *C. yunnanensis* and *C. lowreyana*.
Range	China (Yunnan, Sichuan, Guangdong and Hunan provinces).	Wild populations are thought to still exist only in Yunnan (Pei, 2000), possibly Sichuan, and Guangdong provinces (Li, 2000). The species is also reported to occur in India (Dong and Xu, 1996), Burma and Thailand (ten Kate and Wells, 1998), but this has not been confirmed.
IUCN Global Category		This species has not been evaluated by IUCN.
Biological and trade criteria		
A) Trade regulation	Considering the biological criteria for inclusion in Appendix I (Resolution	*C. acuminata* is not included in the Chinese Angiosperm Red List (Wang

	Supporting Statement (SS)	Additional information
needed to prevent future inclusion in Appendix I	Conf. 9.24, Annex 1), it appears from the information presented that *C. acuminata* already meets the criteria for inclusion in Appendix I (on the basis of a small total population size, numbering less than 5 000 individuals, and reported declines in area of distribution and the number of individuals in the wild; criteria Ai, Biv, and Ci, Annex I).	and Yang, in prep.). *C. acuminata* is now thought to be very rare in the wild and a recent survey located less than 500 wild trees (Li, 1999). Although, the species is widely cultivated and planted as a roadside tree in China (Boufford, 2000; Li, 2000; Pei, 2000; Wang, 2000), stocks of cultivated trees are likely to lack the genetic diversity of wild populations (Li, 1999).
B) Harvesting for international trade has, or may have, detrimental impact on population i) exceeds sustainable yield ii) reduces population to potentially threatened level	Camptothecin (CPT) is an alkaloid derived from all parts of the *C. acuminata* tree, including seeds and roots. It is in demand as a treatment for AIDS and a number of types of cancer. The majority of CPT produced in China is for export. Legal export of *C. acuminata* from China was 50 kg of seeds in 1998, but only 0.5 kg of this derived from wild trees (primarily for scientific purposes, for investigation into cultivation methods and development of high-yielding stocks). Total trade annual volumes are estimated at 500 kg of dry seeds and 1 000 kg of CPT. Although the CPT is primarily for export, it is not clear what proportion of the seed is exported, nor the proportion of CPT derived from wild sources. It is estimated that 500 000 to 750 000 trees are required to produce the 1 000 kg of CPT. Artificially propagated trees are widely distributed in China. Although the SS states that the species is not widely cultivated outside China, that China's exports of *C. acuminata* derivatives are the primary source of CPT in international markets, and that artificial synthesis of CPT has not yet been developed, additional information suggests otherwise. (i) Very little quantitative information is provided on population status and trend. Once abundant and widely distributed in at least 13 provinces, the current wild population is now thought to be less than 4 000 trees in four provinces. The rapid decline in the species' abundance and range is thought to have occurred as a result of over-harvesting. Before the pharmaceutical value of *C. acuminata* was internationally recognised in the early 1990s*, C. acuminata* was only felled on a relatively small scale for agriculture and forest plantations. Since the 1990s, harvests have apparently increased.	*C. acuminata* is one of the two sources of CPT, the precursor compound for the semi-synthetic drug Topotecan and a number of other related drugs (ten Kate and Wells, 1998). The other source is *Nothapodytes foetida* from India, a far richer source of CPT than *C. acuminata*. CPT-based drugs are in increasing demand for their anti-tumour properties. Pharmaceutical organisations in China started to export *C. acuminata* in the late 1980s for drug development studies. Topotecan (trade name Hycamtin-R, produced by SmithKline Beecham Pharmaceutical) is thought to be the most widely traded CPT-based drug at present. It is sold in a large number of countries worldwide and sales exceed USD110 million (SmithKline Beecham web page: www.sb.com). SmithKline Beecham acquired its CPT from China in the 1980s and early 1990s (purified from seeds), but current supplies are, and future supplies will be, derived from plantations in Brazil, Sri Lanka and Australia (except in the event of failure of its source plantations; Henry, 2000). Although SmithKline Beecham has discovered a means of synthesising Topotecan, semi-synthesis, from CPT sourced from plants, has proved more cost-effective. *C. acuminata* plantations in Japan are thought to be the primary source of CPT for production of Irinotecan (traded as Camptosar, by Pharmacia and Upjohn, Inc. USA) (Henry, 2000; ten Kate and Wells, 1998). Pharmacia and Upjohn has, however, developed a cost-efficient total synthesis method for Irinotecan (Henry, 2000). Other CPT based drugs include Rubitecan (from Supergen) and PEG-CPT (from Enzon), both of which are derived from semi-synthetic CPT, and a number of other drugs which are derived from wholly synthetic CPTs (e.g. Lurtotecan, from Glaxo) (Henry, 2000). The US Department of Agriculture has demonstrated the feasibility of producing CPT economically by domestic cultivation of *C. acuminata* (Carte and Johnson, 1997). The total volume of international trade in CPT produced from either wild or cultivated *C. acuminata* trees is not available. International illegal trade in seeds from China is thought to exceed 100 kg per year (Li, 2000), but the proportion deriving from wild trees is unknown. Prices of CPT in the early 1990s were around USD30 000 to USD85 000 per kg, depending on the purity (ten Kate and Wells, 1998). The current

	Supporting Statement (SS)	Additional information
		wholesale price in China is thought to be around USD12 000 per kg (95% purity; Liu, 2000). Harvesting of the tree and its seeds for CPT production is considered to be the principal factor in the decline of wild *C. acuminata* populations in China (Li, 1999). Although *C. acuminata* is now thought to be very rare in the wild, the species is widely cultivated and planted as a roadside tree in China (see above). The cultivated population in Yunnan Province alone is estimated at two million trees (Li, 1999). While CPT production and export are thought to have had a detrimental effect on *C. acuminata* populations in the past, particularly when China was the only source of *C. acuminata* in the 1980s and early 1990s, and while the production of CPT continues to take place, the extent of current harvest from wild populations is unknown. There is no evidence to suggest that wild-grown trees are particularly in demand for CPT production, as the CPT yield varies considerably, depending on growing conditions, the part of the tree used and maturity (Lopez-Meyer *et al.,* 1994; Liu and Adams, 1996; Liu *et al.,* 1997). Seeds from wild *C. acuminata* may be in demand for experimental purposes, to identify high-yielding varieties of *C. acuminata* (ten Kate and Wells, 1998), but the demand is likely to be small.
Other information		
Threats	The species is threatened by harvesting of the trees and their seeds for production of CPT and Xishu (a locally made anti-tumour drug used within China). In addition, *C. acuminata* is felled on a relatively small scale to make way for agriculture and forest plantations. The species is not in demand for timber, but is used as firewood.	The species is threatened by habitat destruction, harvesting for timber (e.g. for mine workings) and firewood, and seed collection (Li, 2000; ten Kate and Wells, 1998). Although many parts of the *C. acuminata* tree, including fruit, leaves, roots, branch and bark, are used in traditional medicine in some parts of China, their use is not widespread (TRAFFIC East Asia, 2000). National demand exists for the small-scale manufacture of Xishu (ten Kate and Wells, 1998).
Conservation, management and legislation	The species is on the National Protected Plants List of the State Forestry Administration. The Resolution of Conservation of Wild Plants of People's Republic of China requires the approval of the National Administration of wild plants to acquire, trade, and use *C. acuminata*. The CITES Management Authority of China is negotiating with the Customs Department to add CPT to the National Checklist of International Trade. Export and import certificates issued by the CITES Management Authority are required.	Cultivated populations of *C. acuminata* are found in Australia, Brazil, China, France, Germany, Japan, South Korea, and USA, (Li, 2000). In Yunnan Province, *C. acuminata* is on the list of endangered species and is consequently protected (Li, 2000). Although Li (2000) also states that *C. acuminata* is listed as a national endangered species (since 1997), the species is not listed in the China Plant Red Data Book (Fu, 1992), nor any list of protected species in China (TRAFFIC East Asia, 2000). The import, export, re-export, and domestic trade of *C. acuminata* is not regulated in China (TRAFFIC East Asia, 2000). Approximately 5% of the habitat of this species is protected in Sanchahe National Forest Park (Li, 2000).

	Supporting Statement (SS)	Additional information
Similar species		There are no similar species.
Other comments		Wang *et al.* (2000) note that there is no need to include *C. acuminata* in Appendix II because it is widely cultivated.

Reviewers: D. Fu**,** L. Fu, D. Hong**,** R. Lancaster**,** S. Li, Z. Li, A. Lu, S. Pei, H. Qin, S. Wu, S. Wang, X. Wang, Y. Wang, J. Ying, Q. Yang, TRAFFIC East Asia.

Inclusion of *Cistanche deserticola* in Appendix II. Proponent: The People's Republic of China

Summary: The genus *Cistanche* comprises 16 species, distributed through the Mediterranean, Ethiopia, west India and into northwest China. A number of *Cistanche* species, including *C. deserticola*, are important medicinal plants in traditional Chinese medicine. The dried stem of *C. deserticola*, usually referred to as Herba Cistanches, has been used to treat a wide variety of conditions, including kidney problems, impotence, and infertility, for many hundreds of years. *C. deserticola* is a parasite, primarily on the roots of *Haloxylon ammodendron*. *C. deserticola* occurs in China and Mongolia, and is listed as Endangered in the Chinese Angiosperm Red List as a result of habitat destruction and over-harvesting. Herba Cistanches is in demand both nationally in China and internationally. Current levels of exports are estimated at approximatey 120 tonnes, while national demand was estimated at between 450 and 550 tonnes in 1995. Both the total size of the *C. deserticola* population and its area of distribution are reported to have declined considerably. The available supply of the plant is thought to be insufficient to meet demand, and harvests have declined in some areas. The species is cultivated in only very small quantities, and all the drug on the market is currently harvested from wild plants. The species is also threatened by the decline in populations of its host, *H. ammodendron*. The dried stem *of C. deserticola* is similar in appearance to that of *C. ambigua*, *C. tubulosa*, *C. salsa* and *C. sinensis*, which are also traded. *C. tubulosa* is classified as Endangered by IUCN.

Analysis: Following Resolution Conf. 9.24, Annex 2a, the available evidence suggests that *C. deserticola* meets the criteria for inclusion in Appendix II, although data on the population status and distribution of this species are very limited. With respect to criterion A of Annex 2a, it appears that the species may already meet at least one of the criteria in Annex I, on the basis of a decline in the number of individuals in the wild. It also appears that the harvesting of specimens from the wild for international trade may be having a detrimental impact on the species, by exceeding, over an extended period, the level that can be continued in perpetuity (criterion B, Annex 2a). The extent to which harvesting for international trade, compared with national trade, is affecting the population is, however, difficult to determine. *C. deserticola* in trade (primarily dried stem, whole or in pieces) cannot be distinguished from the other medicinal *Cistanche* species.

	Supporting Statement (SS)	**Additional information**
Taxonomy	Synonym: *C. ambigua.*	
Range	China (in the following provinces and autonomous regions: Gansu, Shaanxi, Qinghai, Xingjiang Uygur, Ningxia Hui, and Inner Mongolia).	The species is also reported to occur in Mongolia (Fu, 1992).
IUCN Global Category		*C. deserticola* has not been evaluated by IUCN, but is listed as Endangered in the Chinese Angiosperm Red List (EN, A1c, 2c, 2d, B2c,d) (Wang and Yang, in prep).
Biological and trade criteria		
A) Trade regulation needed to prevent future inclusion in Appendix I	The species is traded as dried stem, covered with scales. It is also included in tablets, powders and tonics. *C. deserticola* is exported from China to Japan, Hong Kong and Southeast Asia, where demand has increased in recent years. At the beginning of the 1980s it was estimated that 400-500 tons were traded each year, of which 120 tons were exported. More recently, it is thought that international demand has increased, availability has decreased, and demand now	The species is primarily traded as dried stem, termed Herba Cistanches, but it is also mixed with other *Cistanche* species and traded under a variety of names. Twenty chemical compounds have been isolated from *C. deserticola* for medicinal properties (Tu, 2000). While Zhu (1990) estimates that exports from China are approximately 120 tonnes annually, imports into South Korea alone averaged 120 tonnes between 1989 and 1998 (TRAFFIC East Asia, 2000). Imports

	Supporting Statement (SS)	Additional information
	exceeds the available supply. There are no estimates for the total population size of *C. deserticola* (Res. Conf. 9.24, Annex 1, criterion A), but the list of provinces in which it occurs (see above) suggests that it is distributed over a wide area (Annex 1, criterion B). Both the size of the *C. deserticola* population and its area of distribution are reported to have declined substantially (Annex 1, criterion C), suggesting that the species may already meet the criteria for inclusion in Appendix I.	were highest in 1996 (174 tonne) and lowest in 1998 (57 tonne). A large amount of *Cistanche* trade into Japan appears to be in *C. salsa*, averaging about 19 tonnes/year (TRAFFIC East Asia, 2000). In addition to its listing as endangered on the Chinese Angiosperm Red List, as a result of habitat destruction and over-harvesting (Wang and Yang, in prep.), *C. deserticola* is also listed as a 'seriously threatened valuable medicinal plant' in the Action Plan for Plants of the Chinese Region (Wang and Yang, in prep). Although this information suggests that *C. deserticola* may meet the criteria for inclusion in Appendix I in the near future, no survey data documenting changes in the species' population size or distribution are available.
B) Harvesting has, or may have, detrimental impact on population	Most of the drug is produced from Inner Mongolia (annual production about 70 tons) and North Xingiang Uygur Autonomous region (annual production about 50 tons). The drug is in demand both nationally and internationally, and demand is reported to exceed supply. Although the plant can be artificially propagated, it is not widely grown, and all the drug currently derives from wild-harvested plants.	*C. deserticola* is harvested for medicinal plant use entirely from the wild (Anon, 1995a; Anon, 1995b; Anon, 1995c), and wild populations are threatened by over-harvesting (Fu, 1992; He and Shi, 1995). Herba Cistanches has been in short supply for a long time and supplies are now insufficient to meet both domestic and international demands (Zhu, 1990; Zhou, 1993; Tu *et al.,* 1994; Anon, 1995b; He and Shi, 1995). Wholesale prices of Herba Cistanches have generally increased, from 32-45 CNY/kg in September 1997 to 42-70 CNY/kg a year later (TRAFFIC East Asia, 2000).
i) exceeds sustainable yield	Over-harvesting has reduced availability of the plant in many areas, for example in Gansu province and around the main towns in Inner Mongolia and Xingjiang Uygur Autonomous Regions. The species has declined in abundance, and its area of distribution has decreased.	A five year survey of medicinal resources in China, starting in 1983, suggested that the availability of *C. deserticola* in Gansu province was reduced, while its distribution in Inner Mongolia had declined from 30-40% of the Region in the 1950s to about 5% in the 1980s (Anon., 1995a). Annual collection of Herba Cistanches in Inner Mongolia has decreased substantially over the last 20-30 years (Tu *et al.,* 1994; Anon., 1995a), and Xinjiang has now become the major area supplying Herba Cistanches; the annual harvest had reached 300 tonnes by the 1980s (Anon.,1995a). The species is reported to have become very scarce in the wild in Inner Mongolia (Leon, 2000). *C. deserticola* is reported to be cultivated in Inner Mongolia and in Xinjiang, but not in large quantities (Tu *et al*, 1994).
Other information		
Threats	The main threat is considered to be over-harvesting.	The species is threatened by habitat loss, as well as over-harvesting (Wang and Yang, in prep). Zhu (1990) suggested that total annual harvests might be as high as approximately 7,000 tonnes of Herba Cistanches. The level of national demand in 1995 has been estimated at between 450 tonnes and 550 tonnes (Anon., 1995b; Anon 1995c). The range of *C. deserticola* is determined by the distribution of the host

	Supporting Statement (SS)	Additional information
		plant, *Haloxylon ammodendron* (Anon.,1995b). *H. ammodendron* is listed as Vulnerable in the China Plant Red Data Book (Fu, 1992; vulnerable is defined as "those plants whose existence is threatened by human activities and natural reasons"), but is not included in the Angiosperm Red List for China (Wang and Yang, in prep). *H. ammodendron* is a favourite food for camels and is threatened by over-grazing and over-harvesting for firewood (Fu, 1992).
Conservation, management and legislation	*C. deserticola* will be recorded in the list of State Protected Species as a Second Grade species.	In China, *C. deserticola* is protected under the *Law of Wild Plant Protection* (He and Shi, 1995), and under the *Regulation on Wild Medicinal Resources Protection* (RWMRP) as a Category III species (TRAFFIC East Asia, 2000). A Category III species is defined as a "major and commonly used wild medicinal species whose resources are reducing ". Exports of Category III species are subject to a quota system specified in Article 15 of the RWMRP. However, it is not clear exactly how the quota system is implemented. Currently, national trade of *C. deserticola* is not thought to be regulated in China. Although the establishment of a reserve for *Haloxylon ammodendron* has been suggested (Fu, 1992), it is not known whether action has yet been taken.
Similar species		The genus *Cistanche* comprises 16 species, distributed through the Mediterranean, Ethiopia, west India and into northwest China (Mabberley, 1997). *C. ambigua, C. tubulosa, C. salsa* and *C. sinensis* are also traded as medicinal plants (Shengji, 2000; Tu, 2000), and their stems closely resemble those of *C. deserticola* when dried (Anon, 1995b). *C. tubulosa* is listed as Endangered in the 1997 Red List of Threatened Plants (Walter and Gillett, 1998) and in the Angiosperm Red List for China (as a result of habitat destruction and overharvesting, Wang and Yang, in prep.), and is protected under the *Regulation on Wild Medicinal Resources Protection* as a Category III species.
Other comments	*C. deserticola* mainly parasitizes the roots of *Haloxylon ammodendron*, but also *H. persicum*.	Relatively few host plants are parasitised by *C. deserticola* (Fu, 1992) and it is slow to germinate (He and Shi, 1995). Wang *et al.* (2000) note that the species is extremely rare in the wild, it is very difficult to cultivate, and its inclusion in Appendix II is very necessary.

