CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES
OF WILD FAUNA AND FLORA

Fourteenth meeting of the Plants Committee
Windhoek (Namibia), 16-20 February 2004

COMPILATION OF COMMENTS REGARDING THE APPLICABILITY OF VARIOUS CRITERIA TO ASSESS THE STATUS OF FLORA FOR LISTING UNDER CITES APPENDIX II

1. This document has been prepared by the United States of America.

General comments from reviewer on applicability of criteria for listing on Appendix II	***Pseudophoenix ekmanii*, Dominican cherry palm (palm): It seems that the guidance provided at the beginning of this table specifying that the "species must fulfill the trade criterion and at least one of the criteria A-D," was included just for the purposes of this review. However, it could be modified somewhat (see below) and retained.** **THE FOLLOWING EDITORIAL CHANGES ARE PROPOSED: "For ~~your information for~~ a species to fulfill the draft criteria for Appendix I it must meet the trade ~~criteria~~ *criterion* and at least one of the *biological* criteria, A-D."** **GENERAL COMMENTS: For plants, issues such as seed bank viability and primary mode of sexual reproduction should be provided/requested at some point.** **Terms such as "generation length" (a.k.a generation time), "possibly extinct" and "threatened with extinction" are in the glossary but not mentioned in the text of the table. Should there be a more direct reference to them?**

CRITERION	COMMENTS AND SPECIES ASSESSMENETS
Is or may the species be affected by trade?	***Aloe ferox*, Tap aalwyn (an aloe):** Yes. ********** ***Cibotium barometz* (tree fern):** Yes. Cibotium *barometz* is in trade as wild plants. In demand for medicine dried rhizome. Therefore known to be in trade and affected by collection from the wild as reported by experts and authority government agencies on the species. Significant trade surveys in China indicated it as priority species for conservation action. This criterion was easy to apply for this taxon. ********** ***Cistanche deserticola*, desert cistanche (parasitic plant):** YES. In trade as wild plants. In demand for medicine (active substance- phenylethanoid glycosides)-dried carnose stem. Therefore known to be in trade and affected by collection from the wild as reported by experts on the species. Significant trade surveys in China indicated it as the first priority species for conservation action. This criterion was easy to apply for this taxon. ********** ***Dendrobium nobile* (orchid):** Yes. *Dendrobium nobile* is the main raw material of several traditional Chinese medicines, and both the wild and propagated are in great demand in trade. In addition, this species is very attractive, but absolutely most cut flowers are from the propagated in Chinese market. ********** ***Dionaea muscipula*, Venus flytrap (carnivorous):** Criterion applies to species. Suggested change: Include the word "international" before the word "trade" Yes, *Dionaea muscipula* is affected by international trade. There is considerable international demand for whole plants for horticultural purposes and for plant extracts for purported medicinal uses (i.e., treatment for certain cancers and HIVAIDS). ********** ***Galanthus elwesii*, snowdrop (bulb):** Yes, this is a good and applicable criterion. See comments given for Appendix I criterion. ********** ***Morchella spp*. (a mushroom):** Just a few range states have some kind of "general regulations" for mushroom harvesting, less than five regulate with some kind of specific legislation for the genus *Morchella* and none has a specific regulation for the species Morchella esculenta. In those countries were some legislation does exist, control mechanisms are generally inadequate. ********** ***Panax quinquefolius*, American ginseng (rhizome):** Criterion applies to species. Yes, American ginseng is affected by international trade. Whole plants are harvested from the wild in the United States and Canada. There are also various semi-wild production systems used to grow specimens for trade. These alternative methods may have negative affects to wild populations of the species (potential for introduction and spread of diseases, genetic depression or alteration by outcrossing, and habitat modification). In addition, semi-wild production systems are probably masking the quantity of wild sub-populations in

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Is or may the species be affected by trade?	the USA. **Suggested change: Include the word "international" before the word "trade".** ********** ***Pericopsis elata*, African teak (timber):** Applies. ********** ***Populus tremuloides*, trembling aspen (clonal tree):** Not applicable to *Populus tremuloides*. Definition of "affected by trade" as listed on pg. 13, is clear and easily interpreted with regard to this species. ********** ***Prunus africana*, African cherry (timber bark):** The species is not in trade; only a part (bark) is removed from living individuals. The removal does not have an influence on the life or survival of the individual. **It is important that the criterion specifically requests the mode of exploitation and its consequences on the survival and reproduction of the species.** ********** ***Pseudophoenix ekmanii*, Dominican cherry palm (palm):** Yes, seeds are collected for export to nurseries and growers. Sap is collected for local consumption. Individuals are destructively harvested for the sweet sap, which is fermented into wine. **THE FOLLOWING EDITORIAL CHANGES ARE PROPOSED: Species: In Article I of the Convention the term species is defined as "any species, subspecies or geographically separate population thereof". Species and subspecies refer to the biological concept of a species~~, and do not require any further definition~~. *This includes varieties, which may or may not be recognized as distinct species, according to prevailing expert opinion.*** **~~The two terms also cover varieties.~~ delete** **"Geographically separate population" refers to *populations or subpopulations* ~~parts~~ of a species or ~~a~~ subspecies *(e.g., stocks, or ecotypes)* within particular geographical boundaries. Geographical boundaries may include natural or man-made features (e.g., mountain ranges, islands, or dams) or biogeographical restrictions (e.g., due to pollinator or dispersal limitations). ~~This can also refer to populations or subpopulations, or, for the sake of convenience in certain cases, to 'stocks' as the term is understood in fisheries management~~. *Where populations are separated due to geopolitical boundaries, the ramifications that this separation has to the survival of the species should be explained.*** **In light of the above clarifications to "geographically separate population", we believe the following paragraph can be deleted as it may be subject to misinterpretation. ~~Until now, the Conference of the Parties has interpreted 'geographically separate populations' as populations delimited by geopolitical boundaries, whereas they have rarely used the other option of geographical boundaries.~~** **Affected by trade: While it may be implicitly understood, this question should specify international trade or some combination of domestic/international trade. The definition also needs to be clarified…. A species "is or may be affected by *international* trade" if: 1. it is known to be in *international* trade, and**