Reviewers: D. Fu, L. Fu, D. Hong, C. Leon, Z. Li, A. Lu, S. Pei, H. Qin, P. Tu, S. Wang, X. Wang, Y. Wang, J. Ying, Q. Yang, TRAFFIC East Asia.

Inclusion of Devil's Claw *Harpagophytum procumbens* and the look-alike *H. zeyheri* in Appendix II. Proponent: Germany

Summary: The genus *Harpagophytum*, comprises two species of perennial weedy herbs with creeping stems which emerge after rain. They occur in Angola, Botswana, Namibia and South Africa and, to a lesser extent, in Mozambique, Zambia and Zimbabwe. This region is generally an area of low and unpredictable rainfall. The common name Devil's Claw, is derived from the tough, thorny barbs, which grow on the woody fruits. Secondary storage tubers grow from the main tap root and these contain compounds, which have medicinal applications. Devil's Claw is used in western and traditional medicine as an analgesic and anti-inflammatory. The tubers are sliced into thin disks and dried before export. The established and growing international market (primarily for *H. procumbens*) presents both a threat and opportunity. As with many wild-harvested medicinal plants, as demand for the resource grows, so the resource is depleted unless sustainable resource management schemes are implemented. The trade data clearly indicates that millions of plants are being harvested, how much of this was done sustainably is not known. Most of the harvesting is done in the communal areas of Namibia and to a lesser extent in Botswana and very little in South Africa. There is evidence that numbers of plants have become depleted in some areas, but certainly not across the entire range. It is not entirely certain whether the depletion is due solely to unsustainable harvesting or if it is also linked to natural population fluctuations. Management authorities in Namibia and the Northern Cape are actively looking at mechanisms to ensure better control and regulation of the industry. There is also active research into the domestication and cultivation of the species is an agricultural crop. Concern about the growing trade volumes and the unsustainable way plants are harvested has prompted the proposal to include *H. procumbens* and *H. zeyheri* in CITES Appendix II in accordance with Articles II 2(a) and 2(b) respectively.

Analysis: Following Resolution Conf. 9.24, it is not clear whether or not *H. procumbens* meets the criteria for inclusion in Appendix II under Annex 2a Bi. Harvesting for international trade has or may have a detrimental impact on the species by exceeding, over an extended period, the level that can be continued in perpetuity. There is evidence that the species is harvested intensively and unsustainably in certain areas for international trade. The levels of recorded trade indicate that many millions of plants have been harvested since significant trade began in 1962 and there are some indications that this trade may be having a localised detrimental impact. *H. zeyheri* is also harvested and has tubers which cannot easily be distinguished from *H. procumbens* and is therefore proposed for inclusion in Appendix II under Resolution Conf. 9.24 Annex 2b A. The proponent has stated that it will provide identification and education material which will enable reliable identification of the species. A specific annotation to exclude seed should be considered if *Harpagophytum* is included on Appendix II.

	Supporting Statement (SS)	**Additional information**
Taxonomy		*H. zeyheri* ssp. *sublobatum* Ihlenf. & H.E.K.Hartmann 1970 (=*H. procumbens* (Burch.) DC. ex Meissn. f. *sublobatum* Engl.) *H.peglerae* Stapf is a synonym of *H. zeyheri* ssp. *zeyheri* (Arnold and De Wet, 1993).
Range	Primarily Angola, Botswana, Namibia, South Africa and to a lesser extent Mozambique, Zambia and Zimbabwe.	
IUCN Global Category		The global status of *H. procumbens ssp. procumbens* is not threatened (Hilton-Taylor, 1996).

	Supporting Statement (SS)	Additional information
Biological and trade criteria		
B) Harvesting for international trade has, or may have, detrimental impact on population i) exceeds sustainable yield ii) reduces population to potentially threatened	Devil's Claw is widely harvested for use in western and traditional medicine as an analgesic and anti-inflammatory. The greatest quantities of medicinally active ingredients are located in the secondary storage tubers off the main tuber. To harvest the tubers, in most cases the whole plant is dug out. Traditional harvesters e.g. the San, use more sustainable methods so the plant grows again producing new tubers to be harvested a few years later. The use of non-sustainable harvesting methods has increased recently. The harvested tubers are peeled and cut into thin slices while fresh and are dried. Tubers are harvested for the domestic markets in Botswana and Namibia. However, the primary aim of most harvesting is to supply the international export market. Most of the material in international trade comprises dried, sliced root tubers harvested from the wild. Export of *H. procumbens* from its three main range states (Botswana, Namibia and South Africa) is significant and strongly increasing with exporting companies actively seeking new markets. Export figures for Namibia, the main exporter, show a significant increase in export volumes, particulary during the last six years. In 1973, 28 161 kg were exported compared to 610 000 kg in 1998. Between 1994 and 1998, 1 620 000 kg of dried tubers has been exported from Namibia. Only fragmentary export figures are available for Botswana: an average of 17 tonnes of *Harpagophytum* material was exported annually between 1979 and 1985 but this had risen to ca. 50 tonnes in 1997/98 and the export volume is expected to continue increasing. A marked increase in export of *H. procumbens* over the past five years is evident. No export figures are available for South Africa and little exploitation takes place. The importing countries are Austria, Belgium, France, Germany, Greece, Italy, Japan, United Kingdom, USA, Spain, Sweden, and Venezuela. The raw material is exported from the countries of origin and is manufactured in the importing countries. Retail products include teas, tablets and capsules. There is no information on illegal trade. Decline in individual populations of *H. procumbens* varies depending on the country and region This is due to differences in harvesting intensities and harvesting techniques between ethnic groups as well as to their knowledge of and access to markets and buyers respectively. Studies in Botswana and Namibia indicate a localised decline of wild plants as a result of focussed exploitation in the communal areas of these countries. There is evidence for	Chemical analyses of the plant show that only the secondary roots contain iroid glycosides and harpagoside in suitable concentrations for pharmaceutical use (Schmidt *et al*., 1998; Van Wyk *et al*., 1997). Yield per plant varies considerably but lies typically between 0.05-0.15 kg (dry weight) but can be as high as 0.25 or even 0.5 kg (Hachfeld, 1999). The tubers of *H. zeyheri* are larger, but no information on yield is available (Hachfeld, 1999). Nott (1986) reports that the first significant quantities were exported from Namibia in 1962. Leith (2000) comments that the export figures are all under-estimates. At present there are 11 companies exporting *Harpagophytum* and its harvest has become an important source of revenue for local communities (Hachfeld, 1999; Marshall, 1998). Gericke (2000) comments that price in 1999 for raw tubers were low for wild-harvested material, and the market was apparently over-supplied. In Botswana, all harvested material is purchased by Thusano Lefatsheng a community-based NGO which exports 90% of the harvest (40-50t annually) to Europe and to a lesser extent the Far East through traders based in South Africa and Namibia (Draycott, 2000; Hachfeld, 1999; Marshall 1998). In 1982, 945 kg of *Harpagophytum* was exported from Mozambique (Atal, 1993) Canada, South Korea and Switzerland are also importers (Hachfeld, 1999; Marshall, 1998). In Namibia, there are some specific and large areas, mainly in the communal areas where the intensity and nature of harvesting is unsustainable (Leith, 2000; Lombard, 2000; Strohbach, 2000). In Botswana, there are reports of over-collection and skewed population structures (Hachfeld, 1999). However, this is localised to certain settlements and the present level of harvesting is lower than a sustainable off-take (Draycott, 2000; Lombard, 2000). The major concern about the proposal is that not enough is known about the overall resource base of Devil's Claw (population size, population trends, natural population dynamics, regeneration and ecological requirements, etc.), and the current off-take, to reach conclusions about whether the current levels of trade are sustainable or not (Donaldson, 2000; Draycott, 2000; Lombard, 2000; Strohbach, 2000; Van Wyk, 2000). No quantitative data on overall population status and trends are available. The very patchy distribution of the species makes it difficult to

	Supporting Statement (SS)	Additional information
	the disappearance of *H. procumbens* on some previously exploited farms or specific communal areas. Exporters and middlemen report that lately the sliced material of *H. procumbens* is of smaller size than it used to be some years ago which indicates a reduction in the existence of old plants with large storage tubers. Some harvesters also claim they have to travel longer distances in order to find plants to harvest. For South Africa, no data on population trends are available. Although no significant large scale geographic trends have been reported the SS concludes level that there is strong evidence that the increasing demand for Devil's Claw by the international market has (i) resulted in non-sustainable harvesting techniques being used, (ii) led to over-exploitation of the species, e.g. in Botswana and some parts of Namibia and (iii) become a major threat to the the species.	estimate the overall numbers of plants for the total distribution area (Hachfeld, 1999). There are reports of many large and unexploited populations in Botswana, Namibia and South Africa (Gericke, 2000; Graven, 2000; Hachfeld, 1999). Some detailed baseline studies are now being done which will enable better monitoring of some sites in future (Strohbach, 1998, 1999a,b). Hachfeld (1999) has re-documented 24 former collecting sites (all on commercial farms). Only 11 of these sites showed a decrease in numbers of plants since first documented 17-37 years ago. This decrease may be due to harvesting, natural factors, or a combination (Hachfeld, 1999). Although seed germination is low, seeds may remain dormant for many years (Hachfeld, 1999; Nott, 1986). It is also not clear to what extent the episodic recruitment compensates for harvesting (Donaldson, 2000), and speed of maturation in the wild is disputed (Leith, 2000). Van Wyk (2000) concurs with this saying that there are very many healthy populations in South Africa, Botswana and Namibia, although he has no doubt that considerable damage has already been done in localised areas.
Species included for lookalike reasons	Although *H. procumbens* and *H. zeyheri* can easily be distinguished in the field, it is impossible to tell them apart in the form of dried and sliced tubers. Both species are harvested and traded as Devil's Claw in Namibia.	Live *H. zeyheri* plants are easily distinguished from *H. procumbens* in that the leaves are different and the fruit does not have the pronounced hook structures (Schmidt *et al*., 1998). Research in South Africa has indicated that some plants with *H. procumbens* genotypes and which conform morphologically to *H. procumbens* have chemical profiles tending towards that of *H. zeyheri*. (Graven, 2000).
Other Information		
Threats	The major impact on Devil's Claw appears to be unsustainable collection for international trade. *H. procumbens* is also under increasingly higher harvesting pressure because the other species in the genus (*H. zeyheri*) is not officially registered as a medicinal plant on the pharmacopeia of the U.S.A and European Union and therefore is not authorised as an ingredient in any phytomedicines. As a result there has been a shift in exploitation activities in the last couple of years from the distribution area of both species in northern Namibia to a strong concentration on areas with only *H. procumbens*. Small parts of the distribution area of *H. procumbens* show a decline of habitat availability due to expansion of agricultural activities. In heavily overgrazed farmland or communal land with advanced stages of bush encroachment as well as in grass dominated savanna, *Harpagophytum* is likely to disappear due to low competitive strength.	The status in Botswana was listed as Vulnerable (pre-1994 Categories) (Hilton-Taylor, 1986) , but Draycott (2000) maintains it is not threatened and there is no evidence of any decline. In Botswana, *Harpagophytum* is sold along with other traditional medicines by pharmacies, but the quantities sold could not be determined (Marshall, 1998). Lombard (2000) reports that the volumes traded domestically are very small in comparison to those traded internationally. Leith (2000) says it is not the harvesting of the secondary tubers which is the problem, but the intensity and frequency of the removal plus the removal of the primary tubers, all of which is driven by the low prices paid to the harvesters and the unpredictable nature of the local markets. There is reportedly uncontrolled exploitation of *H. zeyheri* in Angola and northern Namibia which may account for over 50 tonnes per month (Leith, 2000).

	Supporting Statement (SS)	Additional information
	The tubers are able to sprout fresh shoots if they have been grazed back. The grazing leads to a restricted production of new fruits and seeds and reduces the amount of regeneration from seed germination.	The dried seed capsules (especially in areas with dense populations) are considered by farmers to be a menace to livestock; some in the Northern Cape have reported using herbicides to control *Harpagophytum* in natural pasturage (Graven, 2000). Agricultural expansion and human settlements have affected *Harpagophytum* populations in Namibia and South Africa (Hachfeld, 1999; Ihlenfeldt, 2000). Lombard (2000) reports some farmers saying that overgrazing is advantageous to the competitive strength of *Harpagophytum* species. However, continued grazing is likely to lead to reduced regeneration because of the limited production of flowers and fruit (Hachfeld, 1999).
Conservation, management and legislation	**Legislation:** In Namibia, *Harpagophytum* species are protected under Schedule 9 of the Nature Conservation Ordinance of 1975. From that year a permit was required for the collection, transport, possession, and/or sale of *Harpagophytum*. However, in 1986, this system was considered to be ineffective and from 1987, permit requirements were restricted to commercial traders. In order to export *Harpagophytum* from Namibia, a phytosanitary certificate in addition to other documents is required. In Botswana, *Harpagophytum* species are protected under the Agricultural Resources Conservation Act of 1977 by which harvest and trade are regulated and export requires a permit. To date, however, no export monitoring is done by the government, despite a continuing trade in *Harpagophytum* since enactment of the legislation in 1977. In South Africa, a permit system at provicial level is in place but no further information on the protection of *Harpagophytum* species is available. Apart from the existing national harvesting and export permit system for Namibia and Botswana, there is a lack of instruments controlling international trade of *Harpagophytum* trade between range states (e.g. from Namibia and Botswana to South Africa). The trade with South Africa is becoming increasingly important but is not subject to any form of control or registration to date. **Management:** In Namibia, the only public sector involved in the trade of *H. procumbens* is a project of the non-governmental organisation CRIAA SA-DC, called the *Sustainable Harvested Devil`s Claw Project*. This project assists rural communities to ascertain the quantity of their resource, to establish quotas and sustainable harvesting techniques for the production of high quality products. Direct and economically feasible access to the market is aimed at in order to generate as much income as possible for the harvesters in the rural and almost exclusively marginalised and poverty	**Legislation:** Subsequent to the preparation of the SS, the need for collecting permits and other regulation measures were re-introduced in Namibia in August 1999. These measures specifically address the need to ensure that harvesting is done sustainably and is monitored (Lombard, 2000). However, stakeholders consider the system to be both poorly designed and poorly executed and it is under review again (Hachfeld, 1999; Lombard, 2000). Implentation of regulations in Botswana is acknowledged not to be perfect, but it does give a good measure of control and helps limits illegal trade (Draycott, 2000). In South Africa only the Northern Cape province specifically lists *Harpagophytum* as a Protected Indigenous Plant (*Cape Nature and Environmental Conservation Ordinance 19 of 1974*). All the provinces have different permitting systems, which cover harvesting from the wild and import and export of indigenous plant material. For example the Free State and Northern Province issue so-called muti-permits, on which any plant can be harvested from the wild, whereas Northern Cape and North-West province issue regulatory permits to ensure control over harvesting activities (Hachfeld, 1999). The entire permitting system is currently under review (Donaldson, 2000). **Management:** There is general agreement that the long-term solution lies in the training of harvesters to harvest sustainably and the initiation of regular monitoring schemes (Gericke, 2000; Hachfeld, 1999; Leith, 2000; Lombard; 2000, Strohbach, 2000; Van Wyk, 2000). A number of different sustainable harvesting methods have been described (Olivier, 2000; Schneider, 1997). In Botswana sustainable methods are entrenched as part of the regulations, but they are seldom adhered to (Hachfeld, 1999; Kgathi, 1988). But, the best sustainable harvesting method is still open to debate (Hachfeld, 1999).

	Supporting Statement (SS)	Additional information
	stricken communities. In Botswana, several studies were carried out by the University of Botswana in the 1980s on the ecology and population biology of *H. procumbens* under harvesting pressure, as well as on the resource potential and possible management strategies. However, no monitoring programme has been implemented in Botswana so far. There is no information available about population monitoring or management structures for *Harpagophytum* in South Africa. **Conservation:** In each of the three main range states only small populations occur within Pritected Areas. **Propagation:** A German phyto-pharmaceutical company, in collaboration with a French researcher, is running a Devil's Claw cultivation project in Namibia. Cultivation trials are also underway in South Africa and possibly Morocco. Athough projects to cultivate *H. procumbens* do exist, the quantities harvested from artificial propagation are not significant in current international trade.	**Conservation:** The survey conducted by Hachfeld (1999) supports the SS, but it is clear that no recent surveys in reserves have been conducted. **Propagation:** Several attempts at controlled cultivation have been undertaken but few have been successful. Reasons for failure include lack of production of secondary metabolites, habitat requirement limitations, and substantial losses of replanted primary roots (Schmidt *et al*., 1998). There are attempts to cultivate the plant in Europe and Morocco and there is an intense programme which has been running for four years in the Western Cape of South Africa using domesticated *H. procumbens* as an orthodox field crop (Graven, 2000). Graven (2000) says that this programme is about to start commercial production in earnest.
Similar Species	Similar tuberous species harvested in the same area include *Elephantorrhiza* spp. (Fabaceae) and *Acanthosycios naudianus* (Cucurbitaceae). Both can be easily distinguished by their bitter taste and dark colour.	

Reviewers: John Donaldson, Ian Draycott, Nigel Gericke, Earle Graven, Hans-Dieter Ihlenfeldt, James Leith, Cyril Lombard, Marianne Strohbach, TRAFFIC East/Southern Africa: South Africa, Ben-Erik van Wyk

Inclusion of *Adonis vernalis* in Appendix II (potted live plants excluded). Proponent: Germany

Summary: *Adonis vernalis* is a perennial, herbaceous plant with flowering and non-flowering shoots. It is wide ranging and occurs from the eastern part of mid Europe, through east Europe and Asia. In mid and southwest Europe its range is disjunct. Seed germination and seedling growth only takes place under fairly specialised conditions which do not occur annually. Generally, the plant reproduces vegetatively. The species requires primary and semi-natural grassland, habitats which are under threat in most parts of their range. It now occurs mainly in isolated, fragmented populations. The plant is slow growing and takes time to regenerate after damage and harvest. *A. vernalis* is used for medicinal purposes, especially in the treatment of cardiac illnesses. All parts of the plant are used in both dried and fresh forms. As cultivation for commercial medicinal purposes has not been successful, almost all plant material in trade originates from wild stock. Collection from the wild has led to population declines. Unsustainable collection is apparently still taking place today in a number of countries. Germany has been the major importer of *A. vernalis* exports for the last 20 years and has a current annual demand of around 10-15 tonnes per year. France began importing the species more recently and has an annual demand of around five to six tonnes. The main producer countries have been: Bulgaria, Hungary, Romania, Russian Federation and the Ukraine. Bulgaria restricted collection and export in 1989 and quantities in trade decreased as a result to one tonne per year since 1993. Romania exported 30-40 tonnes of *A. vernalis* every two years, mainly to Germany until 1991 but quantities in trade decreased sharply until 1994, when less than one tonne was exported. A regulation on harvest, trade and export of medicinal plants came into effect in Romania 1997. The annual exploitable biomass of *A. vernalis* in the Russian Federation is estimated to be 50 tonnes per year, however demand can be higher and harvest has reached 100 tonnes. Exports from the Russian Federation are known to occur, but the quantities involved are not known. The species has been fully protected in Hungary since 1982 and no exports have been reported since then. The Ukraine is not currently importing or exporting *A. vernalis*. To allow early detection of possible conservation concerns it was included in Annex D of the *Council Regulation (EC) No. 338/97* in June 1997 to monitor trade. However, none of the 15 EU Member States had submitted information on importation by the end of 1998. The proposal seeks to include *A. vernalis* in Appendix II (with the exemption of live potted plants). It would seem that this exemption is intended to exclude plants potted for ornamental purposes. However this is not in accordance with text of the Convention, which automatically includes all live specimens (Article I paragraph B).

Analysis: Following Resolution Conf. 9.24 it appears that *A. vernalis* meets the criteria for inclusion in Appendix II as harvesting of specimens from the wild for international trade has had a detrimental impact on the species by exceeding over an extended period the level that can be continued in perpetuity in a number of countries (Annex 2a Bi). During recent years, the majority of countries that are exporting *A. vernalis* have introduced control measures. However, there appear to be few harvesting controls in the Russian Federation, which is known to export the herb in undetermined quantities.

	Supporting Statement (SS)	**Additional information**
Taxonomy	Synonyms: *A. appennina* L.; *A. davurica* RCHB.; *A. helleborus* CRANTZ; *Adonanthe vernarlis* (L.) SPACH.	
Range	Austria, Belarus, Bulgaria, Croatia, Czech Republic, France, Germany, Hungary, Italy (possibly extinct), Kazakhstan, Netherlands, Poland, Romania, Russian Federation, Spain, Sweden, Switzerland, Ukraine. *A. vernalis* grows at elevations from sea level to 500 m in Italy, and the Ukraine; and up to 600 m in Romania and Switzerland. The species reaches higher altitudes, up to 1 100 m in Bulgaria and France and up to 1 600 m in Spain.	

	Supporting Statement (SS)	Additional information
IUCN Global Category		The species is not included in the 1997 IUCN Red List of Threatened Plants but may not have been assessed.
Biological and trade criteria		
B) Harvesting for international trade has, or may have, detrimental impact on population i) exceeds sustainable yield ii) reduces population to potentially threatened level	The plant is slow growing and a number of damaging harvesting techniques are practised for example, cutting the plant close to its base, or uprooting which destroys the vegetative buds. An annual harvest weakens the plants causing reduced shoot and flower production, and harvesting before the seed ripens prevents fertile regeneration. *A. vernalis* is used for medicinal purposes, the dried form is used in phytotherapy and the fresh herb for homeopathy. Stems, leaves, flowers and fruits are used for medicinal purposes, whilst the whole plant may be used in homeopathy. As cultivation on a commercial scale for medicinal purposes has not been successful almost all plant material in trade originates from wild stock. Over-exploitation of *A. vernalis* has been documented in all major exporting countries. In its main range the plant now exists in fragmented patches which often represent genetically distinct subpopulations. In the early 1990s the Eastern Bloc State-controlled system came to an end and private companies were established. From this time, harvest and export became less regulated. Hungary was the main source country in the 1970s, however over-collection led to protection of the species in 1982. In the 1980s, the supply transfered to Bulgaria and Romania but exports from Bulgaria decreased sharply in the 1990s after the introduction of a licence requirement for collection and trade. At present it appears that the Romanian populations are mainly exploited for export. The Russian Federation also exports an unknown quantity of herb. Bulgaria: Prior to the quota system established in 1992, unsustainable harvest of *A. vernalis* occurred in several localities. The quota allows exploitation of a maximum of 40% of the annual dry biomass of each district (the annual average biomass yield of the dried herb is 0.06 tonnes per hectare). For the most important production areas a maximum of 33% of the total biomass can be exploited. The first export under the quota was of 1.3 tonnes in 1994, followed by of zero tonnes in 1995 and 0.9 tonnes in 1996 and 1997. Hungary: no exports have been reported since 1982. Romania: The main procurement region is the district of Cluj in Transylvania, other important harvest areas include Hunedoara and Tulcea. There are no exact figures for the total annual biomass and quantities collected annually.	The primary use of *A. vernalis* is to treat cardiac illnesses. Products containing the plant in Germany are popular and often prescribed. During 1996 and 1997 for example, two common medicines were prescribed around half a million times per year (with an annual turn over of over DEM20 million [USD10 160 000]) (TRAFFIC Europe, 2000). Collection from the wild has led to population declines. Unsustainable collection is apparently still taking place today in countries other than Bulgaria, though there is no supporting data for countries such as Romania and Ukraine (TRAFFIC Europe, 2000). Bulgaria: adopted legislation to limit the harvest of *A. vernalis*, supplies for export seem to have shifted to Romania (TRAFFIC Europe, 2000). Hungary: as populations are increasing Bernáth (2000) believes that permit-controlled harvesting should be considered. Romania: currently said to be the main source country for *A. vernalis.* It is possible that current harvest levels in Romania may not be

	Supporting Statement (SS)	Additional information
	However, the annual biomass of dry herb for the Cluj district is estimated to be 5.25 tonnes for 1997 and based on 1970s data the estimate for Tulcea is 6.8 tonnes. According to a trader's information, in the past as much as 20 tonnes of Adonis herb were harvested in Cluj. Recent export quantities as reported by the former state owned export bureau to European countries were as follows, 11.5 tonnes in 1992, one tonne in 1993, 0.85 tonne in 1994, 1.65 tonnes in 1995, 2.5 tonnes in 1996 and 15.5 tonnes in 1997. Approximately 50% of these exports were destined for Germany.	sustainable because in the past, harvest has repeatedly exceeded the annual exploitable biomass. The effect of the Romanian licensing system is unclear (TRAFFIC Europe, 2000).
	Russian Federation: In optimal conditions, a yield of 0.6-0.8 tonnes of raw plant material per hectare can be expected whereas in wet forest soils the yield is 0.045-0.11 tonnes per hectare. The total annual biomass is estimated to be 500-1000 tonnes, it has been recommended that no more than 50 tonnes of this should be harvested each year. The annual demand for the herb is around 180 tonnes, one Republic procured 58 tonnes or more per year between 1988 and 1996. *A. vernalis* is known to be exported, but quantities have not been determined. According to investigations in 1999, exploitation should be prohibited in most parts of the Russian Federation, with the exception of the Chernozem centre, the Ural region, and Siberia. Ukraine: Early over-exploitation of *A. vernalis* lead to a prohibition on collection at the beginning of the 1970s in the Ukraine and in 1977 in the Crimean peninsula. Today's biomass reserve of Adonis herb in the forest-steppe and in the Crimean peninsula is estimated at 0.1-10 tonnes, and only up to 0.1 tonnes in the Steppe regions. At present, Adonis herb is not imported or exported.	Russian Federation: experts predict that exports will increase as exports from Bulgaria and Romania are now subject to control (TRAFFIC Europe, 2000).
	Germany: for many years Germany was the main importer of *A. vernalis*. In the 1970s 30-40 tonnes were imported annually, in the 1980s annual imports decreased to 15-20 tonnes and in the 1990s, 10 tonnes or more per annum were imported. During the 1990s Germany was also the major processor and re-exporter until European countries, notably France, began importing *A. vernalis* in the raw form in increasing quantities. This possibly coincided with the German prohibition on imports from the former State-controlled countries in 1994, restrictions were relaxed in 1997. The actual demand for *A. vernalis* in Europe is not known.	Germany: the main importer with an estimated current annual demand of 10-15 tonnes of *A. vernalis* per annum (equivalent to 500 000 to 750 000 plants). At present, reported exports do not account for this quantity. Therefore, volumes exported from Bulgaria and Romania must be higher that those communicated by traders, or there are considerable exports from the Ukraine or Russia for which data are lacking. It is not clear what impact this demand may have (TRAFFIC Europe, 2000).
	In order to allow early detection of possible conservation concerns (and to monitor trade) *A. vernalis* was included in Annex D of the *Council Regulation (EC) No. 338/97* in June 1997. According to this Regulation all species listed in Annex D require an import notification when imported to the EU.	None of the 15 EU Member States had submitted information on importation by the end of 1998. In 1999, no import notifications had been recorded by France or Germany respectively (TRAFFIC Europe, 2000).

	Supporting Statement (SS)	Additional information
	National use: The species is used as an ornamental, as a dye and, above all, for medicinal purposes in phytotherapy, homeopathy as well as in folk medicine.	
Other Information		
Threats	The species requires primary grassland, semi-natural and secondary Steppe communites and secondary grassland. Among the continuing threats to these habitats are over-grazing, trampling by animals, soil erosion, pollution from agricultural chemicals, and nitrogen, woodland encroachment and afforestation. Large parts of the European steppes are now under cultivation, destroyed by modern agricultural practice.	As agricultural production in Hungary decreased, the populations of *A. vernalis* have increased (Bernàth, 2000).
Conservation, management and legislation	The species is listed as vulnerable in the central Europe Red Data Book. Bulgaria: Since 1989, wild harvesting and trade of *A. vernalis* have been governed by several legal restrictions. The species is protected in at least seven Pritected Areas. Hungary: *A. vernalis* has been fully protected since 1982. Since 1997 it has been prohibited to endanger, destroy or damage specimens of protected plants or their habitats. The species was listed as rare in 1990 the Hungarian national Red List. Romania: A regulation on the harvest, trade and export of medicinal and aromatic plants was adopted in 1997. Traders are issued with individual export quotas. *A. vernalis* occurs within the borders of at least two Pritected Areas, where the collection of medicinal and aromatic plants is generally forbidden. The species was listed as vulnerable in the 1994 Romanian national Red List. Russian Federation: *A. vernalis* is protected in some State nature reserves. It was not included in the two most recent editions of the national Red List. Inclusion in the latter would have afforded the species more protection. Ukraine: Adonis herb is not currently imported or exported. The species is protected in several reserves and was listed as endangered in the 1975 Ukrainian national Red List. The species is fully protected in Austria, Czech Republic and Switzerland, and partly protected in France and Spain.	There is no population monitoring scheme in Bulgaria. Evstatieva (2000) believes that the species requires full protection, and informs that it will be included in the next edition of the Bulgarian Red Data Book. He thinks that trade controls should be increased and trade should be restricted to areas with reintroduction programmes if artificial propagation techniques do not become more successful. Reintroduction programmes exists in Bulgaria and Hungary, but are in need of funds (Evstatieva, 2000).
Similar Species	*A. vernalis* usually appears in international trade as whole or cut plants and in crude drug form. It is likely that the pure form will be mixed with perennial *Adonis spp*. especially *A. volgensis*, *A. sibirica* and *A. villosus*. These species are difficult to detect particularly in the dried form. The German	

	Supporting Statement (SS)	Additional information
	Scientific Authority is preparing an identification sheet for *A. vernalis*.	
Cultivation	It appears that cultivation of *A. vernalis* in an agricultural system is uneconomic for several reasons including low germination (20-50%), rapid loss of seed viability, and expense of seed. Also plants require three to four years until first full bloom and 4-5 years to mature and the process requires intensive manual labour. Propagation by plant division is not practical for large-scale cultivation for the phytomedicinal sector.	
Other comments		Bernàth (2000) believes the information in the SS to be accurate and comprehensive. Melnik (1999) and Evstatieva (2000) support the proposal. The proposal intends "to exempt all live potted specimens of *Adonis vernalis*." This, however, is not in accordance with text of the Convention (CITES Secretariat, 1999).

Reviewers: J. Bernáth, L. Evstatieva, V. Melnik, TRAFFIC Europe.

Transfer of Lignum Vitae *Guaiacum sanctum* from Appendix II to Appendix I. Proponent: United States of America

Summary: *Guaiacum sanctum* is a tropical hardwood tree, growing up to 10 m in height. The species regenerates successfully, but is slow-growing, and long-lived, with one individual estimated to be over 1 000 years old. The species occurs in lowland dry forests and scrubland, in Central America, the Caribbean islands and southern Florida (USA). It was originally exploited for medicinal uses, but the only significant current demand is for timber. The wood is extremely strong and heavy. Along with other species in the genus, *G. sanctum* has been traded for almost 500 years, and large specimens are now almost absent from most of its range. However, shrubby forms of the species are likely to be found throughout much of the former range of these large specimens. The species is classified as Endangered by IUCN. It was listed in Appendix II in 1975, and CITES Annual Report data show Mexico to be by far the largest exporter of the species over the last 20 years, with Japan and Germany being the main importers. All wood from *Guaiacum* spp, is traded as Lignum vitae, and *G. sanctum* is rarely distinguished from *G. officinale* in trade, although it is regarded as a less valuable timber. The main threats appear to be habitat destruction and over-exploitation for timber. The species is protected from harvest in Dominican Republic and Costa Rica, and in Cuba *G. sanctum* habitat is protected under recent forestry laws. Under Resolution Conf. 10.13, paragraph b), it is recommended that when any proposal is submitted to amend the Appendices for timber species, the Secretariat seeks the views of the International Tropical Timber Organisation, the Forestry Department of the Food and Agricultural Organisation of the United Nations and the IUCN, and presents these views to the Conference of the Parties. This is in order to fulfil the implementation of paragraph i) of the second RESOLVES of Resolution Conf. 9.24.