CRITERION	COMMENTS AND SPECIES ASSESSMENETS
Is or may the species be affected by trade?	**that trade has or may have a detrimental impact on the status of the species; or 2. it is suspected to be in *international* trade, or there is potential international demand for the species, that may be detrimental to its survival in the wild.** ********** ***Ravenea louvelii* (palm):** Yes ********** ***Satranala decussilvae* (palm):** Yes This criterion was easy to apply for this taxon. ********** ***Strombocactus disciformis* (disc cactus):** The criterion applies for the species. Yes, it is not yet affected but it has the potential to become, because the species is already being sold in European nurseries and there are reports of confiscated specimens. **We propose the following changes: This criterion should specifiy *"international"* trade amendments to the definition: Affected by *international* trade. A species "is or may be affected by *international* trade" if: 1. it is known to be in *international* trade, and that trade has or may have a detrimental impact on the status of the species; or 2. it is suspected to be in *international* trade, or there is potential international demand for the species *on the basis of some evidence,* that may be detrimental to its survival in the wild. 3. *It is known that the species was subject to international trade in the past and therefore there is a potential for it to be reinitiated.*** **Add: *If the answer is "yes" explain to the criterion.*** ********** ***Taxus brevifolia*, Pacific yew (temperate timber medicinal)*:** Not applicable *to Taxus brevifolia*. Definition of affected by trade as listed on pg. 11, is clear and easily interpreted with regard to this species. ********** ***Tillandsia xerographica* (bromeliad):** A. This is a good and applicable criterion, but it should be noted that the species was affected by international trade in wild specimens. Right now the species in the wild is affected by international trade in artificially propagated plants, resulting from wild collection. Reviewers GT: Yes, there is trade in the species, but all trade specimens originate from nurseries registered with the Management Authority. In these nurseries, plants are produced using different methods, so it can be assumed that trade is not detrimental to the survival of the species. Since 1994, the government has not authorized the commercial harvest of wild plants, this species, or any plants of the genus *Tillandsia*, and although it is known that an illegal markey exists, this has not been confirmed. ********** ***Turbinicarpus pseudomacrochele*, Hairy-spined turbinicarpus (cactus):** The criterion applies for the species. Yes, it is being illegally extracted from the wild mainly by European and North American collectors. This is the major threat to the species. There have been several confiscated shipments by the Mexican law enforcement authority.

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Is or may the species be affected by trade?	**We propose the following changes: This criterion should specifiy *"international"* trade amendments to the definition: Affected by *international* trade. A species "is or may be affected by *international* trade" if: 1. it is known to be in *international* trade, and that trade has or may have a detrimental impact on the status of the species; or 2. it is suspected to be in *international* trade, or there is potential international demand for the species *on the basis of some evidence,* that may be detrimental to its survival in the wild. 3. *It is known that the species was subject to international trade in the past and therefore there is a potential for it to be reinitiated.*** **Add: *If the answer is "yes" explain to the criterion.*** ********** ***Zamia furfuracea*, carboard palm (cycad):** Yes. The criterion applies to almost all cycads.