Analysis: Following Resolution Conf. 9.24, it appears that there is insufficient information to determine whether *G. sanctum* meets the criteria for inclusion in Appendix I. It appears that although there my be a small population of large trees, the total number of individuals including the shrub forms of the species is completely unknown. Although detailed distribution data are unavailable, it appears that the species does not have a restricted range, thereby not meeting criterion B. Although there is no quantitative information available, there is a general agreement that there have been widespread population declines over much of the range, and it is likely that the remaining populations are highly fragmented. These declines may qualify the species for inclusion in Appendix I under criterion C. In cases of uncertainty regarding either the status or impact of trade on a species, Annex 4a of Resolution Conf. 9.24 recommends the Parties to act in the best interests of the conservation of the species. *Guaiacum sanctum* is in international demand for timber, thereby meeting the trade criteria for inclusion in Appendix I. However, as it is not distinguished in trade from *G. officinale*, a split-listing for the genus may result in enforcement problems.

	Supporting Statement (SS)	**Additional information**
Taxonomy	Two scientific synonyms are given: *G. verticale* and *G. guatemalense*. *Guajacum* is also given as a synonym for the Genus. *G. coulteri* occupies a similar range to the *G. sanctum*, and hybridisation possibly occurs between the two species. *G. guatemalense* may represent this hybrid species rather than a scientific synonym.	Wadsworth (1999) notes that the SS refers to several species or subspecies without taxonomic clarity.
Range	Distributed in a western arc in the wider Caribbean region, from southern Central America, northwards and eastwards to southern Florida. Range States: Bahamas, Costa Rica, Cuba, Dominican Republic, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Puerto Rico, USA (Florida) and possibly Belize and El Salvador.	Reviewers concur with the SS.
IUCN Global Category	EN C2a	

	Supporting Statement (SS)	Additional information
Biological criteria		
A) Small wild population	Although there is little information provided in the SS, the *World List of Threatened Trees* (Oldfield *et al*., 1998) is cited, which suggests a total population of less than 2 500 mature individuals. It is also mentioned that Cuba alone may have over 2 500 individuals.	The estimated population size assessed at the Americas Regional Workshop of the SSC/WCMC Conservation and Sustainable Management of Trees Project (held in Costa Rica, 1996), was fewer than 2 500 mature trees. However, this estimate included only mature trees, whereas the CITES criteria are based on total number of individuals, which in this case would also include the shrubby form of the species. Hendricks (2000) comments that as the tree can be found in a shrubby form over most of its former range, the population is probably not small enough to prevent natural regeneration. A significant proportion of the population is likely to be made up of the shrub form of the species, and as such, the total number of individuals is likely to be considerably greater than the number of mature trees alone.
i) population or habitat decline	Most populations of the species have diminished from collection over the last 400-500 years, and it is now extinct or extremely rare on most of the Caribbean islands. In Costa Rica, El Salvador and the Florida Keys, remaining populations are confined to restricted areas and continue to be threatened with habitat loss or exploitation. Habitat loss is cited as being one of the greatest threats to the species in Central America, although no information is provided on rates of loss.	Hendricks (2000) concurs that the population has certainly declined over the last 400-500 years.
ii) small subpopulations	In some range States, such as El Salvador, the species has a very restricted distribution.	The category of threat given in the *World List of Threatened Trees* (Oldfield *et al*., 1998) suggests that the population is severely fragmented, with no subpopulation estimated to contain more than 250 mature individuals.
v) high vulnerability due to biology or behaviour	*Guaiacum* spp. are very slow-growing, and long-lived. A specimen growing in Florida was estimated to be over 1 000 years old. If not exploited the trees tend to be plentiful in an area.	Reviewers concur with the SS.
B) Restricted area of distribution	The species is widespread in the wider Caribbean region, although it is now extinct or extremely rare on most of the Caribbean islands. In Costa Rica, El Salvador and the Florida Keys, remaining populations are confined to restricted areas, although no quantifiable information is given on area of distribution.	Hendricks (2000) comments that the SS does not suggest a restricted area of distribution for the species. Although information is limited, it would appear from the widespread distribution, that the species does not meet the criteria for a restricted area of distribution.
C) Decline in number of wild individuals	Though large specimens are almost absent from most of the species' range, small bushy trees can be found. Many of the Caribbean populations were decimated in the 17th and 18th centuries, however populations are not thought to be currently decreasing in Cuba.	No additional information available.

	Supporting Statement (SS)	Additional information
i) ongoing or historic decline	Most populations of the species have diminished from collection over the last 400-500 years, and it is now extinct or extremely rare on most of the Caribbean islands. In Costa Rica, El Salvador and the Florida Keys, remaining populations continue to be threatened with habitat loss or exploitation. The SS states that the species is threatened in a further 11 countries in its range.	Although quantifiable data are unavailable, the long generation time of the species, combined with the large decline cited over the last 400-500 years implies that it may meet the numerical guidelines for inclusion in Appendix I.
ii) inferred or projected decline	Habitat loss and over-exploitation are ongoing threats.	Wadsworth (1999) notes that international trade in timber ceases to be significant long before extinction is a threat.
Trade criteria		
The species is, or may be, affected by trade	International trade in the species chiefly involves its wood. Although the species was originally exploited for its medicinal properties, minimal medicinal attention continues, and the current trade is almost completely composed of timber. There has been regular trade in timber since 1982, with Mexico having been by far the largest exporter (a total of 1 515m^3 and 202.9 tonnes between 1982 and 1997). The only other timber exporters in the last 20 years have been Italy (three tonnes of re-exports in 1985), Japan (15 tonnes of re-exports in 1994) and the USA (8.4 tonnes in 1996). All material reported in trade is collected from the wild. The exports reported by Mexico are poorly matched by the reported imports. This may be due to Mexico submitting reports based on permits issued rather than permits used, thereby over-estimating the actual trade. There is also likely to be a limited illegal trade in the species, although levels of such trade are speculative.	TRAFFIC South America (2000) also note a limited trade in *Guaiacum* seeds and heartwood extract for use as essence. There is limited domestic use of the species, mainly for the wood, but also in some range States on a small scale for medical purposes and charcoal (TRAFFIC South America, 2000). The Certified Forest Products Council (1999) notes that it is uncertain whether Mexico's export volume is in line with the sustainable production of this slow-growing tree. The Council also notes that US Customs officials seized an unauthorised shipment of *G. sanctum* in Miami in 1993, and it is possible that there have been other illegal shipments of Lignum Vitae.
Other information		
Threats	The primary threat to the species is over-exploitation. Those populations that have escaped exploitation in Florida are threatened with habitat conversion. In Central America, habitat loss and over-exploitation from commercial use are the main threats.	Both Wadsworth (1999) and Hendricks (2000) suggest that habitat loss appears to be a greater threat to the species than trade. From information provided by R. Sanchez, TRAFFIC South America (2000) note that this is the case in the Dominican Republic.
Conservation, management and legislation	The species is listed as endangered in Costa Rica, El Salvador and the State of Florida. It is protected in Costa Rica, Dominican Republic and Cuba.	No additional information available.
Artificial propagation	Although all recorded trade has been in wood taken from wild specimens, the species is widely cultivated in the tropics as an ornamental plant.	No additional information available.
Similar species	The SS notes that the entire genus is traded under the name Lignum vitae.	Wadsworth (1999) and TRAFFIC South America (2000) note that there is little evidence presented to suggest that the species is traded separately to other similar species, particularly *G. officinale*, and comment that the genus should not be split-listed. *Guaiacum officinale* is currently listed in Appendix II.

	Supporting Statement (SS)	Additional information
Other comments		Hendricks (2000) comments that the species is certainly not sustainably managed and the forests in which the tree grows have been so severely degraded that they have little commercial value.

Reviewers: R. Hendricks, TRAFFIC South America, F.H. Wadsworth.

Références:

Doc. No.: 11.01 *Ceropegia* spp.

Adibatti, N.A., Thirugnanasambantham, P., Kulothungan, C., Viswathan, S., Kameswaran, L., Balakrishna, K. and Sukumar, E. 1991. A pyridine alkaloid from *Ceropegia juncea*. *Phytochemistry* 30: 2449-2450.

Arnold, T.H. and De Wet, B.C. 1993. Plants of southern Africa: names and distribution. *Memoirs of the Botanical Survey of South Africa* No. 62. National Botanical Institute, Pretoria.

Babu, C.R., Singh, M. and Karthikeya, S. 1997. Threatened succulents of India. In: S. Oldfield (ed) *Cactus and Succulent Plants - Status Survey and Conservation Action Plan*: pp. 186-188. IUCN/SSC Cactus and Succulent Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.

Bramwell, D. 1997. Succulents of the Canary Islands. In: S. Oldfield (ed) *Cactus and Succulent Plants - Status Survey and Conservation Action Plan*: pp. 171-173. IUCN/SSC Cactus and Succulent Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.

Bruyns, P.V. 1985. Notes on Ceropegias of the Cape Province. *Bradleya* 3: 1-47.

Bruyns, P.V. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.

Collenette, S. 1997. Ceropegias of Saudi Arabia. *British Cactus and Succulent Society Journal* 17: 181-187.

Craven, P. 1999. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.

Downs, P. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.

Dyer, R.A. 1980. Asclepiadaceae (*Brachystelma*, *Ceropegia*, *Riocreuxia*). *Flora of Southern Africa* 27 Part 4.

Dyer, R.A. 1983. *Ceropegia, Brachystelma and Riocreuxia in Southern Africa*. Balkema, Rotterdam.

Gelfand, M., Mavi, S., Drummond, R.B. and Ndemera, B. 1985. *The Traditional Medical Practitioner in Zimbabwe*. Mambo Press, Gweru, Zimbabwe.

Gilbert, M.G. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.

Hargreaves, B.J. 1990. *The Succulents of Botswana: An Annotated Checklist*. National Museum, Monuments and Art Gallery, Gaborone.

Hilton-Taylor, C. 1997.Southern Africa. In: S. Oldfield (ed) *Cactus and Succulent Plants - Status Survey and Conservation Action Plan*: pp. 67-85. IUCN/SSC Cactus and Succulent Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.

Huber, H. 1957. Revision der Gattung *Ceropegia*. *Memórias da Sociedade Broteriana* 12.

Jenkins, M. 1983. *The Wild Plant Trade in Europe*. Unpublished report. TRAFFIC Europe, Brussels.

Kokwaro, J.O. 1976. *Medicinal Plants of East Africa*. East African Literature Bureau, Nairobi.

Masinde, P.S. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.

Nayar, M.P. and Sastry, A.R.K. (eds) 1988*Red Data Book of Indian Plants* Volume 2. Botanical Survey of India, Calcutta.

Newton, L. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK..

Newton, D.J. and Chan, J. 1998. *South Africa's Trade in Southern African Succulent Plants*. TRAFFIC East/Southern Africa, Johannesburg.

Oldfield, S. (ed) *Cactus and Succulent Plants - Status Survey and Conservation Action Plan*. IUCN/SSC Cactus and Succulent Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.

Peckover, R. 1993. The Ceropegias of the Makatini Flats. Aloe 30: 20-22.

Peckover, R. 1998. When east meets west. *British Cactus and Succulent Journal* 16: 177-180.

Peters, C.R., O'Brien, E.M. and Drummond, R.B. 1992. *Edible Wild Plants of Subsaharan Africa*. Royal Botanic Gardens, Kew.

Ping-tao, L. Gilbert, M.G. and Stevens, W.D. 1995. Asclepiadaceae. 44 *Ceropegia*. In: W. Zheng-yi and P.H. Raven (eds) *Flora of China* 16: 266-270. Science Press, Beijing and Missouri Botanical Garden, St. Louis.

Rowley, G.D. 1987. *Caudiciform and Pachycaul Succulents*. Strawberry Press, Mill Valley, California.

Sennblad, B. and Bremer, B. 1996. The familial and subfamilial relationships of Apocynaceae and Asclepiadaceae evaluated with rbcL data. *Plant Systematics and Evolution* 202: 153-175.

Shirley, G.F. 1995. Propagation of Ceropegias. *Aloe* 32: 5.

Venter, S. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.

Doc. No.: 11.02 *Frerea indica*

Ahmedullah, M. & M.P. Nayar. 1997. *Endemic plants of the Indian region*. Botanical survey of India, Calcutta.
Ahmedullah, M. 1999. *Conservation status of endemic plants in peninsular India: An evaluation*. Botanical Survey of India, Calcutta.
Ahmedullah, A. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Jagtap, A.P. and N.P. Singh. 1999. *Asclepiadacea - Periplocaceae. Fasc. Fl. India 24: 243-244*. Botanical Survey of India, Calcutta.
Tetali, Sujata Tetali, D.K. Kulkami, M.S. Kumbhojkar. 1997. Studies on the status and conservation of *Frerea indica* Dalz., *Journ. Bombay Nat. Hist. Soc*. 94/1: 115-121.
Sastry, A. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Yadav, S.R. 1998. Some endangered plant species of Western Ghats of Maharashtra, their potential values, utilsation and conservation. In: *Proceedings of the Regional Conference on Status Survey and Action Plans for conservation of threatened plants of the Indian subcontinent,* IPSSG, SSC-IUCN, New Delhi.

Doc. No.: 11.03 *Byblis* spp.

Conran, J. 1999. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Dixon, K. 1999. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Meyers-Rice, B. 1999. http://www.sarracenia.com/faq.html
Slack, A. 1979. *Carnivorous plants.* Erbury Press, London.

Doc. No.: 11.04 *Disocactus macdougalli*

Jenkins, M.D. 1993. The wild plant trade in Europe: results of a TRAFFIC Europe survey of European nurseries. TRAFFIC Europe Unpd. Report. 67 pp.
Taylor, N. 1999. *in litt.*, to IUCN/ SSC Wildlife Trade Programme, Cambridge, UK.
Oldfield, S. (comp.) 1997. *Cactus and Succulent Plants – Status Survey and Conservation Action Plan*. IUCN/SSC Cactus and Succulent Specialist Group. IUCN, Gland, Switzerland and Cambridge, U.K.

Doc. No.: 11.05 *Sclerocactus mariposensis*

Anderson, E.F. and Schmalzel, R.J. 1997. Final Report on Lloyd's Mariposa Cactus Survey (*Sclerocactus [Neolloydia] mariposensis)* prepared for Joint Task Force Six. Desert Botanical Garden, Phoenix, Arizona. 24 pp.
Barcenas Luna, R.T. 1999. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Jenkins, M.D. 1993. *The wild plant trade in Europe: results of a TRAFFIC Europe survey of European nurseries*. TRAFFIC Europe Unpd. Report. 67 pp.
Oldfield, S. (comp.) 1997. *Cactus and Succulent Plants – Status Survey and Conservation Action Plan*. IUCN/SSC Cactus and Succulent Specialist Group. IUCN, Gland, Switzerland and Cambridge, U.K.
Powell, A.M. 2000. *In litt.* to TRAFFIC USA.
TRAFFIC Europe 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
USFWS, 2000. *Sclerocactus mariposensis*. Http://international.fws.gov/global/sclemari.html.
Walter, K.S. and Gillett, H.J. 1998. *1997 IUCN Red List of Threatened Plants.* IUCN, Gland, Switzerland and Cambridge, UK.

Doc. No.: 11.06 *Cephalotus follicularis*

Dixon, K., 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Jenkins, M.D. 1993. The wild plant trade in Europe: results of a TRAFFIC Europe survey of European nurseries. TRAFFIC Europe Unpd. Report. 67 pp.

RHS (The Royal Horticultural Society) 1999. *The RHS Plant Finder 1998-99.* Dorling Kindersley, London.
Mann, P. 1999. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.

Doc. No.: 11.07 *Dudleya stolonifera* and *Dudleya traskiae*

Innes, C. 1977. *The Complete Handbook of Cacti and Succulents* Ward Lock Limited, London.
Jenkins, M.D. 1993. The wild plant trade in Europe: results of a TRAFFIC Europe survey of European nurseries. TRAFFIC Europe Unpd. Report. 67 pp.
Mabberley, D.J. 1990. *The Plant-Book*. Reprinted edition. CUP, Cambridge, UK.
TNC/ABI (The Nature Conservancy/Association for Biodiversity Information) 2000. Information and comments on CITES CoP11 Plant Proposals.
US Fish and Wildlife Service 1998. Endangered and Threatened Wildlife and Plants; Determination of Endangered or Threatened Status for Four Plants from Southwestern California and Baja California, Mexico. Federal Register. 63: 54937-54956.
US Fish and Wildlife Service 2000a. *Dudleya stolonifera*. Http://international.fws.gov/global/dudstolo.html.
US Fish and Wildlife Service 2000b. *Dudleya traskiae*. Http://international.fws.gov/global/dudleyat.html.
Walter, K.S. and Gillett, H.J. 1998. *1997 IUCN Red List of Threatened Plants.* IUCN, Gland, Switzerland and Cambridge, UK.

Doc. No.: 11.08 Cyatheaceae spp. and Dicksoniaceae spp.

Anon. 1990. *Management Program for the Harvesting of Soft Tree Fern* Dicksonia antarctica *in Tasmania*. Australian Native Fern Products Pty Ltd. In: Oldfield, S. 1995. Significant trade in CITES Appendix II plants: Tree Ferns. Report to CITES Plant Committee. 15pp.
Anon. 1994. Seizures and Prosecutions. *TRAFFIC Bulletin*. 15(1):37.
Buchner, R., and Dietrich, G. 1996. Character analysis and identification guide for traded parts of tree ferns from Central and South America. Report (PC7/item 11.2) presented at the Seventh meeting of the CITES Plants Committee, 11-15 November 1996, San José, Costa Rica.
Jermy, A.C. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Kiehn, M. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Leigh, J. and Boden, R. 1979. *Australian Flora in the Endangered Species Convention - CITES Special Publication 3*. Australian National Parks and Wildlife Service, Canberra City, Australia. In: Oldfield, S. 1995. Significant trade in CITES Appendix II plants: Tree Ferns. Report to CITES Plant Committee. 15pp.
Oldfield, S. 1995. Significant trade in CITES Appendix II plants: Tree Ferns. Report to CITES Plant Committee. 15pp.
Walter, K.S. and Gillett, H.J. (eds) 1998. 1997 Red List of Threatened Plants. Compiled by the World Conservation Monitoring Centre, IUCN, Gland, Swizerland and Cambridge, UK.
WCMC 2000. Printout from the WCMC Threatened Plants Database entitled: threatened tree ferns, as of 25 January 2000. Compiled by the World Conservation Monitoring Centre, Cambridge, UK.

Doc. No.: 11.09 *Shortia galacifolia*

Nielsen, E. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
RHS (The Royal Horticultural Society) 1999. *The RHS Plant Finder 1998-99.* Dorling Kindersley, London.
TRAFFIC North America 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
USFWS (U.S. Fish and Wildlife Service) 2000. *Shortia galacifolia*. http://international.fws.gov/global/shortia.html.
Walter, K.S. and Gillett, H.J. 1998. *1997 IUCN Red List of Threatened Plants.* IUCN, Gland, Switzerland and Cambridge, UK.

Doc. No.: 11.10 *Lewisia cotyledon, L. maguirei* and *L. serrata*

Baulk 2000. *in litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.

L. McMahan 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Mostul, B. 2000. *In litt.* to TRAFFIC USA.
Nicholls 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
K. Van Zuuk, 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
USFWS, 2000a. *Lewisia cotyledon*. http://international.fws.gov/global/lewicoty.html
USFWS, 2000b. *Lewisia maguirei*. http://international.fws.gov/global/lewimagu.html
USFWS, 2000c. *Lewisia serrata* http://international.fws.gov/global/lewiserra.html
USFWS, 2000d. US Response to Provisional Assessments Provided in Notification to the Parties 1999/97.

Doc. No.: 11.11 *Darlingtonia californica*

Bradley, A. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Jenkins, M.D. 1993. The wild plant trade in Europe: results of a TRAFFIC Europe survey of European nurseries. TRAFFIC Europe Unpd. Report. 67 pp.
Kaye, T. 2000. *In litt.* to TRAFFIC North America.
McMahan, L. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Mellichamp, T.L. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Slack, A. 1979. *Carnivorous plants.* Erbury Press, London.
TNC/ABI (The Nature Conservancy/Association for Biodiversity Information) 2000. Information and comments on CITES CoP11 Plant Proposals.
TRAFFIC North America 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
USFWS, 2000a. US Response to Provisional Assessments provided in Notification to the Parties 1999/7.
USFWS, 2000b. *Darlingtonia californica*. Http://international.fws.gov/global/darlingt.html.

Doc. No.: 11.12 *Crocodylus niloticus*

Broad, S. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Ross, J.P. 1998. Crocodiles. Status Survey and Action Plan. Second Edition. IUCN Gland, Switzerland and Cambridge, UK.
Ross, J.P. 1999. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
TRAFFIC East Southern Africa, Tanzania. 2000. *In litt.* to TRAFFIC International, Cambridge, UK.
Woodward, A. 1999. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.

Doc. No.: 11.13 *Manis crassicaudata, M. javanica* and *M. pentadactyla*

Fellowes, J. and Lau, M. *in litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Vardon, M. 2000. *in litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
WCMC (World Conservation Monitoring Centre), IUCN/SSC and TRAFFIC Network, 1999. Review of significant trade in animal species included in CITES Appendix II: Detailed reviews of 37 species. Draft report to the CITES Animals Committee. 205pp.
Yu, J., 1999. *in litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.

Doc. No.: 11.14 *Tursiops truncatus ponticus*

Birkun, A.A. 2000. *in litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Hammond, P., 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.

IWC, 1992. Report of the Scientific Committee. *Rep. Int. Whal. Commn.* 42:178-234.
Notarbartolo di Sciara, G. 1999. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
O'Shea, T.J. 1999. Environmental contaminants and marine mammals. Pp 485-563 in J.E. Reynolds and S.A. Rommel (eds.). *Biology of Marine Mammals*. Smithsonian Institution Press, Washington DC.
Read, A.J. 1999. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Reeves, R.R. 1999. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Reeves, R.R. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Rice, 1998. Marine Mammals of the World. Systematics and distribution. *Spec. Pub. Soc. Mar. Mamm.* 4, 231 pp.
Shane, S.H. 1990. Comparison of Bottlenose Dolphin behaviour in Texas and Florida, with a critique of methods for studying dolphin behaviour. Pp 541-548 in S. Leatherwood and R.R. Reeves (eds.). *The Bottlenose Dolphin*. Academic Press, San Diego.
Simmonds, M. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
TRAFFIC Europe, 2000. *In litt*. to TRAFFIC International, Cambridge, UK.
Wells, R.S., 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Wells, R.S and Scott, M.D. 1999. Bottlenose Dolphin *Tursiops truncatus* (Montagu, 1821). Pp 137-182 In S.H. Ridgway and R. Harrison (eds.). *Handbook of Marine Mammals Vol. 6: The second book of Dolphins and the Porpoises*. Academic Press, San Diego.
Wilson, B., Thompson, P.M., and Hammond, P.S. 1997. Habitat use by Bottlenose Dolphins: Seasonal Distribution and Stratified Movement Patterns in the Moray Firth, Scotland. *Journal of Applied Ecology* 34: 1365-1374.

References for the Introduction to the Whales proposals:

Anon. 1995. *Known Smuggling Attempts of Whale Meat*. Fisheries Agency, Government of Japan, Tokyo.
Baker, C.S., Cipriano, F. and Palumbi, S.R. 1996. Molecular genetic identification of whale and dolphin products from commercial markets in Korea and Japan. Molecular Ecology 5: 671-85.
Baker, C.S., Dalebout, M.L., Congdon, B.C. and Lento, G.M. 1999. Molecular genetic identification of whale and dolphin products for sale in Japan, 1998-99. Report to the Scientific Committee of the International Whaling Commission, SC/51/O15.
Baker, C.S. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Chan, S., Ishihara, A., Lu, D.J., Phipps, M. and Mills, J.A. (1995). Observations on the Whale Meat Trade in East Asia. *TRAFFIC Bulletin* 15(3):107-115.
Dizon, A., Baker, S., Cipriano, F. Lento, G., Palsboll, P. and Reeves, R. (eds) 2000. Molecular genetic identification of whales, dolphins, and porpoises: Proceedings of a workshop on the forensic use of molecular techniques to identify wildlife products in the marketplace. La Jolla, CA, 14-16 June 1999. NOAA Technical Memorandum NMFS. SWFSC-286. (http://swfsc.ucsd.edu/ftproot/MOLID_V7.pdf)
IUCN. 1996. *1996 IUCN Red List of Threatened Animals*. IUCN, Gland, Switzerland.
Kasuya, T. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Lento, G.M., Dalebout, M.J. and Baker, C.S. 1998a. Species and individual identification of whale and dolphin products for sale in Japan by mtDNA sequences and nuclear microsatellite profiles. Report to the Scientific Committee of the International Whaling Commission, SC/50/O8.
Lento, G.M., Cipriano, F., Patenaude, N., Palumbi, S.R. and Baker, C.S. 1998b. Taking stock of Minke whales in the North Pacific:origins of products for sale in Japan and Korea. Report to the Scientific Committee of the International Whaling Commission, SC/50/RMP15-1.
Mills, J.A., Ishihara, A., Sakaguchi, I., Kang, S., Parry-Jones, R., and Phipps, M. (1997). *Whale Meat Trade in Asia: A Review of the Markets in 1997*. TRAFFIC International, Cambridge, UK.
Phipps, M., Ishihara, A., Kanda, N., and Suzuki, H. 1998. Preliminary report on DNA sequence analysis of whale meat and whale meat products collected in Japan. *TRAFFIC Bulletin* 17(2):91-94.
Rice, D.W. (1998). *Marine Mammals of the World: Systematics and Distribution*. Special Publication Number 4, The Society for Marine Mammalogy.
TRAFFIC East Asia (in prep.) *Whale Meat Markets in Japan and South Korea - 1999.* A report for WWF.
TRAFFIC East Asia 2000. *In litt.* to TRAFFIC International, Cambridge, UK.
TRAFFIC Europe (in prep). Minke Whale in Norway. Report to WWF.
Wilson, D.E. and Reeder, D.M. 1993. *Mammal species of the World: A Taxonomic and Geographic Reference*. Smithsonian Institution Press, Washington.

Doc. No.: 11.15 *Eschrichtius robustus*

Brownell, R.L. and Kasuya, T. 1999. Western Gray Whale captured off western Hokkaido, Japan. IWC/SC/51/AS25
Calambokidis, J. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Darling, J. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Gamble,R. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Hobbs, R.C. and Rugh, D.J. 1999. The abundance of Gray Whales in the 1997/98 southbound migration in the eastern North Pacific. IWC/SC/As10 13pp.
IWC 1993. Report of the special meeting of the Scientific Committee on the assessment of the Gray Whale. *Rep. Int. Whal. Comm.* 43: 241-59.
IWC 1999. *Annual Report of the Int. Whal. Commn. 1998,* p. 10.
Kato, H. and Kasuya, T. (1990). Catch history of the Asian stock of Gray Whales. IWC/SC/A90/G19. 29pp.
Perez-Cortez, H. M., Urban-Ramirez, J., Ollervides, F., Sanchez, V., Pettis, J., Loreto, P.C. and Palmeros, M.A. 1999. A preliminary note on the Gray Whale, *Eschrichtius robustus*, strandings at Baja California Sur, Mexico during the winter 1998/99. IWC/SC/51/AS30:8pp.
Reeves, R.R. and Leatherwood, S. 1994. Dolphins, Porpoises, and Whales. 1994-1998 Action Plan for the Conservation of Cetaceans. IUCN, Gland, Switzerland, 91pp.
Reilly, S.B. 1992. Population biology and status of eastern Pacific Gray Whales: recent developments. Wildlife 2001: Populations (eds. D.R. McCullogh and R.H. Barrett). Elsevier Press, London, England, pp 1062-1074.
Rosel, P.E. and Kocher, T.D. 1997. A comparison of the genetic composition of northwest and northeast Pacific Gray Whale, *Eschrichtius robustus*, Stocks. Contract report available from the National Marine Mammal Laboratory, NMFS, 7600 Sand Point Way NE, Seattle, WA 98115, USA.
Swartz, S.L. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Wade, P.R. 1996. Gray Whale stock assessment. IWC/SC/48/AS8. 17 pp.
Wade, P.R. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Weller, D.W., Wursig, B., Bradford, A.L., Burdin, A.M., Blokhin, S.A., Minakuchi, H. and Brownell, R.L. Jr. 1999. Gray Whales (*Eschrichtius robustus*) off Sakhalin Island, Russia: seasonal and annual patterns of occurrence. *Mar. Mammal Sci.* 15(4):1208-1227.

Doc. No.: 11.16 *Balaenoptera acutorostrata*

Baker, C.S., Cipriano, F., Lento, G.M. and Palumbi, S.R. 1996a. Whale and dolphin products for sale in Japan and Korea, 1993-1995. *Rep. Int. Whal. Commn*. SC/48/038.
Baker, C.S., Cipriano, F. and Palumbi, S.R. 1996b. Molecular genetic identification of whale and dolphin products from commercial markets in Korea and Japan. *Molecular Ecology* 5:671-85.
Baker, C.S. 2000a. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Baker, C.S. 2000b. *In litt*. to TRAFFIC International, Cambridge, UK
Bannister, J. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Butterworth, D.S. and Punt, A.E. 1999. An initial examination of possible inferences concerning MSYR for Southern Hemisphere Minke Whales from rectruitment trends estimated in catch-at-age analysis. *J. Cet. Res. Manage* 1 (1): 33-39.
Cooke, J., 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Kato, H., Fujise, Y., Yoshida, H., Nakagawa, S., Ishida, N. and Tanifuji, S. 1990. Cruise report and preliminary analysis of the 1988/89 Japanese feasibility study of the special permit proposal for Southern Hemisphere Minke Whales. *Rep. Int. Whal. Comm*. 40: 289-300.
Pastene, L.A, Goto, M., Fujise, Y. 1999. Review of the studies on stock identity in the Minke Whale Balaenoptera acutorostrata from the North Pacific IWC/SC/51/RMP15
Punt, A.E., Cooke, J.L., Borchers, D.L. and Strindberg, S. 1997. Estimating the extent of additional variance for Southern Hemisphere Minke Whales from the results of the IWC/IDCR cruises. *Rep. Int. Whal. Comm*. 47: 431-434.
Rice, D.W. (1998). *Marine Mammals of the World: Systematics and Distribution*. Special Publication Number 4, The Society for Marine Mammalogy.
Schweder, T. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Wilson, D.E. and Reeder, D.M (Eds.) 1993. *Mammal species of the World: A Taxonomic and Geographic Reference*, 2nd. Ed. Smithsonian Institution Press, Washington, USA.
Zerbini, A.N. 2000. In litt. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.

Doc. No.: 11.17 *Balaenoptera acutorostrata*

Baker, C.S. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Chan, S., Ishihara, A., Lu, D.J., Phipps, M., and Mills, J.A. 1995. Observations on the Whale Meat Trade in East Asia. *TRAFFIC Bulletin* 15(3):107-115.
Congdon, B. C., Lento, G. M., and Baker, C. S. 1999. High-resolution mtDNA identification of Minke Whale stocks in the North Pacific. SC/51/RMP20
Donovan, G. P. 1991. A review of IWC stock boundaries. In Genetic Ecology of Whales and Dolphins. A.R. Hoelzel (Ed.) *Rep. Int. Whal. Comm., Special Issue* 13:39-68).
IWC, 1986. Chairman's report of the 37th Annual Meeting. *Rep. Int. Whal. Commn.* 36: 10-35.
IWC, 1992. Report of the sub-committee on North Pacific Minke Whales. *Rep. Int. Whal. Commn* 42:156-77.
IWC, 1997. Annex J Report of the Working Group on North Pacific Minke Whale Trials. *Rep. Int. Whal. Commn* 47: 203-226.
IWC, 1999a. Report of the Scientific Committee. *Journal of Cetacean Research and Management.* 1. (Suppl): 94.
IWC, 1999b. Report of the Scientific Committee. IWC/51/4.
IWC, 1999c. The Revised Management Procedure (RMP) for Baleen Whales. *Journal of Cetacean Research and Management. 1. (Suppl)*: 251-258.
Lento, G.M., Cipriano, F., Patenaude, N.J., Palumbi, S.R. and Baker, C.S. 1998. Taking stock of Minke Whales in the North Pacific: origins of products for sale in Japan and Korea. IWC/SC/50/RMP15.
Punt, A.E. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Rice, D.W. (1998). *Marine Mammals of the World: Systematics and Distribution*. Special Publication Number 4, The Society for Marine Mammalogy.
Taylor, B. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Toboyama, T., Yanagisawa, F. and Kasuya, T. 1992. Incidental take of Minke Whales in Japanese trap nets. *Rep. Int. Whal. Commn* 42:433-36.
TRAFFIC East Asia, 2000. *In lit*t. to TRAFFIC International, Cambridge, UK.

Doc. No.: 11.18 *Balaenoptera acutorostrata*

Cooke, J. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
IWC, 1986. Report of the Scientific Committee. *Rep. Int. Whal. Commn* 36:44-45.
IWC. 1994. Report of the Scientific Committee. *Rep. Int. Whal. Commn* 44:53-54.
IWC. 1996. Report of the Scientific Committee, section 7.6.4. *Rep. Int. Whal. Commn* 46:61-62.
IWC, 1999. The Revised Management Procedure (RMP) for baleen whales. *J. Cetacean Res. Manage. 1 (Suppl):* 251-258.
Palsboll, P. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Schweder, T. and Volden, R. 1994. Relative abundance series for Minke Whales in the Barents Sea, 1952-83. *Rep. Int. Whal. Commn* 44:323-33.
Van Waerebeek, K., André, M., Sequeira, M., Martín, V., Robineau, D., Collet, A., Papastavrou, V., and Ndiaye, E. 1999. Spatial and temporal distribution of the Minke Whale *Balaenoptera acutorostrata* (Lacépède, 1804), in the southern northeast Atlantic Ocean and the Mediterranean Sea, with reference to stock identity. *J. Cetacean Res. Manage.* 1(3): 223-237.
Van Waerebeek, K. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
TRAFFIC Europe (in prep). Minke Whale in Norway. Report to WWF.