CRITERION	COMMENTS AND SPECIES ASSESSMENETS
A) It is known, or can be inferred, that the regulation of trade in the species is necessary to avoid it becoming eligible for inclusion in Appendix I in the near future.	***Aloe ferox*, Tap aalwyn (an aloe):** Trade appears to have an impact, but only in limited areas of its distribution, close to urban centres and Aloe factories. **The range of possibilities allowed by this criterion is large.** Would it still qualify if the likelihood of declining to Appendix 1 level was projected over > 20 years. ********** ***Cibotium barometz* (tree fern):** YES. The regulation of trade in this species is necessary. Otherwise, this species will be become rare because of out of control of collection. Easy to apply this criterion for this species. ********** ***Cistanche deserticola*, desert cistanche (parasitic plant): Dependent on definition of near future**, have applied the 5-10 year guideline. Difficult to ascertain. ********** ***Dendrobium nobile* (an orchid): Yes.** But the regulation of trade in the species is necessary but not enough to avoid in becoming eligible for inclusion in Appendix in the near future, for the detrimental impact on this species are not only from trade but also from the fragmentation of habitat and so on. **Problem There are few special studies about this species, so the period of the near future, which is 5-10 year in guideline, is difficult to ascertain for this species.** ********** ***Dionaea muscipula*, Venus flytrap (carnivorous):** Criterion applies to species. ********** ***Galanthus elwesii*, snowdrop (bulb):** Background information: *Galanthus elwesii* is a valuable natural resource and historical evidence suggests that if CITES controls were not in place then over-harvesting would rapidly occur again in the future. This species is unusual in that it has a very large total population size but has an exploitation history that has impacted on major sub-populations. It is vital that taxa that are in large volume trade that can readily expand and impact on important subpopulation are captured by the criteria. This type of high impact harvest can have significant effect on subpopulations that are isolated, for example, on one mountainside. The large total population size can give a false sense of security. Criterion assessment: Yes this is a good and applicable criterion. **However some clarification may be required with regard to timescales. This criterion implies a taxon can qualify for Appendix II to regulate trade to ensure that it does not become eligible for Appendix I in the near future. In that case near future is suggested to be 5-10 years. However, Appendix I criterion D advocates listing in Appendix I if it is likely to meet the criteria within 5 years. Confusing. Some guidance is required.** NL SA Comment: It is clear that regulation of harvest is crucial and not the regulation of trade. ********** ***Marojejya darianii* (Madagascan palm):** Regulation of trade in this species may have little if any effect on avoiding eligibility for inclusion in Appendix I

CRITERION	COMMENTS AND SPECIES ASSESSMENETS
A) It is known, or can be inferred, that the regulation of trade in the species is necessary to avoid it becoming eligible for inclusion in Appendix I in the near future.	********** ***Morchella* spp., morel fungus (mushroom):** Just a few range states have some kind of "general regulations" for mushroom harvesting, less than five regulate with some kind of specific legislation for the genus *Morchella* and none has a specific regulation for the species *Morchella esculenta*. In those countries were some legislation does exist, control mechanisms are generally inadequate. ********** ***Panax quinquefolius*, American ginseng (rhizome):** Criterion applies to species. Regulation of trade is necessary. ********** ***Pericopsis elata*, African teak (timber):** Applies. ********** ***Populus tremuloides*, trembling aspen (clonal tree):** Not applicable *to P. tremuloides*. ********** ***Prunus africana*, African cherry (timber bark):** NO COMMENTS. ********** ***Pseudophoenix ekmanii*, Dominican cherry palm (palm):** Not known, needs field work to assess impact of harvesting on wild population. **If "near future" remains in this question, it should be underlined as it is in the glossary.** **THE FOLLOWING EDITORIAL CHANGES ARE SUGGESTED: Add the phrase: Using the checklist provided at the end of this table (and accompanying definitions in the glossary), please explain which vulnerability factors affect this species/population/sub-population and why.** ********** ***Ravenea louvelii* (palm):** Regulation of trade may have little if any effect on avoiding eligibility for inclusion in App. I ********** ***Satranala decussilvae* (palm):** Regulation of trade in this species may have little if any effect on avoiding eligibility for inclusion in Appendix I. ********** ***Strombocactus disciformis* (cactus):** No. So far it is not an evident problem, but we infer that it can become so. The criterion applies to the species.

CRITERION	COMMENTS AND SPECIES ASSESSMENETS
A) It is known, or can be inferred, that the regulation of trade in the species is necessary to avoid it becoming eligible for inclusion in Appendix I in the near future.	**Add to criterion: *If the answer is "yes" explain.*** ********** ***Taxus brevifolia*, Pacific yew (temperate timber medicinal): Clearer definition of "near future" would assist objective interpretation of this criterion.** ********** ***Tillandsia xerographica* (bromeliad):** B. But not only the trade in plants from the wild should be considered for this species, but also the trade in artificially propagated plants, which result from inevitable (?) over-replenishment of mother stock. Reviewers GT: It is recommendable to maintain a strict regulation of the species to ensure that what if being trade is being produced [artificially]. ********** ***Turbinicarpus pseudomacrochele*, hairy-spined turbinicarpus (cactus):** Yes. There is great interest on this species by cacti collectors from around the world, and because of its low population number, it could be seriously affected by trade. The criterion applies for the species. **Add to criterion: *If the answer is "yes" explain*.** ********** ***Zamia furfuracea*, carboard palm (cycad): There may be a problem with numbers required to define 'small population'. Many cycads have relatively small populations of <10 000 plants.** By cycad standards, *Zamia furfuracea* does not have small populations but the numbers are not explicit. The IUCN Red List status has recently been undertaken for all cycads and even this was difficult even though the IUCN provides more specific numerical criteria.