Doc. No.: 11.19 *Hyaena (Parahyaena) brunnea*

Avenant, N.L. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Anderson, M.D. 1999. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Berry, H. 1999. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Hoffmann, M. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Millls, G. 1999. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.

Mills , G. and Hofer, H. (Comps). 1998. *Hyaenas. Status Survey and Conservation Action Plan*. IUCN/SSC Hyaena Specialist Group. IUCN, Gland, Switzerland. vi + 154pp.
TRAFFIC East/Southern Africa. 1999. *In litt*. to TRAFFIC International.
Watson, J. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Wielsel, I. 1999. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.

Doc. No.: 11.21 *Loxodonta africana*

Lindsay, K. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Milliken, T. 1996. *The Trade in Non-ivory Elephant Products: the Significance of Hides*. A report to the First Meeting of the African Elephant Range States Dialogue. Dakar, Senegal. November, 1996.
TRAFFIC East/Southern Africa 2000. *In litt.* to TRAFFIC International, Cambridge, UK.

Doc. No.: 11.22 *Loxodonta africana*

TRAFFIC East/Southern Africa 2000. *In litt.* to TRAFFIC International, Cambridge, UK.

Doc. No.: 11.23 *Loxodonta africana*

Davies, C. 1999. *Aerial survey of elephants and other large animals in the Zambezi valley floor and Dande Safari Area/Guruve Communal Lands: 1999*. WWF Southern Africa Regional Programme Office (WWF-SARPO), Project Paper No. 73.
Douglas-Hamilton, I., Michaelmore, F. and Inamdar, A. 1992. *African Elephant Database European Commission African elephant survey and conservation program*. UNDP.
Dunham, K.M. 1999. *Aerial census of elephants and other large herbivores in the Sebunwe region Zimbabwe: 1999.* WWF Southern Africa Regional Programme Office (WWF-SARPO), Project Paper No. 72.
TRAFFIC East/Southern Africa. 2000. *In litt.* to TRAFFIC International, Cambridge, UK.
WWF 2000. *WWF Statement on the joint 1999 Zimbabwe National Parks and Wildlife Department/WWF aerial census report on Zimbabwe's elephant population.* WWF Southern Africa Regional Programme Office.

Doc. No.: 11.24 *Loxodonta africana*

Barnes, R.F.W., Craig, G.C., Dublin, H.T., Overton, G., Simons, W. and Thouless, C. R. 1999. *African Elephant Database 1998*. IUCN/SSC African Elephant Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK.
Davies, C. 1999. *Aerial survey of elephants and other large animals in the Zambezi valley floor and Dande Safari Area/Guruve Communal Lands: 1999*. WWF Southern Africa Regional Programme Office (WWF-SARPO), Project Paper No. 73.
Douglas-Hamilton, I., Michaelmore, F. and Inamdar, A. 1992. *African Elephant Database European Commission African elephant survey and conservation program*. UNDP.
Lindsay, K. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
WWF Zimbabwe. 2000. *WWF Statement on the joint 1999 Zimbabwe National Parks and Wildlife Department/WWF aerial census report on Zimbabwe's elephant population.*

Doc. No.: 11.25 *Loxodonta africana*

Lindsay, K. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.

Doc. No.: 11.26 *Dugong dugon*

Anderson, P.K., 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Aragones, L.V., 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Bradley, J.J., 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Gales, N., 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Kaneko, Y., 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Kwan, D., 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Lawler, I.R., 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Marsh, H., 1999. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Marsh, H., Harris, A.N.M. and Lawler, I.R., 1997. The Sustainability of the Indigenous Dugong Fishery in Torres Strait, Australia/Papua New Guinea. *Conservation Biology* 11: 1375-1386.
Marsh, H, Eros, C., Corkeron, P. and Breen, B., In Press. *The Dugong in Australia: A Conservation Overview*. Environment Australia.
Preen, A.R., 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Tikel, D., 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
TRAFFIC Oceania, 2000. *In litt*. to TRAFFIC International, Cambridge, UK.

Doc. No.: 11.27 *Vicugna vicugna*

Bonacic, C. 1999. Sustainable use of vicuña. *Oryx* 33(3): 198-209.
Bonacic, C. and Macdonald, D. 1999. Current trends on the sustainable use of the Vicuña *Vicugna vicugna* in South America. Poster presented at the Symposium on Conservation of Exploited Species held by the Zoological Society of London and the Wildlife Conservation Society. ZSL, London, 9-10 Dec, 1999.
Direccion General de Biodiversidad 1999. Informe a la XIX reunion ordinaria del Convenio de la Vicuña. Ministerio de desarrollo sostenible y planificacion, Republica de Bolivia
Puig, S. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Ripa de Marconi, M. 2000. Situación de la Vicuña en Bolivia. Unpublished report, TRAFFIC South America, 27 pp.
Villalba, L. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.

Doc. No.: 11.28 *Vicugna vicugna*

Ripa de Marconi, M. 2000. Situación de la Vicuña en Bolivia. Unpublished report, TRAFFIC South America, 27 pp.

Doc. No.: 11.29 *Moschus* spp.

Avasthe, R. 1999.Trade in Musk and Bear Bile in Sikkim and North-East India. WWF-India Sikkim Field Office, Sikkim, India. 30pp.
Chestin I. 1998. Wildlife Trade in Russia and Central Asia. TRAFFIC Europe-Russia Report. 206 pp.
Green, M.J.B. 1986. The distribution, status and conservation of the Himalayan Musk Deer Moschus chrysogaster. *Biological Conservation*. 35:347-375.
Green, M.J.B. and Kattel, B. 1997. Musk Deer: Little understood, even its scent. Paper presented at The First International Symposium on Endangered Species Used in Traditional East Asian Medicine: Substitutes for Tiger Bone and Musk. 7-8 December 1997, Regal Riverside Hotel, Hong Kong. TRAFFIC/IUCN.
Green, M.J.B. 2000a. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Green, M.J.B. 2000b. *In litt*. to TRAFFIC International, Cambridge, UK.

Groves, C.P. and Grubb, P. 1987. Relationships of Living Deer. In: CM Wemmer (ed.) Biology and Management of the Cervidae. Smithsonian Institution Press, Washington, pp 21-59.
Harris, R.B. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Helin, S. 1989. Status of deer and recent deer research in China. IUCN /SSC Deer Specialist Group Newsletter 7:16.
Homes, V. 1999. On the Scent: Conserving Musk Deer – The Uses of Musk and Europe's Role in its Trade. TRAFFIC Europe Report, Brussels, 57 p.
Mallon, D.P. 1985. The mammals of the Mongolian People's Republic. Mammal Review, 15, 71-102.
Pereladova, O. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Prikhod'ko, V. and Ovsyanikon, N.G. 1998. Does the Musk Deer have a future in Russia? Journal of Russian Conservation News. 16: 17-21.
Prikhod'ko, V. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Sheng, H., Liu, Z., and Wang, P. 1999. Biology and Protection of Alpine Musk (*Moschus chrysogaster*). Journal of Changchun College of Traditional Chinese Medicine Vol 3-15. P112-114) (In Chinese).
State Service for Statistics on Hunting Resources, 1997. Report on population counts of wild ungulates (huntable species) in the Russian Federation – Ministry of Agriculture and Food of the Russian Federation, Department for the Protection and Management of Hunting resources (in Russian).
TRAFFIC East Asia. 2000. *In litt*. to TRAFFIC International, Cambridge, UK.
TRAFFIC Europe. 1999. *In litt*. to TRAFFIC International, Cambridge, UK.
Tsui, S.K. and Choi, S.M. 1997. Authentication of Musk Samples Paper presented at The First International Symposium on Endangered Species Used in Traditional East Asian Medicine: Substitutes for Tiger Bone and Musk. 7-8 December 1997, Regal Riverside Hotel, Hong Kong. TRAFFIC/IUCN.
Vaisman A., Gorbatovsky v., Gorbunov Y., Poyarkov A., Sorokin A., Fomenko P., Tsellarius A. 1999. Wild Animals and Plants in Commerce in Russia and CIS countries. TRAFFIC Europe-Russia Report, M.: NIA Prioda, 157 pp.
Wang, Y, Ma, S. and Li, S. 1993. The taxonomy, distribution and status of forest musk deer in China. In Ohtaishi, N. and Sheng, H.I Deer of China, Elsevier Science, pp22-30.
Wang, S. 1998. China Red Data Book of Endangered Animals: Mammalia. Science Press, Beijing, Hong Kong, 417 pp.
Wilson, D.E. and Reeder, D.M. 1993. Mammal species of the World: A Taxonomic and Geographic Reference. Smithsonian Institution Press, Washington.
Wemmer, C. (Ed.) 1998. Deer. Status Survey and Conservation Action Plan.- IUCN/SSC Deer Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK, 106 pp.
Yuan, C., Wang, N., and Lu, H. 1992. The necessity of strengthening the protection and management of medicinal resources. Jiangsu Botanical Research Institute, Nanjing. (In Chinese).
Zhang, E. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.

Doc. No.: 11.30 *Ovis vignei*

Abdunazarov, B., Bykova, E., Esipov, A. and Kreuzberg-Mukhina, E., 1999. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Bunch, T.D., Voronsov, N.N., Lyapunova, E.A. and Hoffman, R.S., 1998. Chromosome number of Severtov's Sheep (*Ovis ammon severtzovi*): G-banded karyotype comparisons within *Ovis*. *Journal of Heredity* 89: 266-268.
Des Clers, B., 1999. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Fedosenko, A.K., 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Festa-Bianchet, M., 1999. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Hofer, D., 1999. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Jackson, J., 1999. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Pereladova, O., 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Shackleton, D.M. (ed.) and the IUCN/SSC Caprinae Specialist Group. 1997. *Wild Sheep and Goats and their Relatives. Status survey and Conservation Action Plan for Caprinae*. IUCN, Gland, Switzerland and Cambridge, UK. 390 + vii pp.
Shackleton, D.M., 1999. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Tarreen, S.N., 1999. *In litt.* to USFWS, September 1999.
TRAFFIC Europe, 2000. *In litt.* to TRAFFIC International, Cambridge, UK.
Valdez, R., 1999. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Wilson, D.E. and Reeder, D.M (Eds.) 1993. *Mammal species of the World: A Taxonomic and Geographic Reference*, 2nd. Ed. Smithsonian Institution Press, Washington, USA.

Doc. No.: 11.31 *Pterocnemia pennata pennata*

Cajal, J.L. 1988. The Lesser Rhea in the Argentine Puna Region: Present Situation. *Biological Conservation* 45: 81-91.
Haene, E. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Navarro, J.L. and Martella, M.B., 1999. *Conservation and Management of the Rhea* Pterocnemia pennata *in Patagonia.* Technical Report of the Centre of Applied Zoology, National University of Cordoba, Argentina.
TRAFFIC South America, 2000. *In litt*. to TRAFFIC International, Cambridge, UK.

Doc. No.: 11.32 *Falco rusticolus*

Bird, D.M. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
DETR, 2000. *In litt*. to TRAFFIC International, Cambridge, UK.
Hyslop, C. 2000 *In litt.* to TRAFFIC North America, Canada Office
Lafleur, Y. 2000. *In litt*. to TRAFFIC North America, Canada Office.
Mellars, B. 2000. *In litt*. to TRAFFIC International, Cambridge, UK.
Mossop, D.H. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Parry-Jones, J. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Poole, K.G. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Smith, M.C. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Swem, T. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
TRAFFIC North America-Canada. 2000. *In litt*. to TRAFFIC International, Cambridge, UK.
Tucker, G.M. and Heath, M.F. 1994. *Birds In Europe: Their Conservation Status*. BirdLife International, Cambridge, UK.
Wetton, J. 2000. *In litt*. to TRAFFIC International, Cambridge, UK.
White, B. 2000. *In litt*. to TRAFFIC North America, Canada Office.

Doc. No.: 11.33 *Eunymphicus cornutus cornutus*

Barré, N., 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Bouchet, P., Jaffre, T. and Veillon, J-M. 1995. Plant extinction in New Caledonia: protection of sclerophyll forests urgently needed. *Biodiversity and Conservation* 4: 415-428.
Collar, N.J., Crosby, M.J., and Stattersfield, A.J. 1994. *Birds to Watch 2. The World List of Threatened Birds*. BirdLife International, Cambridge, UK.
Dutson, G., 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
FAO, Rome 1999. State of the World's Forests 1999.
Juniper, T. and Parr, M. 1998. *Parrots : A guide to the parrots of the world*. Pica Press, UK.
Rinke, D., 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Robinet, O., 2000. *In litt*. to TRAFFIC International, Cambridge, UK.
Robinet, O., Beugnet, F., Dulieu, D. and Chardonnet, P. 1995. The Ouvea Parakeet – state of knowledge and conservation status. *Oryx* 29: 143-150.
TRAFFIC Europe, 2000. *In litt*. to TRAFFIC International, Cambridge, UK.
Willis, J., 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.

Doc. No.: 11.34 *Eunymphicus cornutus uvaeensis*

Barré, N., 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Collar, N.J., Crosby, M.J., and Stattersfield, A.J. 1994. *Birds to Watch 2. The World List of Threatened Birds*. BirdLife International, Cambridge, UK.
Juniper, T. and Parr, M. 1998. *Parrots : A guide to the parrots of the world*. Pica Press, UK.
Rinke, D., 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Robinet, O., 2000. *In litt*. to TRAFFIC International, Cambridge, UK.
Robinet, O., Beugnet, F., Dulieu, D. and Chardonnet, P. 1995. The Ouvea Parakeet – state of knowledge and conservation status. *Oryx* 29: 143-150.
Robinet, O., Barre, N. and Silas, M. 1996. Population estimate for the Ouvea Parakeet *Eunymphicus cornutus uvaeensis*: its present range and implications for conservation. *Emu* 96: 151-157.

Doc. No.: 11.35 *Garrulax canorus*

Anon. 1998. *Final report on the mortality of birds during international transport at Brussels National Airport: 1994*. Ministry of small Enterprises, Traders and Agriculture, Veterinary Services CITES and Animal Protection Department. TRAFFIC Europe.
Carey, G. and Leven, M.R. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Collar, N.J., Crosby, M.J. and Stattersfield, A.J. 1994. Birds to Watch 2. The World List of Threatened Birds. BirdLife International, Cambridge, UK.
Lewthwaite, R.W. 1996. Forest birds of Southeast China: observations during 1984-1996. *Hong Kong Bird Report 1995*: 150-203.
Mackinnon, J. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Melville, D. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Nash, S.V. 1993. *Sold For A Song. The Trade in Southeast Asian non-CITES birds*. TRAFFIC International, Cambridge, UK.
Robson, C. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Severinghaus, L.L. 2000. *In litt*. to TRAFFIC International, Cambridge, UK.
Sibley, C.G. and Monroe, B.L. 1990. *Distribution and Taxonomy of Birds of the World*. Yale University Press, New Haven, USA. 1111 pp.
TRAFFIC East Asia, 2000. *In litt*. to TRAFFIC International, Cambridge, UK.
Viney, C. and Phillipps, K. 1988. *Birds of Hong Kong*. Government Printers, Hong Kong. 214 pp.

Doc. No.: 11.36 *Cuora* spp.

Artner, H. 1999. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
de Bruin, R. 1999. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Buhlmann, K. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
van Dijk, P.P. (TRAFFIC Southeast Asia). 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Iverson, J. 1999. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Lau, M. 1999. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Gaulke, M. 1999. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Shepperd, C. 1999. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.

Doc. No.: 11.37 *Clemmys guttata*

Buhlmann, K. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Burke, V.J. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.

Enge, K.M. 1993. *Herptile use and trade in Florida*. Final Performance Report. July 1, 1990 – June 30, 1992. Non-game Wildlife Program, Florida Game and Fresh Water Fish Commission, Florida.
Graham, T.E. 1995. Habitat Use and Population Parameters of the Spotted Turtle, *Clemmys guttata*, a Species of Special Concern in Massachusetts. *Chelonian Conservation and Biology* 1(3): 207-214.
Hoover, C. 1998. The US Role in the International Live Reptile Trade: Amazon Tree Boas to Zululand Dwarf Chameleons. TRAFFIC North America/WWF, Washington D.C.
Hoover, C. and J. Franke, in prep. Assessment of the Harvest, Farming and Trade of Freshwater Turtles Native to the United States. TRAFFIC North America/WWF, Washington D.C.
Lovich, J.E. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Meylan, P.A. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
TRAFFIC North America 2000. *In litt*. to TRAFFIC International, Cambridge, UK.

Doc. No.: 11.38 *Geochelone sulcata*

Klemens, M.W. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Klemens, M.W. (in press). Amphibians and Reptiles of North-eastern Chad. *African Journal of Herpetology.*
Klemens, M.W. (ed) (in press). *Turtle Conservation*. Smithsonian Institution Press, Washington D.C.
Lambert, M.R.K. 1999. A Slow Road to Extinction. *Biologist* 46: pp 215-218.
Lambert, M.R.K. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Moore, J.E. 1997. Potential threats to Tortoise Populations in Parc National de W, Niger, West Africa. http://nytts.org/proceedings/moore.html.
TRAFFIC East/Southern Africa 2000. *In litt*. to TRAFFIC International, Cambridge, UK.
TRAFFIC North America 2000. *In litt*. to TRAFFIC International, Cambridge, UK.

Doc. No.: 10.39 *Malacochersus tornieri*

CITES Secretariat. 2000. *Secretariat's provisional assessments*.
Howell, K. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Malonza, P.K. 1999. *Status, Ecological Characteristics and Conservation of the Pancake Tortoise*, Malacochersus tornieri, *in Nguni and Nuu Areas, Kenya*. Thesis submitted to the School of Graduate Studies in Partial Fulfilment of the Award of Master of Science in Dryland Biodiversity, Addis Ababa University.
TRAFFIC East/Southern Africa. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
TRAFFIC East/Southern Africa-Kenya. 2000. *In litt*. to TRAFFIC East Southern Africa.
Malonza, P.K. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Wandera, P.O. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.

Doc. No.: 11.40 and 11.41 *Eretmochelys imbricata*

Baillie, J. and Groombridge, B.C. 1996. *1996 IUCN Red List of Threatened Animals*. IUCN, Gland, Switzerland and Cambridge, UK.
Bass, A.L. 1999. Genetic analysis to elucidate the natural history and behavior of hawksbill turtles (*Eretmochelys imbricata)* in the wider Caribbean: a review and re-analysis. *Chelonian Conservation and Biology* 3(2): 195-199.
Bass, A.L. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Bjorndal, K.A. and Bolten, A.B. 1998. Hawksbill tagged in the Bahamas recaptured in Cuba. *Marine Turtle Newsletter* 79: 18-19.
Broad, S. 2000. Marine Turtle trade issues in Cuba. Trip report, 12-14 and 17 January, 2000. 10 pp.
Carrillo C., E., *et al.* 1998. Population size. *Revista Cubana de Investigaciones Pesqueras*. 22(1): 126-134.
Carrillo, E., Webb, G.J.W. and Monilis, S.C. 1999. Hawksbill turtles (*Eretmochelys imbricata*) in Cuba: an assessment of the historical harvest and its impacts. *Chelonian Conservation and Biology* 3(2): 264-280.

Chaloupka, M. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
des Clers, B. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Díaz-Fernandez, R., Okayama T., Uchiyama, T., Carrillo, E., Espinosa, G., Marquez, R., Diez C., and Koike H. 1999 Genetic sourcing for the hawksbill turtle, *Eretmochelys imbricata*, in the Northern Caribbean Region. *Chelonian Conservation and Biology* 3(2): 296-300
Eckert, K.L. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Garduño-Andrade, M., Guzmán, V., Miranda, E., Briseño-Dueñas, R. and Abreu-Grobois, F. 1999. Increases in hawksbill turtle (*Eretmochelys imbricata*) nestings in the Yucatán Peninsula, Mexico, 1977-1996. *Chelonian Conservation and Biology* 3(2): 286-295.
Groombridge, B.C. and Luxmoore, R.A. 1989. *The green turtle and hawksbill (Reptilia: Cheloniidae) world status, exploitation and trade*. CITES Secretariat. 601 pp.
Hoover, C. 1999. Illegal egg trade threatens sea turtles. *TRAFFIC North America* 2(2): 1-3.
IUCN/SSC and TRAFFIC Network 1997. *IUCN Analysis of Proposals to Amend the CITES Appendices.* IUCN-the World Conservation Union, Gland, Switzerland.
Limpus, C.J., Couper, P.J. and Read, M.A. 1994. The green turtle *Chelonia mydas* in Queensland: population structure in a warm temperate feeding area. *Mem. Queensland Museumi* 35: 139
Márquez-M., R.2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Meylan, A.B. 1999a. Status of the hawksbill turtle (*Eretmochelys imbricata*) in the Caribbean region. *Chelonian Conservation and Biology* 3(2): 177-184.
Meylan, A.B. 1999b. International movements of immature and adult hawksbill turtles (Eretmochelys imbricata) in the Caribbean region. *Chelonian Conservation and Biology* 3(2):189-194.
Meylan, A.B. and Donnelly, M. 1999. Status justification for listing the hawksbill turtle (*Eretmochelys imbricata)* as Critically Endangered on the 1996 *IUCN Red List of Threatened Animals. Chelonian Conservation and Biology* 3(2): 200-224.
Moncada, F., Carrillo, E., Saenz, A. and Nodarse, G. 1999. Reproduction and nesting of the hawksbill turtle *Eretmochelys imbricata* in the Cuban archipelago. *Chelonian Conservation and Biology* 3(2): 257-263.
Mortimer, J.A. 2000 *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Mrosovsky, N. 2000. Sustainable use of hawksbill turtles: contemporary issues in conservation. Key Centre for Tropical Wildlife Management. Issues in Wildlife Management No. 1. 107 pp.
Muccio, C. 1998. National Sea Turtle Conservation Report for Guatemala. Asociacion Resate y Conservacion de Vida Silvestre. 27 pp.
Owens, D.W. 1997. Hormones in the life history of sea turtles, p. 315-341. *In*: Lutz, P.L. , Musick, J.A. (Eds.). *The Biology of Sea Turtles.* CRC Marine Science Series, CRC Press, Inc., Boca Raton, Florida.
Pritchard, P.C.H. and. Mortimer. J.A. 1999. Taxonomy, External Morphology, and Species Identification. In: Eckert, K.L., K.A. Bjorndal , F. A. Abreu-Grobois, and M. Donnelly (Eds.). *Research and Management Techniques for the Conservation of Sea Turtles.* IUCN/SSC Marine Turtle Specialist Group Publication No. 4.
Ross, P. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
TRAFFIC Japan 2000. *In litt. to TRAFFIC North America.*
TRAFFIC North America 1999. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
TRAFFIC North America 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Webb, G.J.W., Carrillo C., E. and Manolis, C. 1999. Failings of the IUCN Criteria with Sea Turtles. Paper presented at IWMC 2ND Symposium on Sustainable Use. Chengdu, China, 22-26 November 1999.

Doc. No.: 11.43 *Varanus melinus*

Auliya, M. 1999. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Bayless, M.K. and Adragna, J.A. 1999. The Banggai Island *Monitor*. Notes on distribution, ecology, and diet of *Varanus melinus*. *The Vivarium* 10 (4): 38-40.
Erdelen, W. and Yuwono, F. 1999. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Iskandar, D.T. 1999. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Kluge, A. G. 1999. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Tepedelen, K. 1999. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
TRAFFIC Southeast Asia. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Webb, G. 1999. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.

Ziegler, T. 1999. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.

Doc. No.: 11.44 *Crotalus horridus*

Brown, W.S. 1997. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Chiszar, D. 2000. University of Colorado at Boulder. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Dodd, C.K. 1997. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Enge, K.M. 1994. *Herptile Use and Trade in Florida*. Florida Game and Fresh Water Fish Comm. Nongame Wildl. Program Final Perf. Report, Tallahassee, FL, USA.
Fitzgerald, L.A. and Painter, C.W. in press. Commercialization of Rattlesnakes. Wildlife Society Bulletin.
Franke, J. 1999. *In litt.* to IUCN Species Survival Commission, Cambridge, UK.
IUCN Species Survival Commission and TRAFFIC Network 1997. IUCN Analyses of Proposals to Amend the CITES Appendices. Prepared by IUCN Species Survival Commission and the TRAFFIC Network for the Tenth Meeting of the Conference of the Parties to CITES. IUCN-The World Conservation Union, Gland, Switzerland.
Timmerman, W. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
TRAFFIC North America 2000. *In litt.* to TRAFFIC International, Cambridge, UK.

Doc. No.: 11.45 *Bufo retiformis*

Sullivan, B.K. 1999. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Buhlmann, K.A. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
TRAFFIC North America 2000. *In litt.* to TRAFFIC International, Cambridge, UK.

Doc. No.: 11.46 *Mantella* spp.

Glaw, F. 1999. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Staniszweski, M. 1999. *In litt.* to TRAFFIC Europe, Belgium.
TRAFFIC Europe 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Vallan, D. 1999. *In litt* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Vences, M., Glaw, F. and Böhme, W. 1999. A review of the genus *Mantella* (Anura, Ranidae, Mantellinae): taxonomy, distribution and conservation of Malagasy poison frogs. *Alytes* 17(1-2): 3-72.

Doc. No.: 11.47 *Rhincodon typus*

Casey, J. G., Connett, S. M.H., Compagno, J.L.V., Stevens, J. D., Oulton, G. and Cook, S.F. 1992. The status of pelagic elasmobranchs: concerns and commentary. *Chondros*, 3:3-6.
Chen, C., Liu, K., Joung, S. 1997. Preliminary Report on Taiwan's Whale Shark Fishery. *TRAFFIC Bulletin* 17 (1) 53-57.
Compagno, L.J.V. (1984). *Sharks of the World. Hexanchiformes to Lamniformes*. FAO Fisheries Synopsis No. 124, Volume 4, Part 1. FAO, Rome.
Coleman, J. G. 1997. A review of the ecology and biology of the whale shark. *Journal of Fish Biology*. 51(6), pp1219-1234.
Eckert, S. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Fowler, S. F. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Kaneko, Y. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.

Musick, J. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Seret, B. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Simfendorfer, C. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Stevens, J. D. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Stevens, J. D., Norman, B. M., Gunn, J. S., and Davis, T.O.l. 1999*. Movement and behaviour patterns of whale sharks at Ningaloo reef: the implications for tourism. National ecotourism*. Final report: Application ref No. 30051. CSIRO Marine Research, Australia.
Stretta, J. and Slepoukha, M. 1983. Analysis of biotic and aboitic factors associated with tuna schools. In: *Proceedings of the ICCAT Conference on the International Skipjack Year Programme* (Symmons, P. E. K., Miyake, P. M. and Sakagawa, G.T., eds), pp161-169. Madrid: International Commission for the Conservation of Atlantic Tunas.
Taylor, G. 1994. *Whale Sharks, the Giants of Ningaloo Reef*. Sydney: Angus and Robertson.
Taylor, J.G. 1996. Seasonal occurrence, distribution and movements of the whale shark *Rhincodon typus*, at Ningaloo Reef, Western Australia. *Marine and Freshwater Research*, 47, (4): 637-642.
TRAFFIC Taipei, 2000. *In litt.* to TRAFFIC Oceania, Sydney, Australia.
WCMC 1999. World Conservation Monitoring Centre website: www.wcmc.org.uk/species/data/species_sheets/whalsha.htm.
Zhang, H., Song, X., Li, Y., Wang, W., Wang, S., Su, X., Li, P., Sung, J. and Yang, Z. 1988. A study of anti-tumoral activity of liver oil emulsion of *Rhincodon typus*. *Journal of Marine Drugs*, Haiyang Taowu : 3-5.

Doc. No.: 11.48 *Carcharodon carcharias*

Barrull, J. and Mate, I. 2000. *In litt.* to IUCN SSC Wildlife Trade Programme, Cambridge, UK.
Burgess, G.H. 1998. Diving with elasmobranchs: a call for restraint. *Shark News* 11, 1-4.
Caillet *et al*, 1985. Preliminary studies on the age and growth of the white shark, *Carcharodon carcharias*, using vertebral bands. *South. Calif. Acad.Sci. Mem*. 9 49-60.
Cliff, G., Dudley, S.F.J. and Jury M.R. (1996). Catches of White Sharks in KwaZulu-Natal, South Africa and Environmental Influences. *In* "Great White Sharks: The biology of *Carcharodon carcharias*" (Klimley, A.P. and Ainley, D.G. Eds.), pp 351-362. Academic Press Inc., California.
Fergusson, I.K., Compagno, L.J.V. and Marks, M.A. In prep. White Shark *Carcharodon carcharias* Linneas 1758). Species account In: Fowler, and Camhi, M., *Shark Action Plan*.
Fowler, S.F. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
IUCN. 1996. *The IUCN Red List Of Threatened Animals*. IUCN Gland, Switzerland and Cambridge U.K.
Kaneko, Y., 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Musick, J. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Paxton, J., 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Smith, S. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Stevens, J., 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
UK.Vacchi, M., Notobartolo di Sciara, G., Serena, F. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
USFWS. 2000. US Response to provisional assessments provided in Notifications to the Parties 1999/97.

Doc. No.: 11.49 *Cetorhinus maximus*

Angell, J. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Kaneko, Y. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Pawson, M. and Vince, M. 1999. Management of Shark Fisheries in the Northeast Atlantic. In: Case Studies of the Management of Elasmobranch Fisheries. Ed. Shoton, R. *FAO Fisheries Technical Paper 378/1*:1-46. FAO Rome.
Paxton, J., 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Reid, P.C., Edwards, M. E., Hunt, H. and Warner, A. E., 1998. Phytoplankton change in the North Atlantic, *Nature,* 391:546.

Serena *et al*., 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Seret, B., 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Simfendorfer, C., 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Simms, D. W. and Quayle, V. A., 1998. Selective foraging behaviour of basking sharks on zooplankton on a small scale front. *Nature,* 285:361-366.
Smith, S. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Stevens, J. D. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Van der Molen, S., Caille, G. and Gonzalez, R. 1998. Byctach of sharks in Patagonian coastal trawl fisheries. *Marine and Freshwater Research*. 49 (7): 641.
Walker, P. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.

Doc. No.: 11.50 and 11.51 *Latimeria* spp. and *Latimeria menadoensis*

Balon, E. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Bruton, M.N., 1995. Threatened Fishes of the World: Latimeria Chalumnae Smith, 1939 (Latimeriidae). *Environmental Biology of Fishes* 43 104.
Bruton, M.N. and Coutouvidis, S.E. 1991. An inventory of all known specimens of the Coelacanth *Latimeria chalumnae*, with comments on trends in the catches. *Environmental Biology of Fishes* 32: 371-390.
Erdmann, M.V., 1999. *In litt.* to German Scientific Authority to CITES 17.06.1999.
Erdmann, M.V., 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Fricke, H., Hissman, K, Schauer, J., Erdmann, M., Moosa, M.K. and Plante, R. 2000. Biogeography of the Indonesian Coelacanths. *Nature*, 403,6,38.
Fricke, H.W, Hissmann, K. Schauer, J. and Plante, R. 1995. Yet more danger for Coelacanths. *Nature* 374, 314.
Froese, R. and Palomares, M.L.D. 2000. Growth, natural mortality, length-weight relationship, maximum length and length at first maturity of the Coelacanth *Latimeria chalumnae*. *Environmental Biology of Fishes* (in press).
Hilton-Taylor, C. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Holder, M.T., Erdmann, M.V.,Wilcox, M.T., Caldwell, R.L. and Hillis, D.M. 1999. Two living species of Coelacanths? *Proc. Natl. Acad. Sci*. 96 p12616-12620.
Janvier, P. 1999. Coelacanth a la Marseillaise. *Nature* 401P 845-856.
Janvier, P. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Jewett, S., 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Maisey, J.G. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Thomsen, K.S., 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
TRAFFIC East/Southern Africa. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.

Doc. No.: 11.52 *Poecilotheria* spp.

Ahimaz, P. 2000. *In litt*. to Sanjay Molur, Zoo Outreach Organisation, Coimbatore, India.
Bambaradeniya, C. 2000. *In litt*. to Sanjay Molur, Zoo Outreach Organisation, Coimbatore, India.
Borges, R. 2000. *In litt*. to Sanjay Molur, Zoo Outreach Organisation, Coimbatore, India.
Charpentier, P. 1996. The illustrated redescription of *Poecilotheria rufilata* Pocock, 1899. *Exothermae Magazine*, Exothermae Publishing, Belgium. No. 0: 34 pp.
Daniels, R. 2000. *In litt*. to Sanjay Molur, Zoo Outreach Organisation, Coimbatore, India.
De Silva, A. 2000. *In litt*. to Sanjay Molur, Zoo Outreach Organisation, Coimbatore, India.
Kirk, P. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Marshall, S.D. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Molur, S. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Platnick, N. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Raven, R. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
TRAFFIC East Asia, 2000. *In litt*. to TRAFFIC International, Cambridge, UK.