B) It is known, or can be inferred or projected, that harvesting of specimens from the wild for international trade has, or may have, a detrimental impact on the species by either:	***Aloe ferox*, Tap aalwyn (an aloe): Detrimental impact needs to be defined.** ********** ***Cibotium barometz* (tree fern)*: Cibotium barometz*** has a relatively widespread distribution, occurring in the valley, edges and windows of the forest in tropical and subtropical zones in China, Indochina and southeast Asia. Even that its populations are reported to be decline due to habitat destruction accelerated by collection for medicinal use. The plant is easy to natural propagate. However, hard data are still difficult to get to application of the criterion. ********** ***Cistanche deserticola*, desert cistanche (parasitic plant):** The wild population has a restricted area of distribution. It occurs as a parasitic plant in sand of northwest China, Mongolia and Kazakstan. The species is threatened by over-collecting for national and international trade for medicinal use, as well as by lost of the hosat plants, *Haloxylon ammodendron* (Chenopodiaceae). Despite relatively widespread in the past, its populations are reported to be decline due to habitat destruction accelerated by collection for trade especially medicinal use. The plant is not easy to propagate and artificially propagated is difficult. ********** ***Dendrobium nobile* (orchid):** Yes. ********** ***Dionaea muscipula*, Venus flytrap (carnivorous):** Criterion applies to species. **Phrase** "by either" should be deleted because sub-criterion B(i) and B(ii) should be removed. ***The vulnerability factors listed below are not complete enough to assist in the evaluation of this criterion. It is suggested that additional factors from the IUCN checklist for making non-detriment findings also be included. These are:*** • ***low regeneration potential*** • ***limited pollination (not in the NDF checklist but should be)*** • ***poor dispersal efficiency*** • ***restricted distribution*** • ***low abundance*** • ***decreasing population trend*** • ***little or no management of harvest*** • ***minimum control of harvest*** • ***limited or no harvest monitoring program*** • ***little or no incentives/benefits from harvest*** ***In addition:*** • ***harvest removal of individuals (whole specimen)*** • ***difficult to artificially propagate taxon*** • ***introduce non-native invasive species.***

B) It is known, or can be inferred or projected, that harvesting of specimens from the wild for international trade has, or may have, a detrimental impact on the species by either:	********** ***Galanthus elwesii*, snowdrop (bulb):** NO COMMENTS. ********** ***Marojejya darianii* (Madagascan palm): Not known Insufficient information to give a firm answer here but presumably can apply the precautionary principle given he size of the populations and the trade interest.** ********** ***Morchella* spp., morel fungus (mushroom):** NO COMMENTS. ********** ***Panax quinquefolius*, American ginseng (rhizome):** Criterion applies to species. ***Phrase "by either" should be deleted because sub-criterion B(i) and B(ii) should be removed.*** ***The vulnerability factors listed below are not complete enough to assist in the evaluation of this criterion. It is suggested that additional factors from the IUCN checklist for making non-detriment findings also be included. These are:*** • ***low regeneration potential*** • ***limited pollination (not in the NDF checklist but should be)*** • ***poor dispersal efficiency*** • ***restricted distribution*** • ***low abundance*** • ***decreasing population trend*** • ***little or no management of harvest*** • ***minimum control of harvest*** • ***limited or no harvest monitoring program*** • ***little or no incentives/benefits from harvest*** ***In addition:*** • ***harvest removal of individuals (whole specimen)*** • ***difficult to artificially propagate taxon*** • ***introduce non-native invasive species.*** ********** ***Pericopsis elata*, African teak (timber):** Yes. **********

B) It is known, or can be inferred or projected, that harvesting of specimens from the wild for international trade has, or may have, a detrimental impact on the species by either:	***Populus tremuloides*, trembling aspen (clonal tree): The notion of how close and how quickly a population is declining towards the minimum viable population size (MVP) is central to a number of definitions, including population size, fluctuation and marked decline. As stated above, explicit reference to a specific rate-based measure is required to interpret these criteria.** ********** ***Prunus africana*, African cherry (timber bark):** NO COMMENTS. ********** ***Pseudophoenix ekmanii*, Dominican cherry palm (palm):** Not known. **Is use of the term "sustainability" purposely avoided here?** **THE FOLLOWING EDITORIAL CHANGES ARE PROPOSED: Exceeding, over an *extended period*, the level that can be ~~continued to perpetuity~~ *sustained indefinitely at current levels. Provide numerical, biological or geographic information that characterizes the fluctuation and to substantiate its importance to the survival of the species in the wild.*** ********** ***Ravenea louvelii* (palm):** Not known-but can infer or project due to small population size - less than 25 mature individuals -very vulnerable to any collection and impact associated with collection - ********** ***Satranala decussilvae* (palm): Not known Insufficient information to give a firm answer here but presumably can apply the precautionary principle given he size of the populations and the trade interest.** Yes, it is thought that the existence of subpopulations might have been caused by the harvest of specimens from the wild. The criterion applies for the species. ********** ***Taxus brevifolia*, Pacific yew (temperate timber medicinal): Providing a measure of how close and how quickly a population is declining towards minimum viable population size (MVP) is basic to Criteria B (i) and (ii). Problems with interpretation of term "Marked decline" are noted under Table 1, A. Explicit reference to a specific rate-based approach to MVP is required to interpret these criteria.** ********** ***Tillandsia xerographica* (bromeliad):** B. But not only the harvest of plants from the wild for international trade should be considered for this species, but also the harvest of plants from the wild to produce artificially propagated plants for international trade. Reviewers GT: One concludes or anticipates that illegal harvest [of specimens] from the wild destined for trade has a detrimental impact on the species, but we lack data to confirm the existence of illegal trade.

B) It is known, or can be inferred or projected, that harvesting of specimens from the wild for international trade has, or may have, a detrimental impact on the species by either:	********** ***Turbinicarpus pseudomacrochele*, Hairy-spined turbinicarpus (cactus):** The criterion applies for the species. Yes, see answers below (C). ********** ***Zamia furfuracea*, carboard palm (cycad):** No problem. Cycads are harvested mostly as whole plants and it is easy to determine or infer that trade is having a detrimental effect.

B)(i) Exceeding, over an extended period, the level that can be continued to perpetuity.	***Aloe ferox*, Tap aalwyn (an aloe):** Again, **the definition needs more clarity**. In all likelhihood, the population could be reduced to half its current size and would still survive. ********** ***Cibotium barometz* (tree fern):** It's obviously detrimental impact on the species. The specimens of this species is needed in international trade because its rhizome is used as a medicine. However, the rhizome is the important agamogenesis organism. If the rhizome is excessively harvested for trade, the size of this population will sharply decrease. It is likely that national and international trade and habitat destruction combine to threaten the taxa. The criterion was easy to apply for this taxon. ********** ***Cistanche deserticola*, desert cistanche (parasitic plant):** YES. The international trade requires regulation to address the problem of reducing population and continuing demand for wild plants. The exact dynamics of the international trade in relation to local consumption is also unknown exactly. It is likely that national and international trade and habitat destruction combine to threaten the taxa. International trade as being an important part of this dynamic requires regulation. Can apply this criteria if expert opinion is acceptable. ********** ***Dendrobium nobile* (orchid):** It can't be ascertained for the present time. Thanks to the conservation policy of Chinese government and the progress of technique of tissue culture, several *Dendrobium* species, including *Dendrobium nobile,* can be artificially propagated in large amount for medicine. Several companies began to plant the *Dendrobium* spp. But the level of exploitation of wild population of *Dendrobium nobile* over an extended period needs further investigated and regulated in order to protect this species. **Problem '*Extend period*' for this species is unclear due to the lack of biological study for this species.** ********** ***Dionaea muscipula*, Venus flytrap (carnivorous):** Sub-criterion applies to species. **However, this is very difficult if not impossible to determine for most plant taxa.** ********** ***Galanthus elwesii*, snowdrop (bulb):** Background information: *Galanthus elwesii* is a valuable natural resource and historical evidence suggests that if CITES controls were not in place then over-harvesting would rapidly occur again in the future. Criterion assessment: Yes, this is a good and applicable criterion. ********** ********** ***Marojejya darianii* (Madagascan palm):** Not known Insufficient information to give a firm answer here but presumably can apply the precautionary principle given he size of the populations and the trade interest. **********

B)(i) Exceeding, over an extended period, the level that can be continued to perpetuity.	***Morchella* spp., morel fungus (mushroom):** Yes. In fact, in many countries, the "harvesting areas" of *Morchella esculenta* have decreased in such a way that harvesters need to cover bigger distances to find them. ********** ***Panax quinquefolius*, American ginseng (rhizome):** Sub-criterion applies to species. **However, this is very difficult if not impossible to determine for most plant taxa.** ********** ***Pericopsis elata*, African teak (timber):** Applies, It should be noted that one biological trait could work in the reverse. Increased harvesting could provided the high light requirements for increased recruitment. ********** ***Populus tremuloides*, trembling aspen (clonal tree):** Easily interpreted, not applicable to P*. tremuloides* ********** ***Prunus africana*, African cherry (timber bark):** NO COMMENTS. ********** ***Pseudophoenix ekmanii*, Dominican cherry palm (palm):** Not known. **Is use of the term "sustainability" purposely avoided here?** **THE FOLLOWING EDITORIAL CHANGES ARE PROPOSED: Exceeding, over an *extended period*, the level that can be ~~continued to perpetuity~~ *sustained indefinitely at current levels. Provide numerical, biological or geographic information that characterizes the fluctuation and to substantiate its importance to the survival of the species in the wild.*** ********** ***Ravenea louvelii* (palm):** Not known-but can infer or project due to small population size - less than 25 mature individuals -very vulnerable to any collection and impact associated with collection - ********** ***Satranala decussilvae* (palm):** Not known. Insufficient information to give a firm answer here but presumably can apply the precautionary principle given he size of the populations and the trade interest **********

B)(i) Exceeding, over an extended period, the level that can be continued to perpetuity.	***Strombocactus disciformis* (cactus):** Yes, because of its low population number. The sub-criterion applies for the species. **Add to criterion: *"explain"*** ********** ***Taxus brevifolia*, Pacific yew (temperate timber medicinal):** Explicit reference to a specific rate-based approach to MVP is required to interpret these criteria. ********** ***Tillandsia xerographica* (bromeliad):** A. This is a good and applicable criterion. ********** ***Turbinicarpus pseudomacrochele*, hairy-spined turbinicarpus (cactus):** Yes, because of its low population number. The sub-criterion applies for the species. **Add to criterion: *If the answer is "yes" explain*** ********** ***Zamia furfuracea*, carboard palm (cycad):** This is difficult to measure for cycads. They are long lived and slow to recruit. Recruitment also seems to take place in distinct events which have not been well documented.

B)(ii) Reducing it to a population level at which its survival would be threatened by other influences.	***Aloe ferox*, Tap aalwyn (an aloe):** Harvesting has been linked to secondary problems such as leaf damage by insects. It is not clear whether this would increase as plant population numbers declined. ********** ***Cibotium barometz* (tree fern):** NO COMMENTS. ********** ***Cistanche deserticola*, desert cistanche (parasitic plant):** NO COMMENTS. ********** ***Dendrobium nobile* (orchid):** NO COMMENTS. ********** ***Dionaea muscipula*, Venus flytrap (carnivorous):** Sub-criterion applies to species. **However, this is very difficult if not impossible to determine for most plant taxa.** ********** ***Galanthus elwesii*, snowdrop (bulb):** Background information: Unlikely. Only in extreme harvesting circumstances. Criterion assessment: Yes this is a good and applicable criterion. ********** ***Marojejya darianii* (Madagascan palm):** Not known. ***Morchella* spp. (a mushroom):** Yes. In spite of the fact that the species is cosmopolitan, Morchella esculenta is strongly decreasing in most of the countries of its range (in the first place, due to habitat loss, secondly because of high trade levels, lack of regulations and management in larger, producer countries (India and Pakistan). Thirdly, while wild populations decrease their demand increases anually (mainly in France, Switzerland and Germany). Population decrease and decreasing size of reproductive structures due to over-harvesting has led to the disappearance of many "harvest spots". ********** ***Panax quinquefolius*, American ginseng (rhizome):** Sub-criterion applies to species. **However, this is very difficult if not impossible to determine for most plant taxa.** ***Pericopsis elata*, African teak (timber):** Applies. **********

B)(ii) Reducing it to a population level at which its survival would be threatened by other influences.	***Populus tremuloides*, trembling aspen (clonal tree):** Easily interpreted, not applicable to P. *tremuloides* . ********** ***Prunus africana*, African cherry (timber bark):** Yes, if regulation only affects harvest and does not address methods and timing of harvest, this will result in regional "slaughter" because seed trees are being destroyed. ********** ***Pseudophoenix ekmanii*, Dominican cherry palm (palm):** Not known. **THE FOLLOWING EDITORIAL CHANGES ARE PROPOSED: *Using the checklist provided at the end of this table (and accompanying definitions in the glossary), please explain which vulnerability factors affect this species/population/subpopulation and why.*** ********** ***Ravenea louvelii* (palm):** Not known-but can infer or project due to small population size - less than 25 mature individuals -very vulnerable to any collection and impact associated with collection. As previously noted there are introduced pests nearby - Strawberry-Guava and Rambling Rose. ********** ***Satranala decussilvae* (palm):** Not known. ********** ***Strombocactus disciformis* (cactus):** Yes, because of low population numbers. The sub-criterion applies for the species. **Add to criterion: *If the answer is "yes" explain*** ********** ***Taxus brevifolia*, Pacific yew (temperate timber medicinal): Explicit reference to a specific rate-based approach to MVP is required to interpret these criteria.** ********** ***Tillandsia xerographica* (bromeliad):** A. This is a good and applicable criterion. Reviewers GT: It is known that population of the species is gravely reduced in some of its areas of distribution, but there are no data [to determine] if this is due to the advance of illegal harvest or other factors such as agriculture and cattle ranching, forest fires and the use of firewood (the majority of the population in the areas of distribution of the species are poor farmers who use firewood to cook or sell). **********

B)(ii) Reducing it to a population level at which its survival would be threatened by other influences.	***Turbinicarpus pseudomacrochele*, hairy-spined turbinicarpus (cactus):** Yes, because of low population numbers. The sub-criterion applies for the species. **Add to criterion: *If the answer is "yes" explain.*** ********** ***Zamia furfuracea*, carboard palm (cycad):** This is quite well known for cycads and can be estimated**.**

C) The specimens of the species in the form in which they are traded resemble specimens of a species included in Appendix II under the provisions of Article II, paragraph 2(a), or in Appendix I, such that a non-expert, with reasonable effort, is unlikely to be able to distinguish between them.	***Aloe ferox*, Tap aalwyn (an aloe):** Aloe products are generally traded in refined form (juice, creams etc). ********** ***Cibotium barometz* (tree fern):** The **definition of non-expert would seem to require some tightening**. Virtually all plants as they are traded are difficult to distinguish by a non-expert with reasonable effort. Enforcement authorities should be expected to have a certain level of expertise in controlled taxa or access to same. ********** ***Cistanche deserticola*, desert cistanche (parasitic plant):** The **definition of non-expert would seem to require some tightening**. Virtually all plants as they are traded are difficult to distinguish by a non-expert with reasonable effort. Enforcement authorities should be expected to have a certain level of expertise in controlled taxa or access to same. ********** ***Dendrobium nobile* (orchid):** Yes. Several fleshy *Dendrobium spp,* such as *Dendrobium officinale*, are used as herbal medicine and in great demand in trade. But when dried, it is very difficult for non-expert, with reasonable effort, to distinguish between them. In fact, it is very difficult for an expert with reasonable effort to distinguish between the dried stems/pseudobulbs of these closely related species. **Problem The definitions of non-expert and reasonable effort are absent in the guideline.** ********** ***Dionaea muscipula*, Venus flytrap (carnivorous):** Criterion applies to species. In the form in which the species is traded under CITES, the pseudobulb can be confused with other small bulbous plants (e.g., *Crocus* spp., *Galanthus* spp.), but the species can be recognized by having "scales" on its pseudobulb. ********** ***Galanthus elwesii*, snowdrop (bulb):** Background information: To the non-expert *G. elwesii* bulbs resemble those of all other *Galanthus* taxa and arrange of other geophytes, some of which are extremely restricted in distribution and of trade interest. Some of these taxa are listed in Appendix II under the provisions of Aricle II, paragraph 2(a). Criterion assessment: Yes this is a good and applicable criterion. ********** ***Marojejya darianii* (Madagascan palm):** Not applicable. ********** ***Morchella* spp. (a mushroom):** For the time being, there are no species of macrofungi listed in the CITES Appendices, but may be true in the future if more species are included.

C) The specimens of the species in the form in which they are traded resemble specimens of a species included in Appendix II under the provisions of Article II, paragraph 2(a), or in Appendix I, such that a non-expert, with reasonable effort, is unlikely to be able to distinguish between them.	********** ***Panax quinquefolius*, American ginseng (rhizome):** The criterion does not apply to species. In the form in which the species is traded under CITES (roots), the species does not resemble other species listed in Appendix II. ********** ***Pericopsis elata*, African teak (timber):** Applies. ********** ***Populus tremuloides*, trembling aspen (clonal tree):** While probably not applicable to *P. tremuloides,* **the criterion is difficult to interpret with respect to the term "non-expert". The scope of this designation is likely to vary widely (with respect to forest trees) depending on the species and product being traded. "Reasonable effort,["] given current technologies, could include testing of genetic markers in logs, using electrophoresis.** ********** ***Prunus africana*, African cherry (timber bark):** No, dry bark retains its characteristic odor. ********** ***Pseudophoenix ekmanii*, Dominican cherry palm (palm):** Needs specialist skills to identify seed, seedlings or young plants. ********** ***Ravenea louvelii* (palm):** Not applicable ********** ***Satranala decussilvae* (palm):** Not applicable ********** ***Strombocactus disciformis* (cactus):** No, there is information (glass 1998) that provides necessary data to distinguish this species from others, so this does not applies in this case. The criterion applies for the species. **Add to criterion *"specify."*** ********** ***Taxus brevifolia*, Pacific yew (temperate timber medicinal):** Easily interpreted relative to *T. brevifolia.* **********

C) The specimens of the species in the form in which they are traded resemble specimens of a species included in Appendix II under the provisions of Article II, paragraph 2(a), or in Appendix I, such that a non-expert, with reasonable effort, is unlikely to be able to distinguish between them.	***Tillandsia xerographica*** **(bromeliad):** A. This is a good and applicable criterion. Reviewers GT: The species is incluided in Apendix II. In our case (Guatemalan authorities), it is dofficult is to distinguish specimens propagated artificially according to Resolution Conf. 11.11 (from seed) from wild specimens, specimens produced asexually, and those recovered from nurseries. ********** ***Turbinicarpus pseudomacrochele*****, hairy-spined turbinicarpus (cactus):** Yes. This species resembles, and is hard to differentiate from, all the ones included in the genus *Turbinicarpus* which are all included in Appendix I the criterion applies for the species. **Add to criterion *"specify."*** **For criteria *A) and* B), please check which if any of the vulnerability factors listed below apply:** ***C) The specimens of the species in the form in which they are traded resemble specimens of a species included in Appendix II under the provisions of Article II, paragraph 2(a), or in Appendix I, such that a non-expert, with reasonable effort, is unlikely to be able to distinguish between them. The criterion does not apply to species. In the form in which the species is traded under CITES (roots), the species does not resemble other species listed in Appendix II.*** ***D) There are compelling reasons, other than those given in C to ensure that effective control of trade in currently listed species is achieved. The criterion does not apply to species.*** ***Harvest of individuals or parts of individuals that may compromise recruitment either sexually or asexually.*** ********** ***Zamia furfuracea*****, carboard palm (cycad):** This is a common issue for all cycads. Non experts have a hard time telling species & genera apart.

D) There are compelling reasons, other than those given in C to ensure that effective control of trade in currently listed species is achieved.	***Aloe ferox*, Tap aalwyn (an aloe):** Not relevant for Aloe. ********** ***Cibotium barometz* (tree fern):** NO COMMENTS. ********** ***Cistanche deserticola*, desert cistanche (parasitic plant):** NO COMMENTS. ********** ***Dendrobium nobile* (an orchid):** NO COMMENTS. ********** ***Dionaea muscipula*, Venus flytrap (carnivorous):** Criterion applies to species. The number of wild-harvested individuals collected for the domestic trade versus the international trade needs to be determined further. ********** ***Galanthus elwesii*, snowdrop (bulb):** Not applicable to *G. elwesii*. ********** ***Marojejya darianii* (Madagascan palm):** Not applicable. ********** ***Morchella spp.*:** NO COMMENTS. ********** ***Panax quinquefolius*, American ginseng (rhizome):** The criterion does not apply to species. ********** ***Pericopsis elata*, African teak (timber):** Applies. ********** ***Populus tremuloides*, trembling aspen (clonal tree):** Speculative, but interpretation of the meaning and rationale is clear. Applicability *to P. tremuloides* (or other species) would require clear explanation of the compelling reason being put forward.

D) There are compelling reasons, other than those given in C to ensure that effective control of trade in currently listed species is achieved.	********** ***Prunus africana*, African cherry (timber bark):** Yes. The precautionary principle. There are three distinct meta populations of *Prunus*: East Africa, West Africa and Magdagascar. **For taxa for which area of distribution is also important, perhaps it would be possible to analyse the criteria not only with respect to the entire population but at the same time with respect to subpopulations with separate listing in the appendices to take account of "pressions relatives" exercised in each biogeographic region and genetic differences of the subpopulations. This summary is adapted from comments in both parts 1 & 2.** ********** ***Pseudophoenix ekmanii*, Dominican cherry palm (palm): Why does this refer to Category C, but not to Categories A and B?** ********** ***Ravenea louvelii* (palm):** Not applicable ********** ***Satranala decussilvae* (palm):** Not applicable ********** ***Strombocactus disciformis* (cactus):** No. The criterion applies to the species. ********** ***Taxus brevifolia*, Pacific yew (temperate timber medicinal):** Easily interpreted relative to *T. brevifolia.* ********** ***Tillandsia xerographica* (bromeliad):** A. This is a good and applicable criterion. But can at the moment not reliably be answered for this species. ********** ***Turbinicarpus pseudomacrochele*, hairy-spined turbinicarpus (cactus):** No.. The criterion applies to the species. ********** ***Zamia furfuracea*, carboard palm (cycad):** NO COMMENTS.

Notice Regarding the Responses of Reviewers

Note: Not all submissions accurately responded to the purpose of the questionnaire. The purpose of the questionnaire was to assess whether or not a given criteria served as a useful measure of a species' need to be listed on either of the Appendices.

What is a GOOD (or Applicable) Criterion?: A good criterion is one that can be answered – either positively or negatively.

What is a BAD (or Inapplicable) Criterion?: A bad criterion is one that can not be answered due to inherent ambiguity, inapplicability, or vagueness.

EXAMPLES:

TRADE CRITERION: Secies A is heavily traded internationally. Species B is not traded internationally. In these cases, the "trade criterion" is an applicable criterion for both species. This is a criterion that can either be answered positively or negatively for both species.

NUMBER OF INDIVIDUALS CRITERION: Plant species A reproduces both sexually and asexually through root sprouts. Plant species B reproduces only sexually. In this case, the "number of individuals" criterion is applicable for Species B, but not very applicable for Species A. That's because there is ambiguity in the definition of an 'individual' which could refer either to a ramet or genet. Moreover, determining whether a cluster of plants represents genetically distinct individuals may be difficult or impossible to assess accurately in the field. For Plant Species A, this is a criterion that can not be answered positively nor negatively and may therefore be inapplicable.

ADDITIONAL CLARIFICATION:

TRADE CRITERION: Assume that we have another species, Species C, for which we do not have current data on international trade. Simply because current data isn't available (limiting our ability to respond either positively or negatively) doesn't make the criterion inapplicable. If current data was available, the information would be useful in determining its status for listing. Therefore, the criterion is considered applicable for the species.

Two common errors encountered included:

1) providing an answer regarding the species' status for a criterion (we're not looking for the species' status, but whether or not that criterion or metric makes sense for that species).

2) roviding an answer regarding the usefulness of a criterion for the species, but erroneously responding negatively because the species isn't affected by the criterion.