TRAFFIC India, 2000. *In litt*. to TRAFFIC International, Cambridge, UK.
USFWS. 2000. US Response to provisional assessments provided in notification to the parties 1999. Provided by the U.S. Fish and Wildlife Service.
Whitaker, R. 2000. *In litt*. to Sanjay Molur, Zoo Outreach Organisation, Coimbatore, India.

Doc. No.: 11.53 *Podophyllum hexandrum, Rauvolfia serpentina* and *Taxus wallichiana*

Cunningham, A.B. 1999. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Duke, J. 1996. The role of medicinal plants in health care in India. In: Balick, M.J. Elisabetsky, E. and Laird, S.A. (eds.). 1996. *Medicinal Resources of the Tropical Forest: Biodiversity and its Importance to Human Health*. Colombia University Press, New York, United States.
Mulliken, T. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Olsen, C.S. 1999. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Schippman, U. (ed.). 1999. *Medicinal Plants Significant Trade Study (CITES Project S-109)*. Draft report submitted to the Ninth Meeting of the Plants Committee (Doc. PC9-item 9.1.3).
Sheldon, J.W., Balick, M.J. and Laird, S.A. (eds.). 1997. *Medicinal Plants: Can Utilization and Conservation Coexist*? New York Botanical Garden, New York, USA.
Wang, S., *et al*. 1999. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.

Doc. No.: 11.54 *Panax Ginseng*

Bailey, W.G. 1998. The world of Ginseng. *Proceedings of the First European Ginseng Congress*, Marburg, Dec. 6-11, 1998.
Caesar, W. 1998, History of the introduction of Ginseng in Europe. *Proceedings of the First European Ginseng Congress*, Marburg, Dec. 6-11, 1998
CITES Plant Committee, 1999. Proceedings of the 9th Meeting, Australia.
Fäßler, C. and Elers, B., 1998. *Panax Ginseng* production in Southern Germany. Poster presented at the First European Ginseng Congress, Marburg, Dec. 6-11, 1998.
Fu, L. 1992. *China Plant Red Data Book - Rare and Endangered Plants* (Volume 1). Science Press, Beijing.
Knees, S. and Read, M. 1994. CITES Guide to Plants. Department of Environment, UK. 216 pp.
Lange, D. 2000. *In litt*. to TRAFFIC Europe, Brussels, Belgium.
Mabberley, D.J. 1997. *The Plant Book*. Cambridge University Press, Cambridge, UK. 858 pp.
Maunder, M. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Melish, R. 2000. *In litt*. to TRAFFIC International, Cambridge, UK.
Melish, R., Fomenko, P. and Hejda, B. 1997. The status of *Panax Ginseng* in the Russian Far East and adjacent areas: a matter for conservation action. Medicinal Plant Conservation 4: 11-13.
Mills, J.A., Robbins, C.S. and Lee, S.K.H. 1999. Conservation measures and international trade controls for wild and cultivated Ginseng. Paper presented to the International Ginseng Conference, held in Hong Kong, 9-11 July 1999.
Ngan, F., Shaw, P., But, P. and Wang, J. 1999. Molecular authentication of *Panax* species. *Phytochemistry* 50: 787-791.
Pei, S. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Robbins, C.S. 1998. *American Ginseng: The Root of North America's Medicinal Herb Trade*. TRAFFIC North America, Washington, D.C.
Robbins, C.S. 2000. *In litt*. to TRAFFIC International, Cambridge, UK.
TRAFFIC Europe (ed.) In prep. *Trade impacts on wild populations of Far-Eastern Ginseng Panax Ginseng - a review*.
TRAFFIC Europe, 2000. *In litt*. to TRAFFIC International, Cambridge, UK.
Walter, K.S. and Gillett, H.J. (eds) 1998. *1997 Red List of Threatened Plants*. Compiled by the World Conservation Monitoring Centre, IUCN, Gland, Swizerland and Cambridge, UK.
Wang, X. and Yang, Z. (compilers) in prep. *Plants of the Chinese Region - Status survey and Conservation Action Plan*. IUCN/SSC China Plant Specialist Group. IUCN Gland, Switzerland and Cambridge, UK.
WCMC, 2000. Status Report for *Panax Ginseng*, 10 Feb 2000.
WWF and IUCN 1994-1995. *Centres of Plant Diversity. A guide and strategy for their conservation. Volume 2.* IUCN Publications Unit, Cambridge, UK. 578 pp.
Zhuravlev, Y.N. and Kolyada, A.S. 1997. Ginseng - *Panax Ginseng*. In: *Araliaceae: Ginseng and others*. Dalnauka Press, Vladivostok.

Zhuravlev, Y.N, Muzarok, T.I., Pisetskaya, N.F., Koren, O.G., Artyukova, M.M., Kozyrenko, M.M. and Reunova, G.D. 1998. Ginseng: Natural population, genetic resources, allozyme-DNA variations and conservation strategy. *Proceedings of the First European Ginseng Congress*, Marburg 1998.

Doc. No.: 11.55 *Araucaria araucana*

Aagesen D.L. 1993. *The natural and social geography of* Araucaria araucana. Ms of Arts Thesis. University of Minnesota, Faculty of the Graduate School; 188 pp.
Aageson, D.L. 1998. Indigenous resource rights and conservation of the monkey-puzzle tree (*Araucaria arucana*, Araucariaceae): A case study from S. Chile. *Economic Botany*, 52 (2) 146-160.
Bran, D. *et al*. 1999. Mapeo de la Eco-región de los Bosques Valdivianos Escala 1:500.000. Informe Coberturas Sector Argentino. INTA-APN
Farjoen, A. and Page, C. N. 1999. *Conifers: Status Survey and Conservation Action Plan*. IUCN, Gland Switzerland and Cambridge , UK.
Gardner, M. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Hoffmann, A. 1982. *Flora silvestre de Chile, zona austral*. Ediciones Fundación Claudio Gay, Santiago, Chile.
Kitzberger, T. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Laclau, P. 1997. *Los ecosistemas forestales y el hombre en el sur de Chile y Argentina*
Mermoz, M. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Premoli, A. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
TRAFFIC Europe, 2000. *In litt.* to TRAFFIC International, Cambridge, UK.
TRAFFIC North America. 2000. *In litt.* to TRAFFIC International, Cambridge, UK.
TRAFFIC South America, 2000. *In litt.* to TRAFFIC International, Cambridge, UK.
Veblen, T. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Veblen TT, BR Burns, T Kitzberger, A Lara, and R Villalba. 1995. The ecology of the conifers of southern South America. In: *Ecology of the Southern Conifers*, N. J. Enright & R. S. Hill, Eds. Melbourne University Press, Australia.

Doc. No.: 11.56 *Echinopsis* spp., *Eulychnia* spp. and Cactaceae spp.

Sandison, M.S. 1995. The International Trade in Rainsticks. *TRAFFIC Bulletin* (15) 3 129-131.
TRAFFIC South America, 2000. *In litt*. to TRAFFIC International, Cambridge, UK.
Walter, K.S. and Gillett, H.J. (eds.) 1998. *1997 IUCN Red List of Threatened Plants.* IUCN, Gland, Switzerland and Cambridge, UK.

Doc. No.: 11.57 *Kalmia cuneata*

Boyer, M. 2000. *In litt.* to TRAFFIC North America.
TRAFFIC North America. 2000. *In litt*. to TRAFFIC International.
TNC/ABI (The Nature Conservancy/Association for Biodiversity Information). 2000. Information and comments on CITES CoP11 Plant Proposals.
Walter, K.S. and Gillett, H.J. 1998. *1997 IUCN Red List of Threatened Plants.* IUCN, Gland, Switzerland and Cambridge, UK.

Doc. No.: 11.58 *Camptotheca acuminata*

Boufford, D.E. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Carte, B.K. and Johnson, R.K. 1997. Topotecan Development: An example of the evolution of Natural Product Drug Discovery Research. In: Sheldon, J.W., Balick, M.J. and Laird, S.A. (Eds), Medicinal plants: can utilization and conservation coexist? Advances in Economic Botany 12: 79-93.
Dong X. and Xu, L. 1996. Anticancer Drug of Camptothecin - Another Hot Topic in the World, Chinese Traditional and Herbal Drugs. 27(4): 243-5.
Fu, L. (1992). *China Plant Red Data Book - Rare and Endangered Plants* (Volume 1). Science Press, Beijing.

Henry, M. 2000. *In litt*. to TRAFFIC International, Cambridge, UK.
Li, S. 1999. Anti-cancer happytrees. Research Report of the Arthur Temple College of Forestry, Stephen F. Austin State University, Nacogdoches, Texas.
Li, S. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Liu, Z. and Adams, J. 1996. Camptothecin yield and distribution within *Camptotheca acuminata* trees cultivated in Louisiana. Can. J. Bot. 74: 360-365.
Liu, Z., Carpenter, S.B. and Constantin, R.J. 1997. Camptothecin production in *Camptotheca acuminata* seedlings in response to shading and flooding. Can. J. Bot. 75: 368-373.
Liu, G. 2000. *In litt.* to TRAFFIC International, Cambridge, UK.
Lopez-Meyer, M., Nessler, C.L. and McNight, T.D. 1994. Sites of accumulation of the antitumor alkaloid Camptothecin in *Camptotheca acuminata*. Planta. Med. 60: 558-560.
Mabberley, D.J. 1997. The Plant Book. Cambridge University Press, Cambridge, UK. 858 pp.
Pei, S. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
ten Kate, K. and Wells, A. 1998. The access and benefit-sharing policies of the United States National Cancer Institute: a comparative account of the discovery and development of the drugs Calanolide and Topotecan. In: Case Studies on Benefit Sharing Arrangements, presented at the Conferences of the Parties, Convention on Biological Diversity, 4-15 May 1998, Bratislava, Slovakia.
TRAFFIC East Asia, 2000. *In litt*. to TRAFFIC International, Cambridge, UK.
Wang, S. *et al.* 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Wang, X. and Yang, Z. (compilers). In prep. Plants of the Chinese Region - Status survey and Conservation Action Plan. IUCN/SSC China Plant Specialist Group. IUCN Gland, Switzerland and Cambridge, UK.

Doc. No.: 11.59 *Cistanche deserticola*

Anonymous 1995a. *Medicinal Materials Resources in China*. Science Press, Beijing. Pp. 287.
Anonymous 1995b. *Commonly Used Medicinal Materials in China*. Science Press, Beijing. Pp. 1148.
Anonymous 1995c. *Geographical Division of Medicinal Materials in China*. Science Press, Beijing. Pp. 634.
Fu, L. 1992. *China Plant Red Data Book - Rare and Endangered Plants* (Volume 1). Science Press, Beijing.
He, S. and Shi, D. 1995. Resources and Identification of the Original Plants of Traditional Chinese Medicine Cistanche. *Acta Academiae Medicinae Shanghai*, Shanghai. Volume 22(3), Issue May: 186-8.
Leon, C. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Mabberley, D.J. 1997. The Plant Book. Cambridge University Press, Cambridge, UK. 858 pp.
Shengji, P. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
TRAFFIC East Asia, 2000. *In litt*. to TRAFFIC International, Cambridge, UK.
Tu, P., He, Y. and Lao, Z. 1994. Resource Survey and Protection of Medicine of Cistanche. *Chinese Traitional and Herbal Drugs*, Beijing.
Walter, K.S. and Gillett, H.J. (eds) 1998. 1997 Red List of Threatened Plants. Compiled by the World Conservation Monitoring Centre, IUCN, Gland, Swizerland and Cambridge, UK.
Wang, S., Fu, L., Li, Z., Hong, D., Lu, A., Ying J., Wang, X., Yang, Q., Wang, Y., Fu, D., and Qin, H. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Wang, X. and Yang, Z. (compilers) In prep. Plants of the Chinese Region - Status survey and Conservation Action Plan. IUCN/SSC China Plant Specialist Group. IUCN Gland, Switzerland and Cambridge, UK.
Zhou Y. 1993. Resource Science of Chinese Medicinal Materials. China Medical Technology Press, Beijing.
Zhu S. 1990. Medicinal Materials as Commodities in China. People's Sanitation Publication, Beijing.

Doc. No.: 11.60 *Harpagophytum procumbens* and *H. zeyheri*

Arnold, T.H. and De Wet, B.C. (eds) 1993. Plants of southern Africa: names and distribution. *Memoirs of the Botanical Survey of South Africa* No. 62. National Botanical Institute, Pretoria.
Atal, C.K. 1993. Fact finding and preparatory assistance mission to assess the potential of processing traditional medicinal plants for converting them into modern dosage form. Technical Report prepared for the Government of Mozambique by the United Nations Industrial Development Organisation. UNIDO, Vienna, Austria.
Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit 2000. *In litt*. to CITES-Secretariat.
Chrubasik, S., Zimpfer, C., Schutt, U. and Ziegler, R. 1996. Effectiveness of *Harpagophytum procumbens* in treatment of acute low back pain*. Phytomedicine 3: 1-10.*

Donaldson, J.S. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Draycott, I. 2000. *In litt*, to IUCN/SSC Wildlife Trade Programme, Cambridge, UK via IUCN Botswana.
Gericke, N. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Graven, E.H. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Hachfeld, B. 1999. Analysis of the trade potential and possible over-exploitation of a southern African medicinal plant - *Harpagophytum procumbens*. Unpublished report prepared for the Bundesamt fur Naturschutz.
Hilton-Taylor, C. 1996. Red Data List of Southern African Plants. *Strelitzia* 4. National Botanical Institute, Pretoria.
Ihlenfeldt, H.-D. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Kgathi, D.L. 1988. The grapple trade in Botswana. Botswana Notes and Records 20: 119-124.
Leith, J. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Leith, J. 1999. Devil's Claw: Sustainable Harvesting of and Fair Trade in Medicinal Plants. http://www.positivehealth.com/permit/Articles/Herbal/claw36.htm. Viewed 22 December 1999.
Lombard, C. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Marshall, N.T. 1998. *Searching for a Cure: Conservation of Medicinal Wildlife Resources in East and Southern Africa*. TRAFFIC International, Cambridge.
Nott, K. 1986. *A Survey of the Harvesting and Export of* Harpagophytum procumbens *and* Harpagophytum zeyheri *in SWA/Namibia*. Etosha Ecological Institute, Okaukuejo, Namibia.
Olivier, G. 2000. Harvesting of Devil's Claw: A document to keep tribal community leaders informed (they control the collectors). http://www.harpago.co.za/leaders.htm. Viewed 11 February 2000.
Schmidt, M., Eich, J., Kreimeyer, J. and Betti, G. 1998. Improvement of pharmaceutical drug quality: a cultivation project for *Harpagophytum procumbens* in Namibia. Medicinal Plant Trade in Europe: Conservation and Supply. *Proceedings of the First International Symposium on the Conservation of Medicinal Plants in Trade in Europe*: 22-23 June 1998: 140-148. Royal Botanic Gardens, Kew.
Schneider, E. 1997. Sustainable use in semi-wild populations of *Harpagophytum procumbens* in Namibia. *Medicinal Plant Conservation* 4: 7-9.
Strohbach, M. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Strohbach, M, 1999a. The Sustainably Harvested Devil's Claw Project: Ecological Survey March 1999. Unpublished Report to CRIAA SA-DC.
Strohbach, M, 1999b. The Sustainably Harvested Devil's Claw Project: Ecological Survey February 1999. Unpublished Report to CRIAA SA-DC.
Strohbach, M, 1998. The Sustainably Harvested Devil's Claw Project: Ecological Survey March 1998. Unpublished Report to CRIAA SA-DC.
Van Wyk, B.-E. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Van Wyk, B.-E., Van Oudtshoorn, B. and Gericke, N. 1997. *Medicinal Plants of South Africa*. Briza Publications, Pretoria.

Additional web based information:
http://www.positivehealth.com/permit/Articles/Herbal/stan36.htm.
http://www.betterbodz.com/library/devils_claw.html
http://nutrimart.com/Bulk?description/devils.htm
http://www.alternative-medicines.com/herbdesc1/devilsc.htm
http://www.sbherbals.com/041999HotM.html
http://www.smartbasic.com/glos.herbs/devils_claw.html

Doc. No.: 11.61 *Adonis vernalis*

Bernáth, J. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
CITES Secretariat. 2000. *Secretariat's provisional assessments*.
Evstatieva, L. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
Melnik, V. 1999. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
TRAFFIC Europe. 2000. *In litt.* to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.

Doc. No.: 11.62 *Guaiacum sanctum*

Certified Forest Products Council, 1999. Species of Wood Listed by CITES as Endangered or Threatened. http://www.certifiedwood.org/Resources/CITES/CITESContent.html. August 1999.
Hendricks, R. 2000. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK
Oldfield, S., C. Lusty and A. MacKinven. 1998. *The World List of Threatened Trees*. World Conservation Press, Cambridge.
TRAFFIC South America, 2000. *In litt*. to TRAFFIC International, Cambridge, UK
Wadsworth, F.H. 1999. *In litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK