Dec. 12.97
Proposed revision of Resolution Conf. 9.24 (CoP12 Com. I. 3)
Criteria for listing on Appendix I and Appendix II

Tests of the applicability of the criteria

Compilation

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30th November-2003

This document has been prepared to facilitate the assessment of the proposed revision of Resolution Conf. 9.24 (CoP12 Com. I. 3) using individual plant taxa.
The Chairperson, on behalf of the Plants Committee, would like to express the deepest gratitude to the Parties, the Institutions and the Reviewers that have participated in this exercise.

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Table 1 - Proposed revision of Resolution Conf. 9.24 (CoP12 Com. I. 3):
SUMMARY OF THE EVALUATION OF THE CRITERIA FOR LISTING ON APPENDIX I

CATEGORIES FOR THE CRITERION

√	(√)	[√]	N/A	X	0	?
works well	works with additional guidance	would work with amendments	not applicable	doesn't work	blank	clarify with the reviewers

Criteria ⇒	Trade Criterion	**A)** The wild population is small, and is characterised by **at least one** of the following (see definitions below):					**B)** The wild population has a restricted area of distribution and is characterised by **at least one** of the following (see definitions below):				**C)** A marked decline in population size in the wild, which has been **either** (see definitions below):		**D)** If not included in App I, is likely to satisfy one or more of criteria A-C within 5 years?
Taxon ⇓	Is or may the species be affected by trade?	A) (i)	A)(ii)	A)(iii)	A)(iv)	A)(v)	B)(i)	B)(ii)	B)(iii)	B)(iv)	C)(i)	C)(ii)	
1. *Galanthus elwesii*	(√)	general comments					general comments				general comments		(√)
		√	√	N/A	N/A	√	√	N/A	√	(√)	√	√	
2. *Panax quinquefolius*	[√]	general comments				**A)(v)**	and **B)(iii)**			general comments	general comments		0
		(√)	√	√ N/A?	N/A	(√)	(√)	N/A	(√)	(√)	√	√	
3. *Tillandsia xerographica*	√	general comments					general comments						√
		√	(√)	N/A	N/A	N/A?	√	√	(√)	√	√	√	
4. *Strombocactus disciformis*	[√]	general comments				**A)(v)**	and **B)(iii)**			general comments	general comments		√
		√	[√]	N/A	(√)	[√]	(√)	N/A	√	√	√	√	

Criteria ⇒ Taxon ⇓	Trade Criterion Is or may the species be affected by trade?	**A)** The wild population is small, and is characterised by **at least one** of the following (see definitions below):					**B)** The wild population has a restricted area of distribution and is characterised by **at least one** of the following (see definitions below):				**C)** A marked decline in population size in the wild, which has been **either** (see definitions below):		**D)** If not included in App I, is likely to satisfy one or more of criteria A-C within 5 years?
		A)(i)	A)(ii)	A)(iii)	A)(iv)	A)(v)	B)(i)	B)(ii)	B)(iii)	B)(iv)	C)(i)	C)(ii)	
5. *Turbinicarpus pseudomacrochele*	[√]	general comments √	[√]?	N/A	(√)	**A)(v)** [√]	and **B)(iii)** (√)	N/A	general comments √	√	general comments √	√	√
6. *Zamia furfuracea*	(√)	general comments (√)	√	N/A	N/A	√	general comments √	N/A	√	√	√	√	0
7. *Cibotium barometz*	√	general comments (√) 0	0	0	0	**A)(v)** 0	and **B)(iii)** 0	0	general comments √ 0	0	general comments (√)	(√)	0
8. *Dionaea muscipula*	[√]	general comments (√)	√	√ N/A?	N/A	**A)(v)** (√)	and **B)(iii)** (√)	N/A	general comments √	(√)	√	[√]	√
9. *Pericopsis elata*	√	general comments √	√	√	N/A	N/A	general comments (√)	N/A	(√)	(√)	general comments (√)	√	(√)
10. *Aloe ferox*	0	general comments √	√ N/A	√	N/A	N/A	general comments √	N/A	√	(√)	general comments √	(√)	0

Criteria ⇒ Taxon ⇓	Trade Criterion Is or may the species be affected by trade?	**A)** The wild population is small, and is characterised by **at least one** of the following (see definitions below):					**B)** The wild population has a restricted area of distribution and is characterised by **at least one** of the following (see definitions below):				**C)** A marked decline in population size in the wild, which has been **either** (see definitions below):		**D)** If not included in App I, is likely to satisfy one or more of criteria A-C within 5 years?
		A)(i)	A)(ii)	A)(iii)	A)(iv)	A)(v)	B)(i)	B)(ii)	B)(iii)	B)(iv)	C)(i)	C)(ii)	
11. *Dendrobium nobile*	√	general comments					general comments				general comments		(√)
		NA	(√)	0	0	0	0	0	0	0	√	√	
12. *Cistanche deserticola*	√	general comments √				**A)(v)**	and **B)(iii)**				general comments		0
		0	√	0	0	√	0	√	√	√	√	(√)	
13. *Marojejya darianii*	√	general comments				**A)(v)**	and **B)(iii)**		general comments				√
		(√)	√	0	?	?	√	√	N/A	√	√	√	
14. *Ravenea louvelii*	√	general comments				**A)(v)**	and **B)(iii)**		general comments		general comments		√
		(√)	√	0	?	?	√	√	N/A	√	?	?	
15. *Satranala decussilvae*	√	general comments				**A)(v)**	and **B)(iii)**		general comments		general comments		√
		(√)	√	0	?	?	√	?	?	?	?	?	

Criteria ⇒ Taxon ⇓	Trade Criterion Is or may the species be affected by trade?	**A)** The wild population is small, and is characterised by **at least one** of the following (see definitions below):					**B)** The wild population has a restricted area of distribution and is characterised by **at least one** of the following (see definitions below):				**C)** A marked decline in population size in the wild, which has been **either** (see definitions below):		**D)** If not included in App I, is likely to satisfy one or more of criteria A-C within 5 years?
		A)(i)	A)(ii)	A)(iii)	A)(iv)	A)(v)	B)(i)	B)(ii)	B)(iii)	B)(iv)	C)(i)	C)(ii)	
16. *Pseudophoenix ekmanii*	[√]	general comments				**A)(v)**	and **B)(iii)**			general comments	general comments		X
		(√)	[√]	[√]	?	N/A	[√]	0	(√)	√	0	[√]	
17. *Prunus africana*	0						general comments						√?
		√?	√?	X	√?	√?	(√)?	(√)?	(√)?	(√)?	√?	√?	
18. *Populus tremuloides*	√	general comments					general comments				general comments		(√)
		(√)	(√)	N/A?	N/A?	√	√	√	√	(√)	(√)	(√)	
19. *Taxus brevifolia*	√ N/A	general comments					general comments				general comments		(√)
		(√)	√ N/A	√ N/A	[√]	√ N/A	√ N/A	√ N/A	√ N/A	(√)	√ N/A	[√]	
20. *Morchella esculenta*	√	general comments				**A)(v)**	and **B)(iii)**			general comments	general comments		√
		√	√	√	N/A	√	0	N/A	√	(√)	√	√	

Table 2 - Proposed revision of Resolution Conf. 9.24 (CoP12 Com. I. 3):
SUMMARY OF THE EVALUATION OF THE CRITERIA FOR LISTING ON APPENDIX II

CATEGORIES FOR THE CRITERION

√	(√)	[√]	N/A	X	0	?
works well	works with additional guidance	would work with amendments	not applicable	doesn't work	blank	clarify with the reviewers

Criteria ⇒ Taxon ⇓	Trade Criterion Is or may the species be affected by trade?	**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.	**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:		**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.	**D)** There are compelling reasons, other than those given in **C** to ensure that effective control of trade in currently listed species is achieved.
			B)(i) Exceeding, over an extended period, the level that can be continued to perpetuity.	B)(ii) Reducing it to a population level at which its survival would be threatened by other influences.		
1. *Galanthus elwesii*	(√)	(√)	√	√	√	N/A
2. *Panax quinquefolius*	[√]	√	**A)** and **B)** general comments [√]	[√]	N/A	N/A
3. *Tillandsia xerographica*	√	(√)	general comments √	√	√	√

Criteria ⇒ Taxon ⇓	Trade Criterion Is or may the species be affected by trade?	**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.	**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:		**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.	**D)** There are compelling reasons, other than those given in **C** to ensure that effective control of trade in currently listed species is achieved.
			B)(i) Exceeding, over an extended period, the level that can be continued to perpetuity.	B)(ii) Reducing it to a population level at which its survival would be threatened by other influences.		
4. *Strombocactus disciformis*	[√]	√	**A)** and **B)** general comments √	√	√	√
5. *Turbinicarpus pseudomacrochele*	[√]	√	**A)** and **B)** general comments √	√	√	√
6. *Zamia furfuracea*	√	(√)	**A)** and **B)** general comments (√)	√	√	0
7. *Cibotium barometz*	√	√	A) and B) general comments √	0	(√)	0
8. *Dionaea muscipula*	[√]	√	**A)** and **B)** general comments [√]	[√]	√	√
9. *Pericopsis elata*	√	√	**A)** and **B)** general comments √	√	√	√
10. *Aloe ferox*	√	√	**A)** and **B)** general comments (√)	(√)	[√]?	N/A

Criteria ⇒ Taxon ⇓	Trade Criterion Is or may the species be affected by trade?	**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.	**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:		**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.	**D)** There are compelling reasons, other than those given in **C** to ensure that effective control of trade in currently listed species is achieved.
			B)(i) Exceeding, over an extended period, the level that can be continued to perpetuity.	B)(ii) Reducing it to a population level at which its survival would be threatened by other influences.		
11. *Dendrobium nobile*	√	(√)	general comments (√)	0	(√)	0
12. *Cistanche deserticola*	√	(√)	**A)** and **B)** general comments (√)	0	(√)	0
13. *Marojejya darianii*	√	√	**A)** and **B)** general comments √	√	N/A	N/A
14. *Ravenea louvelii*	√	√	**A)** and **B)** general comments √	√	N/A	N/A
15. *Satranala decussilvae*	√	√	**A)** and **B)** general comments √	√	N/A	N/A
16. *Pseudophoenix ekmanii*	[√]	(√)	**A)** and **B)** general comments [√]	(√)	√	√
17. *Prunus africana*	(√)	0	0	√	√	√

Criteria ⇒ Taxon ⇓	Trade Criterion Is or may the species be affected by trade?	**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.	**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:		**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.	**D)** There are compelling reasons, other than those given in **C** to ensure that effective control of trade in currently listed species is achieved.
			B)(i) Exceeding, over an extended period, the level that can be continued to perpetuity.	B)(ii) Reducing it to a population level at which its survival would be threatened by other influences.		
18. *Populus tremuloides*	√	√	general comments		(√)	(√)
			(√)	(√)		
19. *Taxus brevifolia*	(√)	(√)	general comments		√	√ N/A
			(√)	(√)		
20. *Morchella esculenta*	√	√	**A)** and **B)**		√	0
			√	√		

Galanthus elwesii Common names: Snowdrop, Turkish Giant Snowdrop, Perce-neige, Kardelen, Gokdede, Groot sneeuwklokje, Schneeglöckchen **CRITERION**	**Reviewers:** Tuna Ekim & Neriman Ozhatay, Istanbul University, Istanbul, Turkey Jan De Koning, Hortus Botanicus, Leiden, the Netherlands Chris Schürmann, National Museum of Natural History, Leiden, the Netherlands Noel McGough & Matthew Mustard, Royal Botanic Gardens, Kew, United Kingdom **Contact person: Noel McGough** **Contact address:** Conventions and Policy Section, Royal Botanic Gardens, Kew, Richmond, Surrey, TW9 3AE, United Kingdom **Tel:** +44 (0)20 8332 5722 **Fax:** +44 (0)20 8332 5757 **e-mail:** n.mcgough@rbgkew.org.uk **Comments from reviewers on applicability of criteria for listing on Appendix I**
Trade Criterion **Is or may the species be affected by trade?**	**Background information:** Wild *Galanthus elwesii* grows in Bulgaria, northeastern Greece and the eastern Aegean Islands, southern Ukraine, Turkey and Yugoslavia. The Taurus mountains in South Western Turkey were historically, and remain, the primary source of wild plants for international trade. Large scale harvesting from the wild started in the 1980s and reached peak levels by the mid 1980s (up to 40 million plants per annum). At that time harvesting was threatening the survival of the Taurus mountain populations. Within country harvesting controls were put in place in the late 1980s to restrict harvesting levels and previously over-harvested wild populations now appear to be recovering. Harvesting quotas over the last 5 years have been around 5 million wild plants which appears to be sustainable. However, if it were not for controls on harvesting and exports it is likely that exports would be much higher and, potentially, threaten the survival of the Turkish populations of *G. elwesii*. Therefore the species may be threatened by trade, especially if trade controls were removed. Furthermore, there remains uncertainty about the taxonomic relationships between the populations of this species, with some botanists recognizing distinct sub-species and varieties within the species. **Criterion assessment:** The trade criterion is applicable to this species, because it is known to be in trade in significant numbers in relation to the population size(s), and it is known that high level of trade may have a detrimental impact on certain populations. This criteria works, however it is important that in applying the criteria due attention is given to assessing the possible detrimental impact of the trade. The reviewer should make clear the possible detriment.

A) The wild population is small, and is characterized by at least one of the following (see definitions below):	What was/is the estimated size of the population? Please include units of measurement. **Background information:** *Galanthus elwesii* exists in many localities spread over several countries. In many localities the populations occur over large areas and can consist of up to several million of individuals. Total population estimates have not been made but they must reach many times that. The total wild population is therefore not small. A small wild *Galanthus* population would probably be about 5000 individuals such as the wild populations of *G. krasnovii.* **Criterion assessment:** This criterion is generally applicable to the species however, the definition of "small wild population" is difficult to interpret. "Small" can be interpreted in various ways. Some taxa (such as *G. koenianus*) exist in populations which are naturally small in contrast to *Galanthus elewesii*. Some species populations are small in relation to their original population before exploitation or habitat loss. Some species populations are small but intrinsically robust. It is not clear that the definition captures the element of vulnerability that typifies some 'small' populations. It may be useful to offer additional guidance as to what is meant by small, for example "a small wild population is one in which any further reduction in abundance may significantly affect the survival of the species". **NL SA Comment:** This criterion is applicable to the species if you explain the numbers of the population(s) in relation to the level of exploitation if you specify the population(s) in numbers in relation to the harvest level. But a population of 1million plants of this species may also be called small, compared to other populations of a billion plants. Even a population of a billion plants may be called small of the harvest is more than the reproduction potential of this particular species.
A)(i) an observed, inferred or projected decline in the number of individuals or the area and quality of habitat; or	**Background information:** Continuing land use change and over-harvesting in the mid 1980s have significantly reduced some populations of *G. elwesii*. Recent field surveys suggest that some of the over-harvested populations are recovering due to present management of the resource. *However, precise estimates of the extent of decline from historical levels is impossible because of lack of knowledge about the species distribution and population size.* **Criterion assessment:** This criterion is applicable. **NL SA Comment:** This criterion is applicable, but you need to define how far you go back in history and also what level of decline is relevant in relation to reproduction capacity.
A)(ii) each sub-population being very small; or	What were/are the estimated sizes of the subpopulation(s)? Please include units of measurement. **Background information:** Sub-population sizes vary from just a few individuals to millions of individuals. **Criterion assessment:** This is a good and applicable criterion for this species, because there is the clear outcome that each sub-population are not very small. The relevant expert would need to decide what numbers are appropriate for the taxon reviewed. **NL SA Comment:** However, you could put the case that sub-population of 10 million bulbs over a few square kilometres can be seen as small if all harvesting were to be from this population.
A)(iii) a majority of individuals, during one or more life-history phases, being concentrated in one sub-population; or	**Criterion assessment:** Not applicable to *G. elwesii*.

A)(iv) large short-term fluctuations in the number of individuals appropriate to measuring population size for the species concerned;	If the population was/is characterized by large short-term fluctuations in the numbers of individuals, what was/is the average magnitude in orders of magnitude? What was/is the average period of fluctuation in years? **Criterion assessment:** Not applicable to *G. elwesii* or to most plant species.
A)(v) a high vulnerability due to the species' biology or behaviour (including migration).	**Background information:** *G. elwesii* takes 6 years to grow from seed to reproductive maturity and 2-3 years from bulb which may be interpreted as having a slow growth rate in certain contexts. Other *Galanthus* taxa are vulnerable due to specialised niche requirements, a high degree of endemism and fragmentation and habitat loss. **Criterion assessment:** Does not display a high level of vulnerability. This is a good criterion for this species. When you apply it the result is a clear negative, the species biology is such that it has not got a high vulnerability.
B) The wild population has a restricted area of distribution and is characterized by at least one of the following (see definitions below):	What was/is the estimated area of distribution? If listing on the basis of one or more sub-populations, what were/are the estimated areas of distribution of the subpopulation(s)? Please include units of measurement? **Background information:** Although the general distribution of *G. elwesii* is known, precise estimates of its distribution have not been made and are not possible with any accuracy at this time. Such estimates would be much easier for more restricted species. For example, *Galanthus peshmenii* certainly has a restricted area of distribution that is less than 10,000km^2. **Criterion assessment:** Yes, this is a good and applicable criterion. When you apply it the outcome is a clear "no restricted area of distribution". Under what circumstances should a population be defined as having a restricted area of distribution in the context of CITES? For most plant species under consideration there will be limited information to base an estimate of area of distribution.
B)(i) fragmentation or occurrence at very few locations; or	**Background information:** This is not the case for *G. elwesii* but is the case for other *Galanthus* species such as *G. koenianus*. **Criterion assessment:** Yes, this is a good and applicable criterion. When you apply it the outcome is that the species distribution is not fragmented or limited to a few locations. Here the definition of fragmentation gives guidance of when a taxon distribution is considered fragmented "which increases the probability that these small sub-populations will become extinct". Similar language in the definitions relating to criteria Ai, Aii and B would help guide their application.
B)(ii) large fluctuations in the area of distribution or the number of sub-populations; or	**Criterion assessment:** Not applicable to *G. elwesii* or plants generally.
B)(iii) a high vulnerability due to the species' biology or behaviour (including migration); or	**Background information:** *G. elwesii* takes 6 years to grow from seed to reproductive maturity and 2-3 years from bulb which may be interpreted as having a slow growth rate in certain contexts. Other *Galanthus* taxa are vulnerable due to specialised niche requirements, a high degree of endemism and fragmentation and habitat loss. **Criterion assessment:** This is a good criterion for this species. When you apply it the outcome is a clear no, the species biology is such that it has not a high vulnerability.

B)(iv) an observed, inferred or projected decrease in any one of the following:	B(iv) Remark: There is not sufficient data for *G. elwesii* to answer any of the below sub-criteria with confidence.
• the area of distribution; or	**Background information:** There has been a historical decrease in the species area of distribution. Exact estimates are not possible but some areas are believed to be recovering. **Criterion assessment:** Yes this is a good and applicable criterion if you have the data or confidence to infer.
• the area of habitat; or	**Background information:** The area of habitat of this species has declined from its historical extent. However, for other *Galanthus* taxa there has been an even greater decrease in the area of habitat available. **Criterion assessment:** Yes this is a good and applicable criterion. However habitat decline is quite a catch all.
• the number of sub-populations; or	**Background information:** The number of sub-populations has decreased from historical levels. **Criterion assessment:** Yes this criterion works but requires careful consideration. This criterion needs to be considered in relation to the next criterion, the sizes of sub-populations. When the number of sub-populations has increased as a result of fragmentation, and the sizes of the sub-populations have declined, the outcome is a overall decrease and not an increase. However, this is covered by the next sub-criterion (e.g. the 'number of individuals' sub criterion would cover such a scenario)
• the number of individuals; or	**Background information:** The number of individuals has decreased from historical levels. **Criterion assessment:** Yes this is a good and applicable criterion.
• the quality of habitat; or	**Background information:** Unknown for *G. elwesii*. **Criterion assessment:** Yes this is a good and applicable criterion.
• the recruitment.	**Background information:** There is no evidence to indicate a decrease in recruitment. **Criterion assessment:** Yes this is a good and applicable criterion **NL SA Comment:** For this species the pattern and method of harvesting may increase the recruitment. Compare harvest of the species 15 years ago (small bulbs thrown away ex situ), 10 years ago (small bulbs replanted ex situ) and now (small bulbs replanted in situ).

C) **A marked decline in population size in the wild, which has been either** (see definitions below):	Historical extent of decline - To what extent has the population or the area of distribution (please specify which) declined since historical times (i.e., going back 100 years or more if known; else based on whatever information is available)? (Ex. The ___ has declined down to ___% of the historical levels of ___ years ago.) Recent rate of decline - Characterize the recent (10-20 year) trends in population size or area of distribution (please specify which). **Background information:** Generally *G. elwesii* has shown a historical decline in population size in the wild, but more precise estimates are not possible. This is also true for other *Galanthus* species for which only very recent population data exists. **Criterion assessment:** Yes this is a good and applicable criterion. One generation for *G. elwesii* is taken to be 6 years. A marked decline (>50%) is not inferred for this species.
C)(i) observed as ongoing or as having occurred in the past (but with a potential to resume); or	**Background information:** Detailed observations of the Turkish populations started in the early 1980s and there is little information of population sizes before that time. The wild population size has shown a decline from historical but recent evidence suggests that some populations are recovering. **Criterion assessment:** This seems a good criterion but for plants this is difficult to assess.
C)(ii) inferred or projected on the basis of any one of the following:	**C) (ii)**
• a decrease in area of habitat; or	**Background information:** Cannot be inferred or projected. **Criterion assessment:** Yes this is a good and applicable criterion.
• a decrease in quality of habitat; or	**Background information:** Cannot be inferred or projected. **Criterion assessment:** Yes this is a good and applicable criterion.
• levels or pattern of exploitation; or	**Background information:** A decline could be inferred from the harvesting trends in the early to mid 1980s. **Criterion assessment:** Yes this is a good and applicable criterion. **NL SA Comment:** Yes this is a good and applicable criterion. For this species the pattern and method of harvesting may increase the recruitment. Compare harvest of the species 15 years ago (small bulbs thrown away ex situ), 10 years ago (small bulbs replanted ex situ) and now (small bulbs replanted in situ).
• threats from extrinsic human-induced factors such as competition/predation by introduced species or the effects of hybridization, toxins and pollutants; or	**Criterion assessment:** Unknown / not applicable to *G. elwesii* or to most plant species.

• a decreasing recruitment	**Background information:** Not likely to apply to *G. elwesii*. **Criterion assessment:** Yes this is a good criterion. **NL SA Comment:** For this species the pattern and method of harvesting may increase the recruitment. Compare harvest of the species 15 years ago (small bulbs thrown away ex situ), 10 years ago (small bulbs replanted ex situ) and now (small bulbs replanted in situ).
D) If not included in Appendix I, is likely to satisfy one or more of criteria A-C within 5 years?	**Criterion assessment:** Yes this is a good and applicable criterion. When you apply it the outcome is a clear "No." However there does seem to be an inconsistency with regard to the time frame when you compare with Criterion A of Appendix II.

For criteria **A)(v)** and **B)(iii)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity		species associations such as symbiosis and other forms of co-dependency
	slow growth rate		fragmentation and habitat loss
	high age at first maturity		reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure		high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
	specialized niche requirements (e.g. diet and habitat)		selectivity of removals (that may compromise recruitment)
	Other (please specify		

Galanthus elwesii **Criterion**	**Comments from reviewer on applicability of criteria for listing on Appendix II**
Trade Criterion **Is or may the species be affected by trade?**	**Criterion assessment**: Yes, this is a good and applicable criterion. See comments given for Appendix I criterion.
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.	**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 which are in large volume trade which 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 which 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.
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:	
B)(i) Exceeding, over an extended period, the level that can be continued to perpetuity.	**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.
B)(ii) Reducing it to a population level at which its survival would be threatened by other influences.	**Background information:** Unlikely. Only in extreme harvesting circumstances. **Criterion assessment:** Yes this is a good and applicable criterion.

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.**	**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.
D)	**There are compelling reasons, other than those given in C to ensure that effective control of trade in currently listed species is achieved.**	**Criterion assessment:** Not applicable to *G. elwesii*.

For criteria **A)** and **B)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity		species associations such as symbiosis and other forms of co-dependency
	slow growth rate		fragmentation and habitat loss
	high age at first maturity		reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure		high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
	specialized niche requirements (e.g. diet and habitat)		selectivity of removals (that may compromise recruitment)
	Other (please specify		

Panax quinquefolius

American ginseng

American ginseng is a slow-growing, long-lived (50 plus years) herbaceous perennial of the Araliaceae family (Lewis and Zenger 1982). The species is endemic to Eastern North America, occurring in southern Canada (Ontario and Quebec) west to South Dakota and Oklahoma and south to Georgia (Small and Catling 1999). American ginseng is a species of stable habitats, such as the understory of mid-successional to late-successional deciduous forests (Charron and Gagnon 1991).

Below ground, ginseng forms a thick taproot, a special underground stem known as a vertical rhizome sits on top of the main root and sends up the above-ground stem each year. The rhizome is characterized by large scars that form as a result of the annual abscission or accidental loss of the single subterminal aerial stem. These annual scars are well-marked on the rhizome and can be counted to determine the age of the plant (Lewis and Zenger 1982). Growth rate varies among individuals, so plants with the same number of leaves and leaflets may be close but not identical in age (Anderson 2002).

The primary cause of decline for American ginseng in the wild is exploitation by harvesters in response to consumer demand. American ginseng was listed in Appendix II of CITES in 1975. The species is designated as "Endangered" in Canada; the export of wild-harvested ginseng roots is prohibited by law (COSEWIC 2001). In the United States only wild American ginseng roots of 5 years of age or older may be exported.

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Comments from reviewers on applicability of criteria for listing on Appendix I

Panax quinquefolius, CRITERION	**Comments from reviewers on applicability of criteria for listing on Appendix I**
Trade Criterion **Is or may the species be affected by trade?**	**The criterion applies to this species.** **Suggested change: Include the word "international" before the word "trade"** Yes, *Panax quinquefolius*, 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 the USA.
A) The wild population is small, and is characterized by at least one of the following (see definitions below):	What was/is the estimated size of the population? Please include units of measurement. **The criterion applies to species.** **However, the definition of "population size" recommends that the terms "total" and "effective" be used to describe the population of the taxon.** These two terms may not be applicable to most plant taxa, or very difficult to determine. The sub-populations in the USA, the core range of the species, are estimated to contain a million to a billion individuals, and therefore, the USA wild population is not considered small. Due to the wide distribution of this species and diverse land ownership (Federal, State, private, etc.) in the USA, census information is not available. Census data for the sub-populations in Canada are known (ginseng only occurs in the wild in the provinces of Ontario and Quebec), and the wild population in Canada is considered small. However, the census data of the Canadian sub-populations, at the northern edge of the species' range, cannot be extrapolated to estimate sizes of sub-populations in the USA.
A(i) an observed, inferred or projected decline in the number of individuals or the area and quality of habitat; or	**Sub-criterion applies to species.** Definitions and examples of the terms "inferred and "projected" should be included. A decline in the number of individuals in the USA has been observed during the past 10-20 years. The quality of habitat has also declined in certain portions of the species' range in the past 10 years. Ontario, Canada: 5959 total plants counted as of 1998 in 31 sub-populations. Half of these have 65 or fewer plants. 13 have 25 or fewer plants. There are 65 records total for Ontario: 31 known to be extant; 11 extirpated; and 23 possibly extant. Quebec, Canada: 74 sub-populations have been reported: 49 known to be extant; 10 extirpated; 15 possibly extant. 40 sub-populations studied in detail. 27 of these have less than 172 plants. Only 2 have more than 500 plants.
A(ii) each sub-population being very small; or	What were/are the estimated sizes of the subpopulation(s)? Please include units of measurement. **Sub-criterion applies to species**. However, the definition for a small sub- population may not be applicable to most plant taxa. In the USA, sub-populations are small and widely scattered. See A(ii) for sub-populations in Canada.

A)(iii) a majority of individuals, during one or more life-history phases, being concentrated in one sub-population; or	**Sub-criterion applies to species in only parts of its range** (Canada), and not throughout its range. The sub-criterion may not be applicable to most plant taxa, and taxa across political boundaries (i.e., over all range countries). The sub-criterion does not apply to the species in the USA where the largest amount of sub-populations occur. However, it does apply to sub-populations in Canada, where almost 50% of the total number of plants in Quebec are contained in only 3 sub-populations, and 60.5% of the total number of plants in Ontario are in only 1 sub-population.
A)(iv) large short-term fluctuations in the number of individuals appropriate to measuring population size for the species concerned;	If the population was/is characterized by large short-term fluctuations in the numbers of individuals, what was/is the average magnitude in orders of magnitude? What was/is the average period of fluctuation in years? **The sub-criterion does not apply to species.** NOTE: fluctuations should be hyperlinked to the definition in the guidelines. This sub-criterion is not applicable to American ginseng and other long-lived perennial plant taxa, and may have limited applicability for annual plant species.
A)(v) a high vulnerability due to the species' biology or behaviour (including migration).	**Sub-criterion applies to species.** With respect to vulnerability factors, slow growth rate needs clarification. Does it refer to the population growth rate or actual rate of growth of the plant itself? Reproduction is by seed only, which require an average of 20 months to overcome dormancy before germination can occur. Plants do not begin to produce seed until 4-5 years of age in USA, and 5-8 years in Canada. Seed dispersal is passive (seeds drop next to parent plant), and seed predation is high. No long-term seed bank is established. Seedlings of the species have a high mortality rate.
B) The wild population has a restricted area of distribution and is characterized by at least one of the following (see definitions below):	What was/is the estimated area of distribution? If listing on the basis of one or more sub-populations, what were/are the estimated areas of distribution of the subpopulation(s)? Please include units of measurement? **Criterion does not apply to this species**. The definition for area of distribution should not include any unit of measure (i.e., 10,000 km^2), as it needs to be applicable for a wide range of taxa. The species' area of distribution is considered widespread, occurring in deciduous forest in eastern North America.
B)(i) fragmentation or occurrence at very few locations; or	**Sub-criterion applies to species.** Fragmentation definition needs to include language applicable to plant taxa with respect to the term 'isolated sub-populations'. We suggest 'isolated sub-populations that prevent or limit the transfer of genetic material between individuals.' In the USA and Canada individuals are widely distributed in small to very small sub-populations throughout the species' range. Majority of individuals in Canada are found in very small sub-populations.Ontario: 24 of 31 extant sub-populations have <172 plants. 21 have ≤65 plants. 13 have ≤25 plants. Quebec: 27 of 49 extant sub-populations have <172 plants.
B)(ii) large fluctuations in the area of distribution or the number of sub-populations; or	**Sub-criterion does not apply to this species**. The sub-criterion may not be applicable to most long-lived perennial plant taxa, and may have limited applicability for annual plant species. NOTE: fluctuations should be hyperlinked to the definition in the guidelines.

B)(iii) a high vulnerability due to the species' biology or behaviour (including migration); or	**Sub-criterion applies to species.** With respect to vulnerability factors, slow growth rate needs clarification. Does it refer to the population growth rate or actual rate of growth of the plant itself? Reproduction is by seed only, which require an average of 20 months to overcome dormancy before germination can occur. Plants do not begin to produce seed until 4-5 years of age in USA, and 5-8 years in Canada. Seed dispersal is passive (seeds drop next to parent plant), and seed predation is high. No long-term seed bank is established. Seedlings of the species have a high mortality rate.
B)(iv) an observed, inferred or projected decrease in any one of the following:	**Definitions and examples of the terms "inferred" and "projected" should be included.**
• the area of distribution; or	**Sub-criterion applies to species.** See B(ii) for USA. Canada: Observed based on lost occurrences: Ontario: 11 extirpated sub-populations Quebec: 10 extirpated sub-populations Projected based on projected loss of occurrences: Ontario: 24 sub-populations not viable Quebec: 27 sub-populations not viable
• the area of habitat; or	**Sub-criterion applies to species.** Need to consider the habitat of sub-populations across political boundaries (i.e., range countries) Observed: In the USA, the species occurs in mid-successional to late-successional deciduous eastern forests. The amount of potential habitat that could be occupied by American ginseng has increased during the last 100 years. In Canada, the actual amount of habitat has decreased. For example, in Quebec, 5 of the 10 sub-populations were extirpated as a result of habitat loss/degradation, and in Ontario, 4 sub-populations declined as a result of habitat loss/degradation. Inferred: In Canada, 16 sub-populations potentially threatened (likely the cause of decline) by logging; 4 potentially threatened by development, and 3 potentially threatened by habitat alteration.
• the number of sub-populations; or	**Sub-criterion applies to species.** The number of sub-populations in the USA are unknown, but are believed to have declined. See B(i) for Canada's data.
• the number of individuals; or	**Sub-criterion applies to species.** See A(i) above.

• the quality of habitat; or	**Sub-criterion applies to species.** However, quality of habitat needs to be defined. We consider that presence or absence of anthropogenic disturbances indicates the quality of habitat (the more disturbances, the poorer the habitat quality). Based on our interpretation of the sub-criterion, the quality of habitat in the USA has declined in the last 25 years due to logging, mining, urban development, invasive species, air pollution, and seasonal drought conditions. In Canada - Observed: 1 sub-population threatened by recreation and 3 by habitat alteration. Inferred: 20 sub-populations potentially threatened by recreation and 2 sub-populations potentially threatened by habitat degradation.
• the recruitment.	**Sub-criterion applies to species.** The increases in deer have increased herbivory of individuals, which reduces seed production. Harvest of individuals before fruit/seeds are mature and seasonal drought conditions has also reduced recruitment.
C) A marked decline in population size in the wild, which has been either (see definitions below):	Historical extent of decline - To what extent has the population or the area of distribution (please specify which) declined since historical times (i.e., going back 100 years or more if known; else based on whatever information is available)? (Ex. The ___ has declined down to ____% of the historical levels of ___ years ago.) Recent rate of decline - Characterize the recent (10-20 year) trends in population size or area of distribution (please specify which). **Criterion applies to species.** The population size of this species has decreased in the last 50 years. Recent rate of decline in population size: Canada For 15 sub-populations for which there are data: 70.8% average decline over 10 years (range is 19% to 100% decline). If total number of plants used: 5552 to 4525 plants = 18% decline in 10 years.
C)(i) observed as ongoing or as having occurred in the past (but with a potential to resume); or	**Sub-criterion applies to species**. Declines in sub-population sizes have been observed in the USA and Canada as having occurred in the past with a potential to resume.
C)(ii) inferred or projected on the basis of any one of the following:	
• a decrease in area of habitat; or	
• a decrease in quality of habitat; or	

• levels or pattern of exploitation; or	
• threats from extrinsic human-induced factors such as competition/predation by introduced species or the effects of hybridization, toxins and pollutants; or	**Sub-criterion applies to species.** Suggested change: drop "human-induced" from the text. Non-anthropogenic factors such as parasitism, disease, etc. can reduce a population to a point where it cannot withstand harvest for commercial international trade. In the USA, known threats are logging, mining, urban development, and illegal poaching of specimens. The inferred or projected threats are invasive species, air pollution and air quality. In Canada, threats have been identified at each of 82 sub-populations. Actual threats (cause of decline) include harvest at 15 sub-populations, logging at 6, and recreation at 1. Potential threats (likely causes of decline) include harvest at 28 sub-populations, recreation at 20, habitat degradation/alteration at 5, and development at 9.
• a decreasing recruitment	**Sub-criterion applies to species.** Sub-populations have probably experienced a loss of recruitment due to harvest of individuals before seed are mature and herbivory.
D) If not included in Appendix I, is likely to satisfy one or more of criteria A-C within 5 years?	

For criteria **A)(v)** and **B)(iii)**, please check which if any of the vulnerability factors listed below apply:

X	low fecundity		species associations such as symbiosis and other forms of co-dependency
X	slow growth rate	**X**	fragmentation and habitat loss
X	high age at first maturity	**X**	reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure	**X**	high degree of endemism
	extensive migratory behaviour		threats from disease
X	strong aggregating behaviour (e.g., schooling **highly clumped)** **Highly clumped needs to be added to make this factor applicable to plant taxa.**	**X**	threats from invasive species
X	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
	specialized niche requirements (e.g. diet **or** ~~and~~ habitat) **'Or' instead of 'and' needs to be used to make this factor applicable to plant taxa**	**X**	selectivity of removals (that may compromise recruitment) **Selectivity of removals is vague. First, the word harvest should be used instead of removals. Second, the phrase in parentheses should be expanded and incorporated so that the whole factor reads: Harvest of individuals or parts of individuals that may compromise recruitment either sexually or asexually.**
X	Other (please specify): **deer herbivory, seasonal droughts, low recruitment and regeneration**		

Panax quinquefolius, Criterion	Comments from reviewer on applicability of criteria for listing on Appendix II
Trade Criterion **Is or may the species be affected by trade?**	**Criterion applies to species.** Suggested change: Include the word "international" before the word "trade" Yes, *Panax quinquefolius*, 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 the USA.
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.	**Criterion applies to species**. NOTE: near future needs to be hyperlinked to the definition in the guidelines. Regulation of trade is necessary.
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:	**Criterion applies to species.** "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)(i) Exceeding, over an extended period, the level that can be continued to perpetuity.	**Sub-criterion applies to species.** However, this is very difficult if not impossible to determine for most plant taxa.

B)(ii)	Reducing it to a population level at which its survival would be threatened by other influences.	**Sub-criterion applies to species.** However, this is very difficult if not impossible to determine for most plant taxa.
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.**

For criteria **A)** and **B)**, please check which if any of the vulnerability factors listed below apply:
The factors only need to be checked for Criteria B. They do not need to be checked again for Criteria A) since these factors are already included in the Appendix I criteria which need to be reviewed in order to assess Criteria A.

X	low fecundity		species associations such as symbiosis and other forms of co-dependency
X	slow growth rate	**X**	fragmentation and habitat loss
X	high age at first maturity	**X**	reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure	**X**	high degree of endemism
	extensive migratory behaviour		threats from disease
X	strong aggregating behaviour (e.g., schooling **highly clumped)** **Highly clumped needs to be added to make this factor applicable to plant taxa.**	**X**	threats from invasive species
X	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
	specialized niche requirements (e.g. diet **or** ~~and~~ habitat) **'Or' instead of 'and' needs to be used to make this factor applicable to plant taxa**	**X**	selectivity of removals (that may compromise recruitment) **Selectivity of removals is vague. First, the word harvest should be used instead of removals. Second, the phrase in parentheses should be expanded and incorporated so that the whole factor reads: Harvest of individuals or parts of individuals that may compromise recruitment either sexually or asexually.**
X	Other (please specify): **deer herbivory, seasonal droughts, low recruitment and regeneration**		

Tillandsia xerographica **CRITERION**	**Reviewers:** Chris Schürmann, Scientific Authority of the Netherlands. Dr.Ir. Jan de Koning, Hortus Botanicus of Leiden University, Scientific Authority of the Netherlands. Dr. Eric Gouda, Utrecht University Botanical Gardens, the Netherlands. Ass.Prof.Dr. Michael Kiehn, Institute of Botany, University of Vienna, Scientific Authority of Austria. Prof.Dr. Walter Till, Institute of Botany, University of Vienna, Austria. Dr. Otoniel Chacón, Ingeniero Agrónomo, Jefe Sección de Flora, Departamento de Vida Silvestre, Consejo Nacional de Areas Protegidas – CONAP- Dr. Julio Cruz Corzo, Ingeniero Agrónomo, Técnico de la Sección de Flora, Departamento de Vida Silvestre, Consejo Nacional de Areas Protegidas –CONAP- Mygdalia Luz García Reyes, Bióloga, Autoridad Científica CITES, Oficina CITES Guatemala, Consejo Nacional de Áreas Protegidas –CONAP- Dr. Mario Véliz, Ingeniero Agrónomo, Director del Herbario de la Escuela de Biología, Facultad de Ciencias Químicas y Farmacia, Universidad de San Carlos de Guatemala. **Contact person: Chris Schürmann** CITES Scientific Authority of the Netherlands National Museum of Natural History Postbus 9517, 2300 RA Leiden The Netherlands **Tel:** + 31 71 568 7591 **Fax:** + 31 71 568 7666 **e-mail:** c.l.schurmann@minlnv.nl **Comments from reviewers on applicability of criteria for listing on Appendix I**
Trade Criterion **Is or may the species be affected by trade?**	**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: Si existe comercio de la especie, pero todos los especímenes comercializados provienen de viveros registrados legalmente en la Autoridad Administrativa, en estos viveros las plantas son reproducidas por varias metodologías, por lo que se supone que el comercio no es perjudicial para la supervivencia de la especie. Desde 1994 no se autoriza la colecta comercial de plantas silvestres ni de esta especie, ni de ninguna otra especie de plantas del género *Tillandsia* y aunque se sabe que existe un mercado ilegal esto no se ha podido comprobar fehacientemente.

A) The wild population is small, and is characterized by at least one of the following (see definitions below):	What was/is the estimated size of the population? Please include units of measurement. **This is a good and applicable criterion**, but this is often difficult to assess for plants in general, and more recent population data (based on fieldwork) are needed. Reviewer Gouda, NL: From the information I have, the population is nearly vanished at least in Guatemala (specialist observations are wanted). Reviewers GT: DNW Actualmente la población es pequeña.
A)(i) an observed, inferred or projected decline in the number of individuals or the area and quality of habitat; or	**This is a good and applicable criterion**, but very much dependant on available knowledge of the population development (for observed) and trade developments (for inferred or projected). Reviewers GT: Existe disminución deducida del número de individuos y de la superficie y calidad del habitat.
A)(ii) each sub-population being very small; or	What were/are the estimated sizes of the subpopulation(s)? Please include units of measurement. Quantification of number of subpopulations and their size(s) needed. If all subpopulations in country A are small and in country B are large, a listing of the species for country A alone might be considered. Reviewer Gouda, NL: Most of them probably critical..
A)(iii) a majority of individuals, during one or more life-history phases, being concentrated in one sub-population; or	**Seems not applicable** or usable for this species (and most plants in general).
A)(iv) large short-term fluctuations in the number of individuals appropriate to measuring population size for the species concerned;	If the population was/is characterized by large short-term fluctuations in the numbers of individuals, what was/is the average magnitude in orders of magnitude? What was/is the average period of fluctuation in years? **Seems a good criterion**, but only in relation to the life-cycle of the species (long life cycle of 15-20 years, slow growing, late maturity, no clustering). Reviewer Till, AT: Does not apply for this species. This criterion is much more appropriate for animals, does not work for many plant groups. Reviewer Gouda, NL: Because of a long life cycle (15-20 years) large fluctuations are not suspected. Reviewers GT: NDW.

A)(v) a high vulnerability due to the species' biology or behaviour (including migration).	**Good criterion in relation to the life-cycle of the species.** Reviewer Till, AT: This criterion is much more appropriate for animals, does not work for many plant groups. Reviewer Kiehn, AT: high vulnerability due to the species´ biology is difficult to be assessed, even when potentially assumable for, e.g., specialized epiphytes. Reviewer Gouda, NL: Individuals will take at least 15 years before flowering and will live for a very long time, producing seeds probably once in 2 or more years. The individuals are not growing in clusters, so (normally) producing one shoot after flowering. Reviewers GT: Es altamente vulnerable por ser epífita y depender de un sustrato arbóreo o arbustivo con características específicas para su supervivencia..
B) **The wild population has a restricted area of distribution and is characterized by at least one of the following** (see definitions below):	What was/is the estimated area of distribution? If listing on the basis of one or more sub-populations, what were/are the estimated areas of distribution of the subpopulation(s)? Please include units of measurement? **This is a good and applicable criterion.** Reviewer Gouda, NL: Probably some remote populations: S.-Mexico: Oaxaca and probably Chiapas? Guatemala: Progresso, Zacapa; Salvador: Sonsonate, Libertad.
B)(i) fragmentation or occurrence at very few locations; or	**This is a good and applicable criterion.**.
B)(ii) large fluctuations in the area of distribution or the number of sub-populations; or	**This is a good and applicable criterion.** But seems less useful for many plant species in general. Reviewer Till, AT: This criterion is much more appropriate for animals, does not work for many plant groups. Reviewer Gouda, NL: No short term natural fluctuations.
B)(iii) a high vulnerability due to the species' biology or behaviour (including migration); or	**Seems applicable**, but for different reasons which need to be identified: Long life cycle; Easy to spot and to collect; Easy accessible (not in remote areas) Reviewer Till, AT: This criterion is much more appropriate for animals, does not work for many plant groups. Reviewer Kiehn, AT: high vulnerability due to the species´ biology is difficult to be assessed, even when potentially assumable for, e.g., specialized epiphytes. Reviewer Gouda, NL: Epiphytical growing on trees in wood-land (remote trees), easy to spot and collect and very vulnerable because of the long life cycle.
B)(iv) an observed, inferred or projected decrease in any one of the following:	
• the area of distribution; or	**Seems applicable**. the factor of accessibility of the area for collectors seems relevant. Reviewer Gouda, NL: Decrease of at least the easy reachable areas in the neighborhood of roads and villages. Many populations totally vanished.

• the area of habitat; or	**This is a good and applicable criterion.**
• the number of sub-populations; or	**This is a good and applicable criterion.** Reviewer Gouda, NL: Large decrease of sub-populations is known, but not personally observed.
• the number of individuals; or	**This is a good and applicable criterion.**
• the quality of habitat; or	**This is a good and applicable criterion.**
• the recruitment.	**This is a good and applicable criterion.**
C) A marked decline in population size in the wild, which has been either (see definitions below):	Historical extent of decline - To what extent has the population or the area of distribution (please specify which) declined since historical times (i.e., going back 100 years or more if known; else based on whatever information is available)? (Ex. The ___ has declined down to ____% of the historical levels of ___ years ago.) Recent rate of decline - Characterize the recent (10-20 year) trends in population size or area of distribution (please specify which).
C)(i) observed as ongoing or as having occurred in the past (but with a potential to resume); or	**This is a good and applicable criterion.** Reviewer Gouda, NL: Many areas of (sub-) populations are cleared of all the individuals over the past 20 years, harvesting all plants with economical value. Reviewers GT: Ha habido una disminución reciente de la población, principalmente durante los últimos 10 años.
C)(ii) inferred or projected on the basis of any one of the following:	
• a decrease in area of habitat; or	**This is a good and applicable criterion.** Reviewers GT: Ha habido diminución del área de distribución.
• a decrease in quality of habitat; or	**This is a good and applicable criterion.** Reviewers GT: Ha habido disminución en la calidad del hábitat.

• levels or pattern of exploitation; or	**This is a good and applicable criterion.** Here is seems relevant how easy plants of this species can be found, collected, transported and stored. Reviewer Gouda, NL: Extensive harvesting program. Reviewers GT: Explotación ilícita principalmente durante los últimos 10 años.
• threats from extrinsic human-induced factors such as competition/predation by introduced species or the effects of hybridization, toxins and pollutants; or	**This is a good and applicable criterion.** Reviewers GT: Posiblemente por abuso de agroquímicos, principalmente herbicidas.
• a decreasing recruitment	**This is a good and applicable criterion.** Reviewers GT: DNW
D) If not included in Appendix I, is likely to satisfy one or more of criteria A-C within 5 years?	**This is a good and applicable criterion.**

For criteria **A)(v)** and **B)(iii)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity		species associations such as symbiosis and other forms of co-dependency
	slow growth rate		fragmentation and habitat loss
	high age at first maturity		reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure		high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
	specialized niche requirements (e.g. diet and habitat)		selectivity of removals (that may compromise recruitment)
	Other (please specify		

Tillandsia xerographica **Criterion**	**Comments from reviewer on applicability of criteria for listing on Appendix II**
Trade Criterion **Is or may the species be affected by trade?**	**This is a good and applicable criterion.** Reviewers GT: Si existe comercio de la especie, pero todos los especímenes comercializados provienen de viveros registrados legalmente en la Autoridad Administrativa, en estos viveros las plantas son reproducidas por varias metodologías, lo que supone que el comercio no es perjudicial para la supervivencia de la especie. Desde 1994 no se autoriza la colecta comercial de plantas silvestres ni de esta especie, ni de ninguna otra especie de plantas del género *Tillandsia* y aunque se sabe que existe un mercado ilegal para la especie esto no se ha podido comprobar fehacientemente.
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.	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: Es recomendable mantener una regulación especialmente estricta en el comercio de la especie a efecto de garantizar que lo que esta siendo comercializado sea realmente reproducido.
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:	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: Se deduce o prevee que la recolección ilegal del medio silvestre destinados al comercio tienen un impacto prejudicial sobre la especie, pero se carece de datos que comprueben la existencia de colecta ilegal.
B)(i) Exceeding, over an extended period, the level that can be continued to perpetuity.	**This is a good and applicable criterion.**
B)(ii) Reducing it to a population level at which its survival would be threatened by other influences.	**This is a good and applicable criterion.** Reviewers GT: Se sabe que la población de la especie está gravemente reducida en algunas de sus áreas de distribución, pero no existen datos si esto se debe a una colecta ilegal o a otros factores como el avance de la frontera agrícola y ganadera, los incendios forestales y el uso de leña (la mayor parte de la población de las áreas de distribución de la especies son personas campesinas muy pobres que utilizan leña para cocinar o para vender).

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.**	**This is a good and applicable criterion.** Reviewers GT: La especie esta incluida en el Apéndice II. En nuestro caso (de las autoridades en Guatemala), lo dificil es reconocer los especímenes reproducidos bajo los lineamientos de la Resol. Conf. 11.11 (por semilla) de los especímenes silvestres, los reproducidos por medio de reproducción asexual y los recuperados en los viveros.
D)	**There are compelling reasons, other than those given in C to ensure that effective control of trade in currently listed species is achieved.**	**This is a good and applicable criterion.** But can at the moment not reliably be answered for this species.

For criteria **A)** and **B)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity		species associations such as symbiosis and other forms of co-dependency
	slow growth rate		fragmentation and habitat loss
	high age at first maturity		reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure		high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
	specialized niche requirements (e.g. diet and habitat)		selectivity of removals (that may compromise recruitment)
	Other (please specify		

Strombocactus disciformis (De Candolle) Britton & Rose Disc cactus (English), Peyote (Spanish). **CRITERION**	**Reviewers:** Dra. Patricia Dávila Aranda.- Scientific Advisor of Mexico's Scientific Authority. Hesiquio Benítez Díaz.- Director of Liaison and International Affairs, CONABIO: Mexico's Scientific Authority CITES. Paola Mosig Reidl.- CONABIO. Jorge Alvarez Romero.- CONABIO. **Contact person:** Dra. Patricia Dávila Aranda FES Iztacala, UNAM Av. de los Barrios 1, Los Reyes Iztacala, Tlalnepantla; Estado de México; C.P. 54090 MÉXICO **Tel:** (52) 55- 5623-12-19 **Fax:** (52) 55- 5623-12-25 **e-mail:** pdavilaa@servidor.unam.mx **Comments from reviewers on applicability of criteria for listing on Appendix I**
Trade Criterion **Is or may the species be affected by trade?** **Proposal of amendments:** Is or may the species be affected by **international** trade?	**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.** **The criterion applies for the species, however we propose the following 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 the international trade to be reinitiated.**
A) The wild population is small, and is characterized by at least one of the following (see definitions below):	What was/is the estimated size of the **wild** population? Please include units of measurement. According to the guideline provided for small population, the species has a small population (less than 1000 individuals) and the answer would be yes, so the criterion applies for this species Nevertheless, we consider that a definition of small wild population is in fact missing and that absolute numbers should not be included in any case, because they can be misleading. We proposed a more practical and useful (less subjective) definition for **small population:** **A small wild population is one that has low availability of specimens for international trade.** This criterion should be based specifically on the wild population instead of just "population". Therefore, a definition of wild population is needed: Wild population.- **wild population refers to the total number of individuals of the species within its natural distribution area (as "species" is defined in article 1 of the convention and in this annex (to be considered in light of any decision arising from consideration of doc. 12.59).**

A)(i) an observed, inferred or projected decline in the number of individuals or the area and quality of habitat; or	Yes. There is not enough information available to recognize a decline in the number of individuals (based on previous data), however there is an evident habitat modification in the area that lead to a projected decline. **This sub-criterion applies for the species.**
A)(ii) each sub-population being very small; or	What were/are the estimated sizes of the subpopulation(s)? Please include units of measurement. Yes. According to the guideline provided for very small sub-population, the species has very small sub-populations (3) (597, 182 & 163 indiv.) And the answer would be yes, so the sub-criterion applies for this species. But again, even in this case when we have the data it is difficult or impossible to determine if it is small or not, and it can vary widely in the cacti family. For these reasons, we consider that a definition of very small sub-population is in fact missing and that absolute numbers should not be included in any case, because they can be misleading. In fact, we consider there is no way to give a practical and widely applicable definition of "very small sub-population" and consequently this sub-criterion should be deleted. On the other hand, if this criterion is related to the viability of sub-populations, an alternative criterion referred to this might be useful: **A)(ii) the size of each sub-population is such that it can be considered to be unviable in the future (justify).**
A)(iii) a majority of individuals, during one or more life-history phases, being concentrated in one sub-population; or	**This sub-criterion does not apply for this species and for most of the plants** or sessile species. Nevertheless, there can be the case that extrinsic factors, such as human exploitation, is affecting a particular vulnerable life-history phase of the population.
A)(iv) large short-term fluctuations in the number of individuals appropriate to measuring population size for the species concerned;	If the population was/is characterized by large short-term fluctuations in the numbers of individuals, what was/is the average magnitude in orders of magnitude? What was/is the average period of fluctuation in years? There is not available information that can be used to determine if a fluctuation in the number of individuals has occurred in this species. Mainly because we only have recent data. Again, we consider that absolute reference values should not be used in any case (such as 2 years), because they do not apply for many species and can be misleading. This depends on many factors such as the time generation length, which can be used instead or as a reference for this fluctuations.

A)(v) a high vulnerability due to the species' biology or behaviour (including migration). **Proposal of Alternative Sub-criterion:** A) (v) a high vulnerability due to intrinsic factors (i.e. biology and/or behavior; including migration) which increase the risk of extinction of the species. **Proposal of New Sub-Criterion:** A) (vi) a high vulnerability due to extrinsic factors (e.g. selectivity of removals, habitat loss and fragmentation) which increase the risk of extinction of the species.	Yes, the species can be considered vulnerable mainly because of its habitat high specificity. Besides, the species is characterized by a very low growth rate, a long life cycle and a low recruitment rate. **This sub-criterion applies to the species**, but we consider that minor modifications must be made to the wording of the sub-criterion and to the definition. Also, a new sub-criterion is needed, related specifically to extrinsic factors, so that a more clear and useful evaluation can be made. **Proposed modifications to vulnerability definition:** **Vulnerability.-** Vulnerability can be defined as the susceptibility to intrinsic or external ~~**effects**~~ **factors** which increase the risk of extinction. There are a number of taxon- or case-specific biological and other factors that may affect the extinction risk associated with a given percentage decline, small population size or restricted area of distribution. These can be, but are not limited to, aspects of any of the following: **INTRINSIC FACTORS:** - Life history (e.g., low fecundity, slow growth rate, high age at first maturity, long generation time) - Low absolute numbers or biomass or restricted area of distribution - Population structure (age/size structure, sex ratio) - Behavioural factors (e.g., social structure, migration, aggregating behaviour) - Density (for sessile or semi-sessile species) - Specialized niche requirements (e.g., diet, habitat) - Species associations such as symbiosis and other forms of co-dependency - ~~**Fragmentation and habitat loss**~~ - Reduced genetic diversity - Depensation (prone to continuing decline even in the absence of exploitation) - **A relatively high level of** endemism ~~**- Threats from disease or invasive species**~~ - Rapid environmental change (e.g., climate regime shifts) ~~**- Selectivity of removals (that may compromise recruitment)**~~ **EXTRINSIC FACTORS:** - Selectivity of removals (that may compromise recruitment) - Threats from exotic species (hybridization, disease transmission, depredation, etc.) - Habitat degradation (contamination, soil erosion, alteration by invasive species, etc.) - Habitat loss/destruction - Habitat fragmentation - Harsh environmental conditions In the case of cacti, seeds can be a vulnerable phase or stage in their life history that may be particularly affected by extrinsic factors, such as harsh environmental or climatic conditions and is one of the targets of human exploitation.

B) **The wild population has a restricted area of distribution and is characterized by at least one of the following** (see definitions below): **Proposal to add:** "If your answer is "yes", please define the level of restriction and justify why is it considered as a restricted distribution."	Yes. We consider that the species has a restricted area of distribution since it occupies only 0.01% of the country's total surface, and it is found in only three separate locations in only three states: Guanajuato, Hidalgo, and Querétaro. **The criterion applies to the species**. Nevertheless, we consider that absolute values (such as 10,00 km^2, proposed as a guideline) should not be included, because it is by nature a subjective criterion. Instead, it is desirable to make a **modification to the criterion by adding "if your answer is "yes", please define the level of restriction and justify why is it considered as a restricted distribution"** to make it more clear and useful for the person(s) involved in the evaluation process.
B)(i) fragmentation or occurrence at very few locations; or	Yes, the species naturally occurs in very few (and separate) locations (three). But, no significant fragmentation appears to occur. **The criterion applies to the species**. It could be useful to ask for justification when stating that the population is found in very few locations as this is again a very subjective criterion.
B)(ii) large fluctuations in the area of distribution or the number of sub-populations; or	It is not clear if the criterion refers to natural or induced fluctuations in the area of distribution. Besides, we consider that **this criterion is not applicable to most of the plant or animal species**, because variation in the area of distribution is either contracting or expanding, but not fluctuating, so it's not very useful for this purpose **and it would be better to eliminate this sub-criterion.**
B)(iii) a high vulnerability due to the species' biology or behaviour (including migration); or	Yes, the species can be considered vulnerable mainly because of its habitat high specificity. Besides, the species is characterized by a very low growth rate, a long life cycle and a low recruitment rate. **The criterion applies to the species.**
B)(iv) an observed, inferred or projected decrease in any one of the following: **Proposal to add:**(specify and justify):	
• the area of distribution; or	We don't have enough information to determine this. Nevertheless, it is possible that external factors, such as expansion of livestock and human settlements have reduced the original area of distribution. **The criterion applies to the species.**
• the area of habitat; or	Yes, we inferred that there has been a decrease in habitat availability. **The criterion applies to the species.**

• the number of sub-populations; or	The information available (recent) doesn't allow us to determine if there has been a decrease in the number of subpopulations. **The criterion applies to the species.**
• the number of individuals; or	The information available (recent) doesn't allow us to determine if there has been a decrease in the number of subpopulations. **The criterion applies to the species.**
• the quality of habitat; or	Yes, we inferred that there has been a decrease in the quality of habitat, because of the presence of introduced domestic animals (such as sheep) and human settlements. **The criterion applies to the species.**
• the recruitment.	Yes, the available information shows that there is a decreased abundance in the first size (recruitment) category and also that there are other biotic and abiotic factors that are related to a decreased recruitment in the population. **The criterion applies to the species.**
C) A marked decline in population size in the wild, which has been either (see definitions below):	Historical extent of decline - To what extent has the population or the area of distribution (please specify which) declined since historical times (i.e., going back 100 years or more if known; else based on whatever information is available)? (Ex. The ___ has declined down to ____% of the historical levels of ___ years ago.) Recent rate of decline - Characterize the recent (10-20 year) trends in population size or area of distribution (please specify which). The information available (recent) doesn't allow us to determine if there has been a decrease in the population size in the wild. **The criterion applies to the species.**
C)(i) observed as ongoing or as having occurred in the past (but with a potential to resume); or	The information available (recent) doesn't allow us to determine if there has been a decrease in the population size in the wild. **The criterion applies to the species.**
C)(ii) inferred or projected on the basis of any one of the following:	
• a decrease in area of habitat; or	Yes, it can be inferred a decrease in area of habitat because of the presence of domestic sheep and human settlements. **The criterion applies to the species.**

• a decrease in quality of habitat; or	Yes, it can be inferred a decrease in quality of habitat because of the presence of domestic sheep and human settlements. **The criterion applies to the species.**
• levels or pattern of exploitation; or	Yes. It is predicted that, because of its restricted distribution area (rarity of the species), there exists a potential market for the species. **The criterion applies to the species.**
• threats from extrinsic human-induced factors such as competition/predation by introduced species or the effects of hybridization, toxins and pollutants; or	Yes. There is presence of introduced herbivores (domestic sheep) and of human settlements near the locations where the species is found. **The criterion applies to the species.**
• a decreasing recruitment	Yes, the available information shows that there is a decreased abundance in the first size (recruitment) category and also that there are other biotic and abiotic factors that are related to a decreased recruitment in the population. **The criterion applies to the species.**
D) If not included in Appendix I, is likely to satisfy one or more of criteria A-C within 5 years?	**The criterion applies to the species.**

For criteria **A)(v)** and **B)(iii)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity		species associations such as symbiosis and other forms of co-dependency
X	slow growth rate	**X**	fragmentation and habitat loss
	high age at first maturity		reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure		high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)	**X**	threats from invasive species
X	low population density (for sessile or semi-sessile species)	**X**	threats from rapid environmental change (e.g. climate regime shifts)
X	specialized niche requirements (e.g. diet and habitat)		selectivity of removals (that may compromise recruitment)
X	Other (please specify): **long life cycle and low recruitment rate**		

Strombocactus disciformis Criterion	Comments from reviewer on applicability of criteria for listing on Appendix II
Trade Criterion **Is or may the species be affected by trade?** **(If the answer is "yes" explain)** **Proposal of amendments:** Is or may the species be affected by **international** trade?	**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.** **The criteria applies for the species, however we propose the following changes:** **This criteria should specify "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**.
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. **(EXPLAIN)**	No, so far it is not an evident problem but we infer that it can become so. **The criterion applies for the 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:	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.**
B)(i) Exceeding, over an extended period, the level that can be continued to perpetuity. **(EXPLAIN)**	Yes, because of its low population number. **The sub-criterion applies for the species.**

B)(ii) Reducing it to a population level at which its survival would be threatened by other influences. **(EXPLAIN)**	Yes, because of its low population number. **The sub-criterion applies for the species.**
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. **(SPECIFY)**	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.**
D) There are compelling reasons, other than those given in C to ensure that effective control of trade in currently listed species is achieved.	No **The criterion applies for the species.**

For criteria **A)** and **B)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity		species associations such as symbiosis and other forms of co-dependency
X	slow growth rate	**X**	fragmentation and habitat loss
	high age at first maturity		reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure		high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)	**X**	threats from invasive species
X	low population density (for sessile or semi-sessile species)	**X**	threats from rapid environmental change (e.g. climate regime shifts)
X	specialized niche requirements (e.g. diet and habitat)		selectivity of removals (that may compromise recruitment)
X	Other (please specify): **long life cycle and low recruitment rate**		

Turbinicarpus pseudomacrochele (Backeberg) Buxbaum & Backeberg Hairy-spined turbinicarpus (English); Biznaguita (Spanish). **CRITERION**	**Reviewers:** Dra. Patricia Dávila Aranda.- Scientific Advisor of Mexico's Scientific Authority. Hesiquio Benítez Díaz.- Director of Liaison and International Affairs, CONABIO: Mexico's Scientific Authority CITES. Paola Mosig Reidl.- CONABIO. Jorge Alvarez Romero.- CONABIO. **Contact person:** Dra. Patricia Dávila Aranda FES Iztacala, UNAM Av. de los Barrios 1, Los Reyes Iztacala, Tlalnepantla; Estado de México; C.P. 54090 MÉXICO **Tel:** (52) 55- 5623-12-19 **Fax:** (52) 55- 5623-12-25 **e-mail:** pdavilaa@servidor.unam.mx **Comments from reviewers on applicability of criteria for listing on Appendix I**
Trade Criterion **Is or may the species be affected by trade?** **(If the answer is "yes" explain)** **Proposal of amendments:** Is or may the species be affected by **international** trade?	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. **The criterion applies for the species, however we propose the following changes:** **This criterion should specify "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.**

A) The wild population is small, and is characterized by at least one of the following (see definitions below):	What was/is the estimated size of the **wild** population? Please include units of measurement. According to the guideline provided for small population, the species has a small population (less than 1000 individuals; and it is composed of only around 164 specimens) and the answer would be yes, so the criterion applies for this species. Nevertheless, we consider that a definition of small wild population is in fact missing and that absolute numbers should not be included in any case, because they can be misleading. We propose a more practical and useful (less subjective) definition for **small population:** **A small wild population is one that has low availability of specimens for international trade.** A definition of wild population is needed. This criterion should be based specifically on the wild population instead of just "population". Therefore, a definition of wild population is needed: **Wild population.-** wild population refers to the total number of individuals of the species within its natural distribution area (as "species" is defined in article 1 of the convention and in this annex (to be considered in light of any decision arising from consideration of doc. 12.59).
A)(i) an observed, inferred or projected decline in the number of individuals or the area and quality of habitat; or	Yes. There are data that suggest the population has decreased. The size/age structure has been modified, and only 2 out of 5 categories are well represented, while the number of individuals of the first size/age category (i.e., 0-10mm) is quite low. **The sub-criterion applies for the species.**
A)(ii) each sub-population being very small; or	What were/are the estimated sizes of the subpopulation(s)? Please include units of measurement. Yes. According to the guideline provided for very small sub-population, they are considered to be quite small (i.e., 19, 79 and 56 individuals per sub-population). But again, even in this case when we have the data it is difficult or impossible to determine if it is small or not, and it can vary widely in the cacti family. **The sub-criterion applies for the species, but…** Current definition of very small subpopulation is missing. Absolute numbers should not be included in any case, they can be misleading. We consider there is no way to give a practical definition of "very small sub-population" and consequently this sub-criterion should be deleted. On the other hand, if this criterion is related to the viability of sub-populations, an alternative criterion referred to this might be useful: **A)(ii) The size of each sub-population is such that it can be considered to be unviable in the future (justify).**

A)(iii) a majority of individuals, during one or more life-history phases, being concentrated in one sub-population; or	**This sub-criterion does not apply for this species and for most of the plants** or sessile species. Nevertheless, there can be the case that extrinsic factors, such as human exploitation, is affecting a particular vulnerable life-history phase of the population.
A)(iv) large short-term fluctuations in the number of individuals appropriate to measuring population size for the species concerned;	If the population was/is characterized by large short-term fluctuations in the numbers of individuals, what was/is the average magnitude in orders of magnitude? What was/is the average period of fluctuation in years? There is not enough information available for detecting fluctuations. **The sub-criterion applies for the species.** However, the definition of "short term" fluctuation should not refer to a 2 year period due to the wide differences in generational time, etc between species. Absolute numbers should not be included in any case, they can be misleading.

A)(v) a high vulnerability due to the species' biology or behaviour (including migration). **Proposal of Alternative Sub-criterion:** A) (v) a high vulnerability due to intrinsic factors (i.e. biology and/or behavior; including migration) which increase the risk of extinction of the species. **Proposal of New Sub-Criterion:** A (vi) a high vulnerability due to extrinsic factors (e.g. selectivity of removals, habitat loss and fragmentation) which increase the risk of extinction of the species.	Yes. This species has a slow growth rate, long life-cycles, specialized habitat requirements and low recruitment rates. **The sub-criterion applies for the species, but…** We consider that minor modifications must be made to the wording of the sub-criterion and to the definition. The definition of vulnerability should not include human induced effects such as fragmentation and habitat loss, threats from disease or invasive species and selectivity of removals (that may compromise recruitment); it should only include biological/intrinsic factors as it is stated in the sub-criterion. A new sub-criterion is needed, related specifically to extrinsic factors, so that a more clear and useful evaluation can be made. **Proposed modifications to vulnerability definition:** **Vulnerability.-** vulnerability can be defined as the susceptibility to intrinsic or external ~~**effects**~~ **factors** which increase the risk of extinction. There are a number of taxon- or case-specific biological and other factors that may affect the extinction risk associated with a given percentage decline, small population size or restricted area of distribution. These can be, but are not limited to, aspects of any of the following: **Intrinsic factors:** - life history (e.g., low fecundity, slow growth rate, high age at first maturity, long generation time) - low absolute numbers or biomass or restricted area of distribution - population structure (age/size structure, sex ratio) - behavioural factors (e.g., social structure, migration, aggregating behaviour) - density (for sessile or semi-sessile species) - specialized niche requirements (e.g., diet, habitat) - species associations such as symbiosis and other forms of co-dependency - ~~**fragmentation and habitat loss**~~ - reduced genetic diversity - depensation (prone to continuing decline even in the absence of exploitation) - **a relatively high level of** endemism ~~**- threats from disease or invasive species**~~ - rapid environmental change (e.g., climate regime shifts) ~~**- selectivity of removals (that may compromise recruitment)**~~ **Extrinsic factors:** - selectivity of removals (that may compromise recruitment) - threats from exotic species (hybridization, disease transmission, depredation, etc.) - habitat degradation (contamination, soil erosion, alteration by invasive species, etc.) - habitat loss/destruction - habitat fragmentation - harsh environmental conditions In the case of cacti, seeds can be a vulnerable phase or stage in their life history that may be particularly affected by extrinsic factors, such as harsh environmental or climatic conditions and is one of the targets of human exploitation.

B) The wild population has a restricted area of distribution and is characterized by at least one of the following (see definitions below): (If your answer is "yes", please define the level of restriction and justify why is it considered as a restricted distribution)	What was/is the estimated area of distribution? If listing on the basis of one or more sub-populations, what were/are the estimated areas of distribution of the subpopulation(s)? Please include units of measurement? The wild population is "restricted" to the States of Hidalgo and Querétaro. (what is considered to be "restricted"?) **The criterion applies for the species.** A definition for "restricted area" is missing. The figure of 10,000 km2 does not apply for all the different species. Absolute numbers should not be included in any case, they can be misleading.
B)(i) fragmentation or occurrence at very few locations; or	Yes. There is fragmentation; the localities where the plant is found are separated by several km. And they are found at different altitudes, therefore, the distribution is not continuous. However, the fragmentation is not human induced, it is due to the biological characteristics of the species. Regarding locations, the plant is only found at 3 locations, so we consider it to occur in "few locations" (up until how many are they considered to be few??). **The sub-criterion applies for the species.** The definition of fragmentation includes a figure of 500km^2, which is considered to be an appropriate guideline of what constitutes fragmentation. These might be too much for a species and insignificant for another. Absolute numbers should not be included in any case, they can be misleading. How many are considered to be "few locations"? It is very subjective..
B)(ii) large fluctuations in the area of distribution or the number of sub-populations; or	There is not enough information in order to observe fluctuations. **The sub-criterion does not apply for the species.** We consider that this does not occur in most of the species (although many face seasonal fluctuations), there is generally either a decrease or an increase in the area of distribution caused by several factors, but no "large fluctuations". As these criteria should apply in general to most species, we consider it could be deleted.
B)(iii) a high vulnerability due to the species' biology or behaviour (including migration); or	Yes. This species has a slow growth rate, long life-cycles, specialized habitat requirements and low recruitment rates. **The sub-criterion applies for the species.** The definition of vulnerability should not include human induced effects (only biological/intrinsic factors as it is stated in the sub-criterion) such as fragmentation and habitat loss, threats from disease or invasive species and selectivity of removals (that may compromise recruitment). (see comments on A(v).

B)(iv) an observed, inferred or projected decrease in any one of the following:	
• the area of distribution; or	There is not enough information available. **It applies for the species.**
• the area of habitat; or	It is inferred that some habitat has been lost due to modifications in it caused by ranching activities. **It applies for the species.**
• the number of sub-populations; or	There is not enough information available. **It applies for the species.**
• the number of individuals; or	There is not enough information available. **It applies for the species.**
• the quality of habitat; or	Yes, but not in a high proportion. There have been some modifications to the habitat caused by ranching activities. **It applies for the species.**
• the recruitment.	Yes. The number of individuals of the first size/age category is considerably low. **It applies for the species.**
C) A marked decline in population size in the wild, which has been either (see definitions below):	Historical extent of decline - To what extent has the population or the area of distribution (please specify which) declined since historical times (i.e., going back 100 years or more if known; else based on whatever information is available)? (Ex. The ___ has declined down to ____% of the historical levels of ___ years ago.) Recent rate of decline - Characterize the recent (10-20 year) trends in population size or area of distribution (please specify which). There is not enough information available to fill out the above. **The criterion applies for the species.**

C)(i) observed as ongoing or as having occurred in the past (but with a potential to resume); or	No. There has not been an observed "marked" decline. **The sub-criterion applies for the species.**
C)(ii) inferred or projected on the basis of any one of the following:	
• a decrease in area of habitat; or	Yes. There could be a decrease in area of habitat due to changes on the land-use. **The sub-criterion applies for the species.**
• a decrease in quality of habitat; or	Yes. There could be a decrease in the quality of the habitat due to ranching activities, human establishments, etc. The sub-criterion applies for the species.
• levels or pattern of exploitation; or	Yes. Actually the major threat to this species is the illegal extraction to which it is subjected. **The sub-criterion applies for the species.**
• threats from extrinsic human-induced factors such as competition/predation by introduced species or the effects of hybridization, toxins and pollutants; or	Not until now, there could exist in the future ?? **The sub-criterion applies for the species.**
• a decreasing recruitment	Yes. The number of individuals of the first size/age category is considerably low. **The sub-criterion applies for the species.**

D)	**If not included in Appendix I, is likely to satisfy one or more of criteria A-C within 5 years?**	Yes. **The sub-criterion applies for the species.**

For criteria **A)(v)** and **B)(iii)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity		species associations such as symbiosis and other forms of co-dependency
X	slow growth rate	**X**	fragmentation and habitat loss
	high age at first maturity		reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure		high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
X	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
X	specialized niche requirements (e.g. diet and habitat)	**?**	selectivity of removals (that may compromise recruitment)
X	Other (please specify): **long life-cycles and limited propagulum dispersion**		

Turbinicarpus pseudomacrochele **Criterion**	**Comments from reviewer on applicability of criteria for listing on Appendix II**
Trade Criterion **Is or may the species be affected by trade?** **(If the answer is "yes" explain)** **Proposal of amendments:** Is or may the species be affected by **international** trade?	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. **The criterion applies for the species, however we propose the following changes:** **This criterion should specify "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.**
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. **EXPLAIN.**	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.**
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:	Yes, see answers below. **The criterion applies for the species.**

B)(i) Exceeding, over an extended period, the level that can be continued to perpetuity. **EXPLAIN.**	Yes, because of its low population number. **The sub-criterion applies for the species.**
B)(ii) Reducing it to a population level at which its survival would be threatened by other influences. **EXPLAIN.**	Yes, because of its low population number. **The sub-criterion applies for the species.**
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. **SPECIFY**	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.**
D) There are compelling reasons, other than those given in C to ensure that effective control of trade in currently listed species is achieved.	No. **The criterion applies for the species.**

For criteria **A)** and **B)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity		species associations such as symbiosis and other forms of co-dependency
X	slow growth rate	**X**	fragmentation and habitat loss
	high age at first maturity		reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure		high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
X	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
X	specialized niche requirements (e.g. diet and habitat)	**?**	selectivity of removals (that may compromise recruitment)
X	Other (please specify): **long life-cycles and limited propagulum dispersion**		

PROPOSALS TO SOME DEFINITIONS (ANNEX 5)

Zamia furfuracea *Zamia furfuracea* Aiton (Cycadales: Zamiaceae) (including populations of *Z. maritima* Schutzman) Carboard Palm **CRITERION**	**Reviewers:** Dr John Donaldson, IUCN Cycad Specialist Group Dr Andrew Vovides, IUCN Cycad Specialist Group/Institute of Ecology, Xalapa, Mexico **Contact person:** Dr John Donaldson National Botanical Institute Private Bag X7 Claremont 7735 South Africa **Tel:** +27 21 799-8672 **Fax:** +27 21 762 5834 **e-mail:** donaldson@nbict.nbi.ac.za **Comments from reviewers on applicability of criteria for listing on Appendix I**
Trade Criterion **Is or may the species be affected by trade?**	**This criterion needs to be more specific**. *Z. furfuracea* was heavily traded in the 1970s but trade is now entirely in cultivated plants. The question needs to make this explicit. In terms of current trade, the answer should be NO, but evaluators may be tempted to say YES because trade WAS so heavy.
A) The wild population is small, and is characterized by at least one of the following (see definitions below):	What was/is the estimated size of the population? Please include units of measurement. 10 000 (this would be regarded as relatively large for cycads but it is difficult to evaluate without some threshold levels). This criterion therefore becomes vague. If it is classified as small, *Z. furfuracea* fulfils criterion A(I) and would qualify as Appendix I
A)(i) an observed, inferred or projected decline in the number of individuals or the area and quality of habitat; or	30% over 30 years. As with the IUCN criteria, the timeline for decline can make a big difference to the assessment. I wonder if we don't need a statement as occurs in the IUCN system for instances where decline has stopped. In the case of *Z. furfuracea*, decline was severe until ca. 1990 but has now almost stopped.
A)(ii) each sub-population being very small; or	What were/are the estimated sizes of the subpopulation(s)? Please include units of measurement. Ca 8 sub populations of 100 to 3500.
A)(iii) a majority of individuals, during one or more life-history phases, being concentrated in one sub-population; or	**Not applicable**
A)(iv) large short-term fluctuations in the number of individuals appropriate to measuring population size for the species concerned;	If the population was/is characterized by large short-term fluctuations in the numbers of individuals, what was/is the average magnitude in orders of magnitude? What was/is the average period of fluctuation in years? **Not relevant for cycads**

A)(v) a high vulnerability due to the species' biology or behaviour (including migration).	As with all cycads, has a relatively slow growth rate and specialist pollinators that may become locally extinct.
B) The wild population has a restricted area of distribution and is characterized by at least one of the following (see definitions below):	What was/is the estimated area of distribution? If listing on the basis of one or more sub-populations, what were/are the estimated areas of distribution of the subpopulation(s)? Please include units of measurement? Covers a relatively wide area along the Gulf coast of Mexico south of Alvarado. Therefore does not qualify on the basis of restricted distribution
B)(i) fragmentation or occurrence at very few locations; or	Occurs in at least 8 subpopulations.
B)(ii) large fluctuations in the area of distribution or the number of sub-populations; or	**Not relevant for cycads**
B)(iii) a high vulnerability due to the species' biology or behaviour (including migration); or	Small populations tend to suffer from loss of pollinators and reproductive failure. Most cycads would qualify.
B)(iv) an observed, inferred or projected decrease in any one of the following:	
• the area of distribution; or	Has been reduced across its range due to harvesting
• the area of habitat; or	Subpopulations have been radically reduced but not completely wiped out

• the number of sub-populations; or	
• the number of individuals; or	Number of individuals have declined by ca. 30% over the past 50 years
• the quality of habitat; or	Quality of habitat is mostly unaffected as they occur in dune vegetation
• the recruitment.	
C) A marked decline in population size in the wild, which has been either (see definitions below):	Historical extent of decline - To what extent has the population or the area of distribution (please specify which) declined since historical times (i.e., going back 100 years or more if known; else based on whatever information is available)? (Ex. The ___ has declined down to ____% of the historical levels of ___ years ago.) Recent rate of decline - Characterize the recent (10-20 year) trends in population size or area of distribution (please specify which).
C)(i) observed as ongoing or as having occurred in the past (but with a potential to resume); or	Populations were heavily harvested from 1975 to 1985. It has been estimated that 40 tons of stems were exported on a monthly basis. It is estimated that 30% of the entire population was removed at this time.
C)(ii) inferred or projected on the basis of any one of the following:	
• a decrease in area of habitat; or	**Not relevant**
• a decrease in quality of habitat; or	**None**
• levels or pattern of exploitation; or	**Known to have been heavily harvested. Some populations are estimated to have declined from ca. 10000 plants to ca. 100 plants**

• threats from extrinsic human-induced factors such as competition/predation by introduced species or the effects of hybridization, toxins and pollutants; or	**None**
• a decreasing recruitment	Not measured. Seedling recruitment has been observed in populations that were heavily exploited in the past
D) If not included in Appendix I, is likely to satisfy one or more of criteria A-C within 5 years?	

For criteria **A)(v)** and **B)(iii)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity		species associations such as symbiosis and other forms of co-dependency
	slow growth rate		fragmentation and habitat loss
	high age at first maturity		reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure		high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
	specialized niche requirements (e.g. diet and habitat)		selectivity of removals (that may compromise recruitment)
	Other (please specify		

Zamia furfuracea **Criterion**	**Comments from reviewer on applicability of criteria for listing on Appendix II**
Trade Criterion **Is or may the species be affected by trade?**	**YES. The criterion applies to almost all cycads.**
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.	**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:	**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.	**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.	**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.**	**This is a common issue for all cycads. Non experts have a hard time telling species and even 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.**	

For criteria **A)** and **B)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity		species associations such as symbiosis and other forms of co-dependency
	slow growth rate		fragmentation and habitat loss
	high age at first maturity	**X**	reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure		high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
	specialized niche requirements (e.g. diet and habitat)	**X**	selectivity of removals (that may compromise recruitment)
	Other (please specify		

PROPOSALS TO SOME DEFINITIONS (ANNEX 5)

Cibotium barometz *Cibotium barometz*(L.) J. Smith **CRITERION**	**Reviewers:** **Dr. Qin HaiNing & Dr. Dong ShiYong** Chinese National Herbarium, Institute of Botany, CAS, Xiangshan, Beijing 100093, China **Contact persons:** **Dr. Qin HaiNing** Chinese National Herbarium, Institute of Botany, CAS; Xiangshan, Beijing 100093, China **Tel:** [86]10- 6259 1431 ext. 6023 **Fax:** [86]10- 8259 3448 **e-mail:** hainingqin@ns.ibcas.ac.cn **Mr. Baoguo Zhai**/ zhai_baoguo@hotmail.com **Comments from reviewers on applicability of criteria for listing on Appendix I**
Trade Criterion **Is or may the species be affected by trade?**	YES. In trade as wild, and demand for medicine-dried rhizome. Therefore known to be affected by trade. The data from the relevant authentic government shows that the China export, including .Hong Kong during 1993 to 1997 of this species, *Cibotium barometz,* is sum of 524,850 tons. **This criterion was easy to apply for this taxon.**
A) The wild population is small, and is characterized by at least one of the following (see definitions below):	What was/is the estimated size of the population? Please include units of measurement. No. Wild population is large with comparison with other pteridophyte in China. The estimated size by expert of the population is 76.8 million individuals in 2000. **Is it possible to provide a numerical range to delimitate the size of a wide population which could be considered as small?**
A)(i) an observed, inferred or projected decline in the number of individuals or the area and quality of habitat; or	
A)(ii) each sub-population being very small; or	What were/are the estimated sizes of the subpopulation(s)? Please include units of measurement. .
A)(iii) a majority of individuals, during one or more life-history phases, being concentrated in one sub-population; or	.
A)(iv) large short-term fluctuations in the number of individuals appropriate to measuring population size for the species concerned;	If the population was/is characterized by large short-term fluctuations in the numbers of individuals, what was/is the average magnitude in orders of magnitude? What was/is the average period of fluctuation in years? .
A)(v) a high vulnerability due to the species' biology or behaviour (including migration).	.

B) The wild population has a restricted area of distribution and is characterized by at least one of the following (see definitions below):	What was/is the estimated area of distribution? If listing on the basis of one or more sub-populations, what were/are the estimated areas of distribution of the subpopulation(s)? Please include units of measurement? No. The wild population does not have a restricted area of distribution. It's a widespread distribution throughout south-western, central and southern China and other Asian countries. **This criterion is easy to apply for this taxon.**
B)(i) fragmentation or occurrence at very few locations; or	.
B)(ii) large fluctuations in the area of distribution or the number of sub-populations; or	
B)(iii) a high vulnerability due to the species' biology or behaviour (including migration); or	
B)(iv) an observed, inferred or projected decrease in any one of the following:	
• the area of distribution; or	
• the area of habitat; or	
• the number of sub-populations; or	
• the number of individuals; or	
• the quality of habitat; or	
• the recruitment.	

C) **A marked decline in population size in the wild, which has been either** (see definitions below):	Historical extent of decline - To what extent has the population or the area of distribution (please specify which) declined since historical times (i.e., going back 100 years or more if known; else based on whatever information is available)? (Ex. The ___ has declined down to ____% of the historical levels of ___ years ago.) Recent rate of decline - Characterize the recent (10-20 year) trends in population size or area of distribution (please specify which). **The application of this criterion is some difficult due to the lack of hard data. Generally speaking, there is a marked decline in the species population size in the past of about 25 year. But recent rate of decline is not available for lacking of exact data.**
C)(i) observed as ongoing or as having occurred in the past (but with a potential to resume); or	
C)(ii) inferred or projected on the basis of any one of the following:	
• a decrease in area of habitat; or	**see below**
• a decrease in quality of habitat; or	**see below**
• levels or pattern of exploitation; or	*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.

• threats from extrinsic human-induced factors such as competition/predation by introduced species or the effects of hybridization, toxins and pollutants; or	
• a decreasing recruitment	
D) If not included in Appendix I, is likely to satisfy one or more of criteria A-C within 5 years?	

For criteria **A)(v)** and **B)(iii)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity		species associations such as symbiosis and other forms of co-dependency
	slow growth rate	**X**	fragmentation and habitat loss
	high age at first maturity		reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure		high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
	specialized niche requirements (e.g. diet and habitat)		selectivity of removals (that may compromise recruitment)
	Other (please specify		

Cibotium barometz **Criterion**	**Comments from reviewer on applicability of criteria for listing on Appendix II**
Trade Criterion **Is or may the species be affected by trade?**	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.**
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.	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.**
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:	*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.
B)(i) Exceeding, over an extended period, the level that can be continued to perpetuity.	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**
B)(ii) Reducing it to a population level at which its survival would be threatened by other influences.	

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 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.
D)	**There are compelling reasons, other than those given in C to ensure that effective control of trade in currently listed species is achieved.**	

For criteria **A)** and **B)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity		species associations such as symbiosis and other forms of co-dependency
	slow growth rate	**X**	fragmentation and habitat loss
	high age at first maturity		reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure		high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
	specialized niche requirements (e.g. diet and habitat)		selectivity of removals (that may compromise recruitment)
	Other (please specify		

Dionaea muscipula Venus flytrap (*Dionaea muscipula* Ellis, Dionaeaceae), a monotypic genus and family, is a carnivorous plant endemic to the coastal plain of southeastern North Carolina and northeastern South Carolina, United States (Radford et. al. 1968). It is a perennial herb found in savannas, along wet sandy ditches, and in bog margins in a radius of approximately 90 miles around Wilmington, North Carolina. Venus flytrap is a fire-dependent species. The long-term, overriding factor in the population decline of Venus flytrap is a lack of fire in the species habitat. There is a significant commercial trade in Venus flytraps as novelty plants, as unique physiological specimens for carnivorous plant aficionados, and as purported medical treatments for serious illnesses such as various cancers and HIV–AIDS. **CRITERION**	**Reviewers:** Patricia Ford, United States of America, Division of Scientific Authority, U.S. Fish and Wildlife Service. Madeleine Groves, Conventions & Policy Section, Royal Botanic Gardens, Kew, Richmond, Surrey, TW9 3AE, UK **Contact persons:** Robert R. Gabel U.S. Fish and Wildlife Service Division of Scientific Authority 4401 N. Fairfax Drive, Room 750 Arlington, Virginia, USA 22203 **Tel:** 703-358-1708 **Fax:** 703-358-2276 **e-mail**: Roddy_Gabel@fws.gov Noel McGough United Kingdom Scientific Authority Royal Botanic Gardens, Kew Richmond, Surrey TW9 3 AB **Tel:** +44-(0) 20-8332-5723 **Fax:** +44-(0) 20-8332-5757 **e-mail: n**.mcgough@mail.rbgkew.org.uk **Comments from reviewers on applicability of criteria for listing on Appendix I**
Trade Criterion **Is or may the species be affected by trade?** **Proposal of amendments:** Is or may the species be affected by **international** trade?	Yes, *Dionaea muscipula*, Venus flytrap, is affected by international trade. There is demand for plants for the international horticultural trade (as plants and mother stock) and for plant extracts for purported medicinal uses (i.e., treatment for certain cancers and HIV-AIDS). Within the United States, the range country, there is a demand for wild-collected plants used to supplement nursery mother stock. This mother stock is extensively used to propagate plants for the US domestic market, but may also be used to produce the large amounts of 'artificially propagated' stock that is in international trade. It is important to understand the relationship of the number of specimens in trade versus number of individuals per population. **Suggested change: Include the word "international" before the word "trade"**
A) The wild population is small, and is characterized by at least one of the following (see definitions below):	What was/is the estimated size of the population? Please include units of measurement. **Criterion applies to species.** The wild population for this species is 48,000 individuals – 63,000 individuals.
A)(i) an observed, inferred or projected decline in the number of individuals or the area and quality of habitat; or	**Sub-criterion applies to species.** Definitions and examples of the terms "inferred" and "projected" should be included. Between 1992 and 2002, comparing the same subpopulations, numbers of individuals declined approximately 17%. The quality of habitat has declined due to lack of natural ecological processes or land management regimes (i.e. prescribed burning, hydrological changes) due to land conversion for agriculture, road building, etc. * To reduce redundancy in Table 1, could category 'A' be restricted to considerations of population size only, rather than also incorporating area and quality of habitat? Certainly they are all related, but since there is a separate Category 'B' for area of distribution, perhaps area and quality of habitat could be restricted to Category 'B'.

A)(ii) each sub-population being very small; or	What were/are the estimated sizes of the subpopulation(s)? Please include units of measurement. **Sub-criterion applies to species.** From <10 individuals to > 2000 individuals
A)(iii) a majority of individuals, during one or more life-history phases, being concentrated in one sub-population; or	**Sub-criterion does not apply to species.** This sub-criterion is not applicable to most plant taxa, including this species.
A)(iv) large short-term fluctuations in the number of individuals appropriate to measuring population size for the species concerned;	If the population was/is characterized by large short-term fluctuations in the numbers of individuals, what was/is the average magnitude in orders of magnitude? What was/is the average period of fluctuation in years? **Sub-criterion does not apply to species.** NOTE: fluctuations should be hyperlinked to the definition in the guidelines. This sub-criterion is not applicable to most perennial plant taxa, including this species, and other long-lived plant taxa. This sub-criterion may have limited applicability for annual plant species.
A)(v) a high vulnerability due to the species' biology or behaviour (including migration).	**Sub-criterion applies to species.** **Vulnerability factors such as slow growth rate need to be clarified**. Does it refer to the population growth rate or actual rate of growth of the plant itself? This species is vulnerable due to specific habitat requirements and ecological processes (i.e., periodic fires, hydrologic regimes). Without periodic fire, the species will be eliminated from its habitat.
B) The wild population has a restricted area of distribution and is characterized by at least one of the following (see definitions below):	What was/is the estimated area of distribution? If listing on the basis of one or more sub-populations, what were/are the estimated areas of distribution of the subpopulation(s)? Please include units of measurement? **Criterion applies to species.** **The definition for area of distribution should not include any unit of measure (i.e., 10,000 km^2), as it needs to be applicable for a wide range of taxa.** Species is only found within a 90 mile radius of North Carolina and South Carolina, USA. Estimated area of distribution of the 10 core State counties (9 in NC, 1 in SC) is 60,000 square km. There are at least 4 additional counties where subpopulations may still exist, although no individuals were observed in 2002 and in several cases not in the 1992 survey either.

B)(i) fragmentation or occurrence at very few locations; or	**Sub-criterion applies to species.** **Fragmentation definition needs to include language applicable to plant taxa with respect to the term 'isolated sub-populations'. We suggest 'isolated sub-populations that prevent or limit the transfer of genetic material between individuals.'** Approximately 40% of the subpopulations are small (<10 – 100 individuals), located in isolated pockets of appropriate habitat, often measuring less than 200 square meters.
B)(ii) large fluctuations in the area of distribution or the number of sub-populations; or	**Sub-criterion does not apply to this species.** The sub-criterion may not be applicable to most long-lived perennial plant taxa, and may have limited applicability for annual plant species. **NOTE: fluctuations should be hyperlinked to the definition in the guidelines.**
B)(iii) a high vulnerability due to the species' biology or behaviour (including migration); or	**Sub-criterion applies to species.** Vulnerability is high due to restricted area of distribution and highly specific habitat requirements.
B)(iv) an observed, inferred or projected decrease in any one of the following:	**Definitions and examples of the terms "inferred" and "projected" should be included.**
• the area of distribution; or	**Sub-criterion applies to species.** **Need to consider the habitat of sub-populations across political boundaries (i.e., range countries)** Evidence from surveys indicates range is shrinking at its north, south and western extremes. Historic area of distribution was approximately 77,000 square km. Currently it is about 60,000 square km, a decline of approximately 22% since ~1950.
• the area of habitat; or	**Sub-criterion applies to species.** Habitat of small subpopulations (<10-100 individuals) is being lost to land conversion or development. Between 1992 and 2002 approximately 20% of small subpopulations were likely extirpated.
• the number of sub-populations; or	**Sub-criterion applies to species.** Between 1992 and 2002 the number of subpopulations has declined about 23%. See A(i). ***Consider restricting to category 'A'**

• the number of individuals; or	**Sub-criterion applies to species.** Overall numbers of individuals between 1992 and 2002 have declined approximately 17%. See A(i). ***Consider restricting to category 'A'**
• the quality of habitat; or	**Sub-criterion applies to species. However, quality of habitat needs to be defined.** Habitats of large subpopulations (>1000 individuals) are generally being maintained to favor the species. These are primarily large areas owned by government (Federal and State lands) or by private conservation organizations. Their main need is more regular habitat burning (prescribed fire) to keep the habitat open. Habitat decline from overgrowth, inopportune mowing time, and herbicides (all pertaining to sites under electrical powerlines and along roadside ditches) is occurring in many sites supporting small subpopulations (<10-500 individuals).
• the recruitment.	**Sub-criterion applies to species.** ***Consider moving to category 'A'**
C) A marked decline in population size in the wild, which has been either (see definitions below):	Historical extent of decline - To what extent has the population or the area of distribution (please specify which) declined since historical times (i.e., going back 100 years or more if known; else based on whatever information is available)? (Ex. The ___ has declined down to ____% of the historical levels of ___ years ago.) Recent rate of decline - Characterize the recent (10-20 year) trends in population size or area of distribution (please specify which).
C)(i) observed as ongoing or as having occurred in the past (but with a potential to resume); or	**Sub-criterion applies to species.** Historical (50+ years): 77,000 square km (~1950) to 60,000 square km (2002), a 22% decline in area of distribution. (Note – historical data is incomplete relating to population size). Recent (1992-2002): Decline in population size is approximately 17%.
C)(ii) inferred or projected on the basis of any one of the following:	
• a decrease in area of habitat; or	**Sub-criterion applies to species.** Habitat of small subpopulations (<10-100 individuals) is being lost to land conversion or development. Between 1992 and 2002 approximately 20% of small subpopulations were likely extirpated.

	• a decrease in quality of habitat; or	**Sub-criterion applies to species. However, quality of habitat needs to be defined.** Habitats of large subpopulations (>1000 individuals) are generally being maintained to favor this species. These are primarily large areas of Federal and State lands, or privately owned by conservation organizations. Species' habitat needs to be burned regularly to keep the habitat open. Habitat decline is from succession, poor mowing practices, and herbicides (all pertaining to sites under electrical powerlines and along roadside ditches) is occurring in many sites supporting small subpopulations (<10-500 individuals).
	• levels or pattern of exploitation; or	**Sub-criterion does not apply to species.** **See B(ii).**
	• threats from extrinsic human-induced factors such as competition/predation by introduced species or the effects of hybridization, toxins and pollutants; or	**Sub-criterion applies to species.** **Suggested change: drop "human-induced" from the text.** Non-anthropogenic factors such as parasitism, disease, etc. can reduce a population to a point where it cannot withstand harvest for commercial international trade. Small subpopulations: 1) land conversion or development, 2) fire suppression, 3) herbicide use and no or poor mowing practices along roadsides and electrical powerline corridors. Large subpopulations sites need to implement prescribed burning on a regular basis for this fire-dependent species.
	• a decreasing recruitment	**Sub-criterion does not apply to species.**
D)	**If not included in Appendix I, is likely to satisfy one or more of criteria A-C within 5 years?**	**Criterion applies to species.**

For criteria **A)(v)** and **B)(iii)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity		species associations such as symbiosis and other forms of co-dependency
	slow growth rate	**X**	fragmentation and habitat loss
	high age at first maturity		reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure	**X**	high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling **highly clumped)** **Highly clumped needs to be added to make this factor applicable to plant taxa.**	**X**	threats from invasive species
	low population density (for sessile or semi-sessile species)	**X**	threats from rapid environmental change (e.g. climate regime shifts) **Hydrological changes to habitat.**
X	specialized niche requirements (e.g. diet **or** ~~and~~ habitat) **'Or' instead of 'and' needs to be used to make this factor applicable to plant taxa**		selectivity of removals (that may compromise recruitment) **Selectivity of removals is vague. First, the word harvest should be used instead of removals. Second, the phrase in parentheses should be expanded and incorporated so that the whole factor reads: Harvest of individuals or parts of individuals that may compromise recruitment either sexually or asexually.**
X	Other (please specify): **Over-collection of individuals for international trade, loss of ecological processes (i.e., periodic fire and hydrological) that maintain species' habitat**		

Dionaea muscipula **Criterion**	**Comments from reviewer on applicability of criteria for listing on Appendix II**
Trade Criterion **Is or may the species be affected by trade?** **Proposal of amendments:** Is or may the species be affected by **international** trade?	**Criterion applies to species.** **Suggested change: Include the word "international" before the word "trade"** Yes, *Dionaea muscipula*, Venus flytrap, 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 HIV-AIDS).
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.	**Criterion applies to 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:	**Criterion applies to species.** "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)(i) Exceeding, over an extended period, the level that can be continued to perpetuity.	**Sub-criterion applies to species. However, this is very difficult if not impossible to determine for most plant taxa.**

B)(ii)	Reducing it to a population level at which its survival would be threatened by other influences.	**Sub-criterion applies to species. However, this is very difficult if not impossible to determine for most plant taxa.**
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.**	**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.
D)	**There are compelling reasons, other than those given in C to ensure that effective control of trade in currently listed species is achieved.**	**Criterion applies to species.** The number of wild-harvested individuals collected for the domestic trade versus the international trade needs to be determined further.

For criteria ~~**A) and**~~ **B)**, please check which if any of the vulnerability factors listed below apply. **The factors only need to be checked for Criteria B. They do not need to be checked again for Criteria A) since these factors are already included in the Appendix I criteria which need to be reviewed in order to assess Criteria A.**:

	low fecundity		species associations such as symbiosis and other forms of co-dependency
	slow growth rate	**X**	fragmentation and habitat loss
	high age at first maturity		reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure	**X**	high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling **highly clumped)** **Highly clumped needs to be added to make this factor applicable to plant taxa.**	**X**	threats from invasive species
	low population density (for sessile or semi-sessile species)	**X**	threats from rapid environmental change (e.g. climate regime shifts) **Hydrological changes to habitat.**
X	specialized niche requirements (e.g. diet **or** ~~and~~ habitat) **'Or' instead of 'and' needs to be used to make this factor applicable to plant taxa**		selectivity of removals (that may compromise recruitment) **Selectivity of removals is vague. First, the word harvest should be used instead of removals. Second, the phrase in parentheses should be expanded and incorporated so that the whole factor reads: Harvest of individuals or parts of individuals that may compromise recruitment either sexually or asexually.**
X	Other (please specify): **Over-collection of individuals for international trade, loss of ecological processes (i.e., periodic fire and hydrological) that maintain species' habitat**		

Pericopsis elata **Afrormosia, kokrodua, African Teak** **CRITERION**	**Reviewers:** Quentin Luke, African Representative CITES Plants Committee, National Museums of Kenya, Nairobi, Kenya Noel McGough, Royal Botanic Gardens, Kew, United Kingdom Sara Oldfield, Fauna and Flora International, Cambridge, United Kingdom **Contact person: Noel McGough** Conventions and Policy Section, Royal Botanic Gardens, Kew, Richmond, Surrey, TW9 3AE, United Kingdom **Tel:** +44 (0)20 8332 5722 **Fax:** +44 (0)20 8332 5757 **e-mail:** n.mcgough@rbgkew.org.uk **Comments from reviewers on applicability of criteria for listing on Appendix I**
Trade Criterion **Is or may the species be affected by trade?**	**Background information:** Yes. The species has been in international trade for over 50 years. CITES has recorded mean gross annual imports (1993-2001) to the top 5 importing countries (Italy, Japan, Belgium, China (Taiwan) and France) as totaling 30,681 m³. The levels of this trade have contributed to the marked decline of the species in West Africa. Range States have put in place a range of controls to regulate international trade. **Criterion assessment: This criterion works for this taxon.**
A) The wild population is small, and is characterized by at least one of the following (see definitions below):	What was/is the estimated size of the population? Please include units of measurement. **Background information:** No the population is not small. The species occurs in Cameroon, Central African Republic, Congo (Brazzaville), Cote d'Ivoire, Democratic Republic of Congo (DRC), Ghana and Nigeria. Inventory data is variable for these countries but there is no reason to consider the populations size as small. **Criterion assessment:** **This criterion works for this taxon. The relevant experts need always to consider what is the appropriate definition of 'small' for the taxon under review.**
A)(i) an observed, inferred or projected decline in the number of individuals or the area and quality of habitat; or	**Background information:** There has been an observed decline over the last 50 years in both availability of harvestable sized individuals, recruitment and habitat in Ghana, Nigeria and Cote d'Ivoire. The main remaining stocks are in the Congo. Little information on habitat quality is available. Criterion assessment: **This criterion works for this taxon.**
A)(ii) each sub-population being very small; or	What were/are the estimated sizes of the subpopulation(s)? Please include units of measurement. **Background information:** No. Criterion assessment: **This criterion works for this taxon**.
A)(iii) a majority of individuals, during one or more life-history phases, being concentrated in one sub-population; or	**Background information:** No. **Criterion assessment: This criterion works for this taxon**.

A)(iv) large short-term fluctuations in the number of individuals appropriate to measuring population size for the species concerned;	If the population was/is characterized by large short-term fluctuations in the numbers of individuals, what was/is the average magnitude in orders of magnitude? What was/is the average period of fluctuation in years? **Background information:** No. **Criterion assessment: Not applicable to most plants..**
A)(v) a high vulnerability due to the species' biology or behaviour (including migration).	**Background information:** No. **Criterion assessment: Not applicable to *Pericopsis elata*.**
B) The wild population has a restricted area of distribution and is characterized by at least one of the following (see definitions below):	What was/is the estimated area of distribution? If listing on the basis of one or more sub-populations, what were/are the estimated areas of distribution of the subpopulation(s)? Please include units of measurement? **Background information:** No. The area of distribution for this species is not restricted as defined in the guidance notes as it is much greater than 10,000 km². The range includes: Cameroon: restricted to the south of the country in the Dja, Boumba, Ngoko and Sangha river basins. The area of distribution is approximately 37,300 km² (Ministry of Environment and Forestry, Cameroon, 2002). Central African Republic: limited information on role of *Pericopis* in the forest ecosystem but overall forests cover 37, 000 km² in the southwest of the country, in the regions of Sangha and Lobaye The Republic of Congo: stocks are concentrated in the north of the country where deforestation has been low. Northern forest cover consists of over 150,000 km². Côte d'Ivoire: localized in the east (Abengourou), northeast (Bondoukou) and along the frontier with Ghana. Some isolated populations have been reported in the west (Guiglo) and in the forest classee de Yapo in the south (Kouame, in litt, 2003). Democratic Republic of Congo (DRC): largest remaining stocks found in the forests of Yangambi-Banalia-Kisangani (Ministry of Environment and Forestry, Cameroon, 2002). Ghana: tropical high forest covers about 7% of Ghana's land area. (16,500 km²) Nigeria: recorded as occurring mainly in the east of the country and was noted by Keay et al, 1964 as being "locally abundant. Tropical high forest covers two percent of Nigeria and is being depleted at an annual rate of 3.5%. **Criterion assessment: Applicable**.
B)(i) fragmentation or occurrence at very few locations; or	**Background information:** No , not as outlined in definition. Although it is likely that there is fragmentation based on habitat preferences, forest clearances and areas of exploitation. Whether such fragmented units should be considered as sub-populations is arguable. **Criterion assessment: *Does this definition of fragmentation apply to both natural and man made fragmentation?***

B)(ii) large fluctuations in the area of distribution or the number of sub-populations; or	**Background Information:** No. **Criterion assessment: Not applicable to *P. elata* (or tree species generally).**
B)(iii) a high vulnerability due to the species' biology or behaviour (including migration); or	**Background information /Criterion assessment: No?** Does low seed viability and high light demand qualify as species biology leading to vulnerability? Does this contribute to area of distribution even if the area can not be classified as restricted?
B)(iv) an observed, inferred or projected decrease in any one of the following:	
• the area of distribution; or	**Background information:** No?- not at a 'global' scale? **Criterion assessment: Problem here and in B (iii) when you try to answer sub-criteria after saying 'No' to B. This is an artefact of the test process as in normal application of the criteria you would not try to apply the sub-criteria after answering No to B.**
• the area of habitat; or	**Background information:** Yes, agricultural encroachment and timber extraction generally are decreasing the total area of suitable habitat as well as fragmenting what remains. **Criterion assessment: Applies but probably applies to all taxa reviewed?**
• the number of sub-populations; or	**Background information:** Yes, agricultural encroachment and timber extraction generally are decreasing the total area of suitable habitat as well as fragmenting what remains. **Criterion assessment: Applies but probably applies to all taxa reviewed?**
• the number of individuals; or	**Background information:** Decrease likely but little or no reliable data. A decrease in harvestable sized individuals has been noted, particularly in Cote d'Ivoire, Ghana and Nigeria. Cameroon, Congo and DRC have more extensive forests and stocks, but they are now subject to logging. **Criterion assessment: Applies but reliable data will be a problem for many taxa.**
• the quality of habitat; or	**Background information:** Yes, farm encroachment, grazing, firewood collection, charcoal burning and timber extraction of other species are all decreasing the quality of forest generally. **Criterion assessment: Applies.**
• the recruitment.	**Background information:** Unknown. However, a paucity of natural regeneration for this species has been noted by various authors (for example, Hawthorne, 1995, Forni 1997). **Criterion assessment: Applies.**

C) **A marked decline in population size in the wild, which has been either** (see definitions below):	Historical extent of decline - To what extent has the population or the area of distribution (please specify which) declined since historical times (i.e., going back 100 years or more if known; else based on whatever information is available)? (Ex. The ___ has declined down to ____% of the historical levels of ___ years ago.) Recent rate of decline - Characterize the recent (10-20 year) trends in population size or area of distribution (please specify which). **Background information**: A marked decline, in accordance with the guidance notes, may have occurred in West Africa but not throughout the range of the taxon. Note- for the purpose of this review we have considered three generations as 150 years. **Criterion assessment:** *It is unclear whether this criterion strictly refers to population size or area of distribution or both due to the definition of decline which covers both? We take this to refer to population numbers – B refers to area. The factor that is not dealt with is 'stocking-rate'. The area can remain more or less the same but if there is something affecting the 'stocking-rate' either extraction or recruitment, then the overall pop size will decrease. Hawthorne (pers comm) gives stocking rate in Ghana as low as 2 individuals. per hectare.*
C)(i) observed as ongoing or as having occurred in the past (but with a potential to resume); or	**Background information:** Has occurred in the past and is possibly ongoing throughout part of its range. **Criterion assessment: Applies.**
C)(ii) inferred or projected on the basis of any one of the following:	
• a decrease in area of habitat; or	**Background information:** Agricultural encroachment and timber extraction are decreasing the total area of suitable habitat as well as fragmenting what remains. **Criterion assessment: Applies.**
• a decrease in quality of habitat; or	**Background information:** Farm encroachment, grazing, firewood collection, charcoal burning and timber extraction of other species are all decreasing the quality of forest generally. **Criterion assessment: Applies.**
• levels or pattern of exploitation; or	**Background information:** There has been a decline in levels of exploitation in West Africa where this species was first subject to harvesting for international trade. This reflects both the levels of available stocks and the national controls that have been put in place. Historically exploitation for international trade began in 1948 with exports from Ghana. Ghana and Cote d'Ivoire were initially the main exporters. More recently Cameroon, Republic of Congo and DRC have become the main exporters for the international market. Ghana and Cote d'Ivoire continue to export small quantities. **Criterion assessment: Applies**

• threats from extrinsic human-induced factors such as competition/predation by introduced species or the effects of hybridization, toxins and pollutants; or	**Background information:** No. **Criterion assessment**: **Applies**
• a decreasing recruitment	**Background information:** Unknown. However, a paucity of natural regeneration for this species has been noted by various authors (for example, Hawthorne, 1995, Forni 1997). **Criterion assessment: Applies**
D) If not included in Appendix I, is likely to satisfy one or more of criteria A-C within 5 years?	**Background information:** No. **Criterion assessment**: **Applies. Although some conflict with timescale in Appendix II A criterion.**

For criteria **A)(v)** and **B)(iii)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity		species associations such as symbiosis and other forms of co-dependency
	slow growth rate		fragmentation and habitat loss
	high age at first maturity		reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure		high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
	specialized niche requirements (e.g. diet and habitat)		selectivity of removals (that may compromise recruitment)
	Other (please specify		

Pericopsis elata **Criterion**	**Comments from reviewer on applicability of criteria for listing on Appendix II**
Trade Criterion **Is or may the species be affected by trade?**	**Background information:** Yes. The species has been in international trade for over 50 years. CITES has recorded mean gross annual imports (1993-2001) to the top 5 importing countries (Italy, Japan, Belgium, China (Taiwan) and France) as totaling 30,681 m³. The levels of this trade have contributed to the marked decline of the species in West Africa. Range States have put in place a range of controls to regulate international trade. **Criterion assessment**: **Applies**
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.	**Background information:** No. Although larger size classes are currently being removed unsustainably, there are still areas where it is locally common. Burning and charcoal cutting may endanger the smaller individuals, but it is unlikely this will be in the near future (<5 years). Significant stocks do still remain in Cameroon, Congo and DRC. **Criterion assessment**: **Applies**
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:	**Yes**
B)(i) Exceeding, over an extended period, the level that can be continued to perpetuity.	**Background information:** Yes, based on historical patterns of exploitation and continued demand, the harvesting of this taxon requires regulation to ensure a long tern sustainable trade. **Criterion assessment: 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.
B)(ii) Reducing it to a population level at which its survival would be threatened by other influences.	**Background information:** No. **Criterion assessment**: **Applies**

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.**	**Background information:** No **Criterion assessment: Applies.**
D)	**There are compelling reasons, other than those given in C to ensure that effective control of trade in currently listed species is achieved.**	**Background information:** No. **Criterion assessment: Applies**

For criteria **A)** and **B)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity		species associations such as symbiosis and other forms of co-dependency
	slow growth rate	**X**	Fragmentation**? (see Notes)** and habitat loss
	high age at first maturity	**?**	reduced genetic diversity
X	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure		high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
X	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
X	specialized niche requirements (e.g. diet and habitat)	**X**	selectivity of removals (that may compromise recruitment)
X	Other (please specify: **Low recruitment in terms of 'regeneration' in note below. Unless it was intended that this is covered by "Low fecundity" but which is different as far as I am concerned. The species may produce copious fertile seed, but, as with *Pericopsis* (I think), the seeds do not remain viable for very long and require light for germination and growth**		

Aloe ferox *Aloe ferox* Mill (Asphodelaceae) Tap aalwyn (Afrikaans) **CRITERION**	**Reviewers:** Dr John Donaldson, National Botanical Institute, South Africa Threatened Species Programme, National Botanical Institute, Private Bag X7, Claremont 7735, South Africa **Contact person:** Dr John Donaldson National Botanical Institute Private Bag X7 Claremont 7735 South Africa **Tel:** +27 21 799-8672 **Fax:** +27 21 762 5834 **e-mail:** donaldson@nbict.nbi.ac.za **Comments from reviewers on applicability of criteria for listing on Appendix I**
Trade Criterion **Is or may the species be affected by trade?**	
A) The wild population is small, and is characterized by at least one of the following (see definitions below):	What was/is the estimated size of the population? Please include units of measurement. In the case of *A. ferox*, the population is large (estimated to be over 100 000 plants). For other Aloes, a small population might be < 3000 plants
A)(i) an observed, inferred or projected decline in the number of individuals or the area and quality of habitat; or	Leaves are harvested from *A. ferox* and the impacts on decline can be quite subtle. Nevertheless, it is certainly possible to observe or infer decline.
A)(ii) each sub-population being very small; or	What were/are the estimated sizes of the subpopulation(s)? Please include units of measurement. Not an issue for *A. ferox* but would be an important criterion for some *Aloe* species
A)(iii) a majority of individuals, during one or more life-history phases, being concentrated in one sub-population; or	Could be measured for mature plants

A)(iv) large short-term fluctuations in the number of individuals appropriate to measuring population size for the species concerned;	If the population was/is characterized by large short-term fluctuations in the numbers of individuals, what was/is the average magnitude in orders of magnitude? What was/is the average period of fluctuation in years? Not relevant for *Aloe* species
A)(v) a high vulnerability due to the species' biology or behaviour (including migration).	Not relevant for *Aloe* species.
B) The wild population has a restricted area of distribution and is characterized by at least one of the following (see definitions below):	What was/is the estimated area of distribution? If listing on the basis of one or more sub-populations, what were/are the estimated areas of distribution of the subpopulation(s)? Please include units of measurement? *Aloe ferox* is distributed over a large area (> 10 000 km^2). Nevertheless, restricted range is an issue for other cycad species listed on CITES Appendix 1. This information is generally available for *Aloe* species
B)(i) fragmentation or occurrence at very few locations; or	Although some populations of *A. ferox* are isolated, they would not qualify as severely fragmented. It remains an important criterion for other Aloes, which tend to be pollinated either by bees or birds. In the case of birds, fragmentation could reduce pollination and seed set in small fragments and reduce gene flow between populations..
B)(ii) large fluctuations in the area of distribution or the number of sub-populations; or	This is not relevant for *Aloe ferox* or other large *Aloe* species that have relatively long life spans
B)(iii) a high vulnerability due to the species' biology or behaviour (including migration); or	*Aloe ferox* does not seem to be particularly vulnerable based on available information. However, there is concern that leaf harvesting may affect growth, reduce flowering, and reduce resilience to drought.

B)(iv) an observed, inferred or projected decrease in any one of the following:	
• the area of distribution; or	The level of decline needs to be specified. *Aloe ferox* is widespread but there has been some decline in area of distribution due to land transformation (i.e. not due to trade)
• the area of habitat; or	Same as above
• the number of sub-populations; or	A good criterion for Aloes although there is generally very little information at this level even for well known species such as *A. ferox*
• the number of individuals; or	Same as above. Currently very abundant, but there may well have been a decline in plant numbers
• the quality of habitat; or	Difficult to measure.
• the recruitment.	Again, relatively easy to measure for Aloes but is not generally available. Recent studies on tree Aloes suggest that recruitment can be measured.
C) A marked decline in population size in the wild, which has been either (see definitions below):	Historical extent of decline - To what extent has the population or the area of distribution (please specify which) declined since historical times (i.e., going back 100 years or more if known; else based on whatever information is available)? (Ex. The ___ has declined down to ___% of the historical levels of ___ years ago.) Recent rate of decline - Characterize the recent (10-20 year) trends in population size or area of distribution (please specify which). The extent of decline needs to be specified relative to overall population size. There is a possibility that *A. ferox* may have declined by as much as 30%, which would fit the criterion for Appendix 1. However, the populations are still very large (> 100 000), the decline is mostly due to land transformation, and the trade has an impact only on local populations. A report by TRAFFIC concluded that the trade was sustainable.
C)(i) observed as ongoing or as having occurred in the past (but with a potential to resume); or	This could be used for *A. ferox*. It is easy to observe changes in long-lived species that are easy to see in the landscape

C)(ii) inferred or projected on the basis of any one of the following:	
• a decrease in area of habitat; or	This would be the most likely criterion to use to measure transformation
• a decrease in quality of habitat; or	Quality of habitat is difficult to measure
• levels or pattern of exploitation; or	Could be used. Only the leaves are harvested, so the impact on plant populations would be difficult to measure
• threats from extrinsic human-induced factors such as competition/predation by introduced species or the effects of hybridization, toxins and pollutants; or	Difficult to measure.
• a decreasing recruitment	Could be measured as seedlings and juveniles are easy to detect in populations
D) If not included in Appendix I, is likely to satisfy one or more of criteria A-C within 5 years?	

For criteria **A)(v)** and **B)(iii)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity		species associations such as symbiosis and other forms of co-dependency
	slow growth rate		fragmentation and habitat loss
	high age at first maturity		reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure		high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
	specialized niche requirements (e.g. diet and habitat)		selectivity of removals (that may compromise recruitment)
	Other (please specify		

Aloe ferox **Criterion**	**Comments from reviewer on applicability of criteria for listing on Appendix II**
Trade Criterion **Is or may the species be affected by trade?**	**Yes**
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.	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.
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:	**Detrimental impact needs to be defined.**
B)(i) Exceeding, over an extended period, the level that can be continued to perpetuity.	**Again, the definition needs more clarity**. In all likelihood, the population could be reduced to half its current size and would still survive.
B)(ii) Reducing it to a population level at which its survival would be threatened by other influences.	**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.**

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* products are generally traded in refined form (juice, creams etc)**
D)	**There are compelling reasons, other than those given in C to ensure that effective control of trade in currently listed species is achieved.**	**Not relevant for *Aloe***

For criteria **A)** and **B)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity	**X**	species associations such as symbiosis and other forms of co-dependency
	slow growth rate	**X**	fragmentation and habitat loss
	high age at first maturity	**X**	reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure		high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
	low population density (for sessile or semi-sessile species)	**X**	threats from rapid environmental change (e.g. climate regime shifts)
	specialized niche requirements (e.g. diet and habitat)		selectivity of removals (that may compromise recruitment)
	Other (please specify		

Dendrobium nobile **CRITERION**	**Reviewers:** Dr. Xiaohua Jin Herbarium(KUN), Kunming Institute of Botany, Chinese Academy of Sciences **Contact persons:** Dr. Xiaohua Jin Contact address: Herbarium (KUN), Kunming Institute of Botany, Chinese Academy of Sciences; Heilongtan, Ciban, Kunming 650204, Yunnan, China Tel: oo852-0871-5212241 e-mail: xiaohuajin@mail.kib.ac.cn Mr. Baoguo Zhai/ zhai_baoguo@hotmail.com Mr. Noel McGough/ n.mcgough@rbgkew.org.uk Dr. Fatima Mereles/ fmereles@sce.cnc.una.py ; fmereles@qui.una.py **Comments from reviewers on applicability of criteria for listing on Appendix I**
Trade Criterion **Is or may the species be affected by trade?**	**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 cut flowers are from the propagated in Chinese market.
A) The wild population is small, and is characterized by at least one of the following (see definitions below):	What was/is the estimated size of the population? Please include units of measurement. **No**. Wild population of this species can't be considered small. But it is hard to make a rather exact estimate about its population size. Problem **Although *Dendrobium nobile* is wide distributed, and the articles under A) are not suitable for it, some articles under A) affect this species greatly, such as A) (□).**
A)(i) an observed, inferred or projected decline in the number of individuals or the area and quality of habitat; or	
A)(ii) each sub-population being very small; or	What were/are the estimated sizes of the subpopulation(s)? Please include units of measurement. Problem: **The definition of sub-population, together with the lack of special study about the species, such as pollination, leads it difficult to make a estimate of size of sub-population of this some wide distributed species, such as *Dendrobium nobile*.**.
A)(iii) a majority of individuals, during one or more life-history phases, being concentrated in one sub-population; or	.
A)(iv) large short-term fluctuations in the number of individuals appropriate to measuring population size for the species concerned;	If the population was/is characterized by large short-term fluctuations in the numbers of individuals, what was/is the average magnitude in orders of magnitude? What was/is the average period of fluctuation in years? .

A)(v) a high vulnerability due to the species' biology or behaviour (including migration).	.
B) The wild population has a restricted area of distribution and is characterized by at least one of the following (see definitions below):	What was/is the estimated area of distribution? If listing on the basis of one or more sub-populations, what were/are the estimated areas of distribution of the subpopulation(s)? Please include units of measurement? **No.** *Dedrobium nobile* is a wide distributed across tropical and south subtropical Asia . Problem: ***Dendrobium nobile*** **is a wide distributed, but our observation showed its habitat has been fragmented severely and quality declined. So when the wild population has a wide area of distribution, then any article under B) is not suitable to estimate it, but some articles, such as B) (□) , might have been resulted in the threat of this species.**
B)(i) fragmentation or occurrence at very few locations; or	.
B)(ii) large fluctuations in the area of distribution or the number of sub-populations; or	
B)(iii) a high vulnerability due to the species' biology or behaviour (including migration); or	
B)(iv) an observed, inferred or projected decrease in any one of the following:	
• the area of distribution; or	
• the area of habitat; or	

• the number of sub-populations; or	
• the number of individuals; or	
• the quality of habitat; or	
• the recruitment.	
C) **A marked decline in population size in the wild, which has been either** (see definitions below):	Historical extent of decline - To what extent has the population or the area of distribution (please specify which) declined since historical times (i.e., going back 100 years or more if known; else based on whatever information is available)? (Ex. The ___ has declined down to ____% of the historical levels of ___ years ago.) Recent rate of decline - Characterize the recent (10-20 year) trends in population size or area of distribution (please specify which). **Yes.** Our surveys showed a marked decline in population size of *Dendrobium nobile* in the wild due to over-collection and decline of the quality of habitat. Problem: **It is not easy to make an exact estimate of the long-term extent of decline and the recent rate of decline for such a wide distributed species without hard data. Moreover, this species has been used as herbal medicine no less than 400 years in China, which makes it more difficult to estimate its long-term extent of decline and the recent rate of decline.**
C)(i) observed as ongoing or as having occurred in the past (but with a potential to resume); or	**Yes.**
C)(ii) inferred or projected on the basis of any one of the following:	**Yes.**
• a decrease in area of habitat; or	

• a decrease in quality of habitat; or	**Yes.**
• levels or pattern of exploitation; or	**Yes.**
• threats from extrinsic human-induced factors such as competition/predation by introduced species or the effects of hybridization, toxins and pollutants; or	**No**
• a decreasing recruitment	
D) If not included in Appendix I, is likely to satisfy one or more of criteria A-C within 5 years?	**DNK. It needs further investigation**

For criteria **A)(v)** and **B)(iii)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity		species associations such as symbiosis and other forms of co-dependency
	slow growth rate	**X**	fragmentation and habitat loss
	high age at first maturity		reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure		high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
	specialized niche requirements (e.g. diet and habitat)		selectivity of removals (that may compromise recruitment)
	Other (please specify		

Dendrobium nobile **Criterion**	**Comments from reviewer on applicability of criteria for listing on Appendix II**
Trade Criterion **Is or may the species be affected by trade?**	**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.
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.	**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.**
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:	**Yes**
B)(i) Exceeding, over an extended period, the level that can be continued to perpetuity.	**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.**
B)(ii) Reducing it to a population level at which its survival would be threatened by other influences.	

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.**	**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.**
D)	**There are compelling reasons, other than those given in C to ensure that effective control of trade in currently listed species is achieved.**	

For criteria **A)** and **B)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity		species associations such as symbiosis and other forms of co-dependency
	slow growth rate		fragmentation and habitat loss
	high age at first maturity		reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure		high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
	specialized niche requirements (e.g. diet and habitat)		selectivity of removals (that may compromise recruitment)
	Other (please specify		

Cistanche deserticola ***Cistanche deserticola* Y.C.Ma** **CRITERION**	**Reviewers:** Dr. Qin HaiNing Chinese National Herbarium Institute of Botany, CAS; Xiangshan, Beijing 100093,China Dr. Cao Rui Faculty of Life Science;University of Inner Mongolia; Hohhot, 010021, China **Contact person**: Dr. Qin HaiNing **Contact address:** Chinese National Herbarium Institute of Botany, CAS Xiangshan, Beijing 100093, China Tel: [86]10- 6259 1431 ext. 6023 Fax: [86]10- 8259 3448 e-mail: hainingqin@ns.ibcas.ac.cn Mr. Baoguo Zhai/ zhai_baoguo@hotmail.com **Comments from reviewers on applicability of criteria for listing on Appendix I**
Trade Criterion **Is or may the species be affected by trade?**	**YES.** The species is a well known medicinal plant. It was traded national and international wild plants, and over-collecting is happen recently in the demand for medicine (active substance-苯乙醇苷 phenylethanoid glycosides)-dried carnose stem . This was reported commonly by experts, as well as media. Significant trade surveys in China indicated it as first grade priority species for conservation action. **This criterion was easy to apply for this taxon**
A) The wild population is small, and is characterized by at least one of the following **(see definitions below):**	What was/is the estimated size of the population? Please include units of measurement. Twenty years ago, the wild population is quite large, distributed in several provinces in northern China, Mongolia and former Russia. But now the population is rather small due to the habitat deconstruction. **This criterion was easy to apply for this taxon.**
A)(i) an observed, inferred or projected decline in the number of individuals or the area and quality of habitat; or	
A)(ii) each sub-population being very small; or	What were/are the estimated sizes of the subpopulation(s)? Please include units of measurement. By sampling method measure the subpopulations (10×10 meter)
A)(iii) a majority of individuals, during one or more life-history phases, being concentrated in one sub-population; or	.
A)(iv) large short-term fluctuations in the number of individuals appropriate to measuring population size for the species concerned;	If the population was/is characterized by large short-term fluctuations in the numbers of individuals, what was/is the average magnitude in orders of magnitude? What was/is the average period of fluctuation in years? .

A)(v) a high vulnerability due to the species' biology or behaviour (including migration).	The species is of high vulnerability due to the decreasing of host plant, Haloxylon ammodendron (Chenopodiaceae), which is over-collecting for firewood and for timber . **This criterion was easy to apply for this taxon**
B) The wild population has a restricted area of distribution and is characterized by at least one of the following (see definitions below):	What was/is the estimated area of distribution? If listing on the basis of one or more sub-populations, what were/are the estimated areas of distribution of the subpopulation(s)? Please include units of measurement?
B)(i) fragmentation or occurrence at very few locations; or	.
B)(ii) large fluctuations in the area of distribution or the number of sub-populations; or	Yes. **This criterion was easy to apply for this taxon**
B)(iii) a high vulnerability due to the species' biology or behaviour (including migration); or	The species is of high vulnerability due to the decreasing of host plant, Haloxylon ammodendron (Chenopodiaceae), which is over-collecting for firewood and for timber . **This criterion was easy to apply for this taxon**
B)(iv) an observed, inferred or projected decrease in any one of the following:	
• the area of distribution; or	Yes. A special survey in China show the area of its distribution becomes smaller and smaller. **This criterion was easy to apply for this taxon**
• the area of habitat; or	
• the number of sub-populations; or	
• the number of individuals; or	Yes. Some resent survey show that the number of individual is decreased. **This criterion was easy to apply for this taxon**

	• the quality of habitat; or	
	• the recruitment.	
C)	**A marked decline in population size in the wild, which has been either** (see definitions below):	Historical extent of decline - To what extent has the population or the area of distribution (please specify which) declined since historical times (i.e., going back 100 years or more if known; else based on whatever information is available)? (Ex. The ___ has declined down to ____% of the historical levels of ___ years ago.) Recent rate of decline - Characterize the recent (10-20 year) trends in population size or area of distribution (please specify which). The population has declined down to about 40% of the historical levels of 50 years ago. Possible but likely that decline does not fulfill the definition of marked. **The application of such a criterion to is always likely to be difficult due to the lack of hard data. The views of national and international experts with field knowledge of the taxa are therefore critical to the assessment. It is therefore vital that such opinion should carry similar weight to published information available for the better known groups. If this is the case then this criterion can be applied to plants.**
C)(i)	observed as ongoing or as having occurred in the past (but with a potential to resume); or	**Yes. This criterion was easy to apply for this taxon**
C)(ii)	inferred or projected on the basis of any one of the following:	
	• a decrease in area of habitat; or	**See below**
	• a decrease in quality of habitat; or	**See below**
	• levels or pattern of exploitation; or	The species has a relatively widespread distribution in the past, It occurs as parasitical plant in desert and the habitat is decline. Despite being relatively widespread before, 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. However, it is unlikely that the decline can yet be considered as marked in term of the criteria. Exact estimates of decline are difficult due to lack of any hard data. However marked decline will have occurred in local populations**. Problem with the application of the decline criteria lies with the quality of information available for different taxa - if an experts best guess is acceptable then the criteria can be applied. If hard data is needed then not.**

• threats from extrinsic human-induced factors such as competition/predation by introduced species or the effects of hybridization, toxins and pollutants; or	
• a decreasing recruitment	
D) If not included in Appendix I, is likely to satisfy one or more of criteria A-C within 5 years?	

For criteria **A)(v)** and **B)(iii)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity	**X**	species associations such as symbiosis and other forms of co-dependency
	slow growth rate	**X**	fragmentation and habitat loss
	high age at first maturity		reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure		high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
X	specialized niche requirements (e.g. diet and habitat)		selectivity of removals (that may compromise recruitment)
	Other (please specify		

Cistanche deserticola **Criterion**	**Comments from reviewer on applicability of criteria for listing on Appendix II**
Trade Criterion **Is or may the species be affected by trade?**	**YES.** In trade as wild plants. In demand for medicine (active substance-苯乙醇苷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**
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.	**Dependent on definition of near future, have applied the 5-10 year guideline. Difficult to ascertain.**
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:	The wild population have a restricted area of distribution. It occurs as a parasitic plant in sand of the North west 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.
B)(i) Exceeding, over an extended period, the level that can be continued to perpetuity.	**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.**
B)(ii) Reducing it to a population level at which its survival would be threatened by other influences.	

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 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.
D)	**There are compelling reasons, other than those given in C to ensure that effective control of trade in currently listed species is achieved.**	

For criteria **A)** and **B)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity	**X**	species associations such as symbiosis and other forms of co-dependency
	slow growth rate	**X**	fragmentation and habitat loss
	high age at first maturity		reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure		high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
X	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
X	specialized niche requirements (e.g. diet and habitat)		selectivity of removals (that may compromise recruitment)
	Other (please specify		

Marojejya darianii Madagascan Palm Local Name: Ravimbe **CRITERION**	**Reviewers:** John Dransfield Herbarium, Royal Botanic Gardens, Kew, Richmond, Surrey, TW9 3AE, UK **Contact person:** Noel McGough **Contact address:** Conventions and Policy Section, Royal Botanic Garden, Kew, Richmond, Surrey, TW9 3AE, United Kingdom. Tel: +44 -(0)20- 83325722 Fax: +44 -(0)20- 83325757 e-mail N.McGough@rbgKew.org.uk **Comments from reviewers on applicability of criteria for listing on Appendix I**
Trade Criterion **Is or may the species be affected by trade?**	Yes **This criterion was easy to apply for this taxon**
A) The wild population is small, and is characterized by at least one of the following (see definitions below):	What was/is the estimated size of the population? Please include units of measurement. Yes, less than 100 mature individuals **This criterion was easy to apply for this taxon.** However there is limited published information on this taxon and the other Palms. It is important that is the case of many plants where limited published information is available that the views of local national and international experts that have field knowledge of the relevant taxa be given equal weight to published data on better known species.
A)(i) an observed, inferred or projected decline in the number of individuals or the area and quality of habitat; or	Yes, habitat threatened with destruction for shifting cultivation **This criterion was easy to apply for this taxon**
A)(ii) each sub-population being very small; or	What were/are the estimated sizes of the subpopulation(s)? Please include units of measurement. 20+, 50, 8, c. 10 mature individuals in 4 widely separated populations.
A)(iii) a majority of individuals, during one or more life-history phases, being concentrated in one sub-population; or	
A)(iv) large short-term fluctuations in the number of individuals appropriate to measuring population size for the species concerned;	If the population was/is characterized by large short-term fluctuations in the numbers of individuals, what was/is the average magnitude in orders of magnitude? What was/is the average period of fluctuation in years? Insufficient Information -detailed demographic study of populations not completed.

A)(v)	a high vulnerability due to the species' biology or behaviour (including migration).	. **Not applicable/Not possible to say**
B)	**The wild population has a restricted area of distribution and is characterized by at least one of the following** (see definitions below):	What was/is the estimated area of distribution? If listing on the basis of one or more sub-populations, what were/are the estimated areas of distribution of the subpopulation(s)? Please include units of measurement? Yes -no population is more than c. 50 sq.m **This criterion was easy to apply for this taxon**
B)(i)	fragmentation or occurrence at very few locations; or	Yes -occurring in 4 known populations, two relatively close, the others far spread **This criterion was easy to apply for this taxon**
B)(ii)	large fluctuations in the area of distribution or the number of sub-populations; or	Populations not known or expected to fluctuate **This criterion was easy to apply for this taxon**
B)(iii)	a high vulnerability due to the species' biology or behaviour (including migration); or	**Not applicable**
B)(iv)	an observed, inferred or projected decrease in any one of the following:	Yes **This criterion was easy to apply for this taxon**
	• the area of distribution; or	Likely
	• the area of habitat; or	Yes due to habitat type – swampy valley bottoms – susceptible to clearance for rice cultivation **This criterion was easy to apply for this taxon**

• the number of sub-populations; or	Could easily happen **This criterion was easy to apply for this taxon**
• the number of individuals; or	Yes has happened through felling for palm-heart in one population **This criterion was easy to apply for this taxon**
• the quality of habitat; or	**Don't know**
• the recruitment.	**Don't know**
C) A marked decline in population size in the wild, which has been either (see definitions below):	Historical extent of decline - To what extent has the population or the area of distribution (please specify which) declined since historical times (i.e., going back 100 years or more if known; else based on whatever information is available)? (Ex. The ___ has declined down to ____% of the historical levels of ___ years ago.) Recent rate of decline - Characterize the recent (10-20 year) trends in population size or area of distribution (please specify which).
C)(i) observed as ongoing or as having occurred in the past (but with a potential to resume); or	Some evidence from sightings of felled individuals in one population **This criterion was easy to apply for this taxon**
C)(ii) inferred or projected on the basis of any one of the following:	
• a decrease in area of habitat; or	Habitat decreased at the type locality by c. one half due to forest clearance for rice cultivation **This criterion was easy to apply for this taxon**
• a decrease in quality of habitat; or	**Not observed**
• levels or pattern of exploitation; or	**Not known**

• threats from extrinsic human-induced factors such as competition/predation by introduced species or the effects of hybridization, toxins and pollutants; or	**Probably not applicable**
• a decreasing recruitment	**Not known**
D) If not included in Appendix I, is likely to satisfy one or more of criteria A-C within 5 years?	Already fulfills A and B

For criteria **A)(v)** and **B)(iii)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity		species associations such as symbiosis and other forms of co-dependency
X	slow growth rate	**X**	fragmentation and habitat loss
X	high age at first maturity		reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure		high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
X	specialized niche requirements (e.g. diet and habitat)		selectivity of removals (that may compromise recruitment)
	Other (please specify		

Marojejya darianii **Criterion**	**Comments from reviewer on applicability of criteria for listing on Appendix II**
Trade Criterion **Is or may the species be affected by trade?**	Yes
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.	Regulation of trade in this species may have little if any effect on avoiding eligibility for inclusion in Appendix I
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:	**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.	**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)(ii) Reducing it to a population level at which its survival would be threatened by other influences.	**Not known**

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.**	**Not applicable**
D)	**There are compelling reasons, other than those given in C to ensure that effective control of trade in currently listed species is achieved.**	**Not applicable**

For criteria **A)** and **B)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity		species associations such as symbiosis and other forms of co-dependency
X	slow growth rate	**X**	fragmentation and habitat loss
X	high age at first maturity		reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure		high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
X	specialized niche requirements (e.g. diet and habitat)		selectivity of removals (that may compromise recruitment)
	Other (please specify		

Ravenea louvelii A Madagascan Palm **CRITERION**	**Reviewers:** John Dransfield Herbarium, Royal Botanic Gardens, Kew, Richmond, Surrey, TW9 3AE, UK **Contact person:** Noel McGough **Contact address:** Conventions and Policy Section, Royal Botanic Garden, Kew, Richmond, Surrey, TW9 3AE, United Kingdom. Tel: +44 -(0)20- 83325722 Fax: +44 -(0)20- 83325757 e-mail N.McGough@rbgKew.org.uk **Comments from reviewers on applicability of criteria for listing on Appendix I**
Trade Criterion **Is or may the species be affected by trade?**	Yes **This criterion was easy to apply for this taxon**
A) The wild population is small, and is characterized by at least one of the following (see definitions below):	What was/is the estimated size of the population? Please include units of measurement. Yes - less than 25 mature individuals **This criterion was easy to apply for this taxon.** However there is limited published information on this taxon and the other Palms. It is important that is the case of many plants where limited published information is available that the views of local national and international experts that have field knowledge of the relevant taxa be given equal weight to published data on better known species.
A)(i) an observed, inferred or projected decline in the number of individuals or the area and quality of habitat; or	Yes -habitat already seriously degraded **This criterion was easy to apply for this taxon**
A)(ii) each sub-population being very small; or	What were/are the estimated sizes of the subpopulation(s)? Please include units of measurement. Yes - a single population known with less than 25 mature individuals. This is also a dioecious palm, so number of fruit-bearing tress is probably about half the population **This criterion was easy to apply for this taxon**
A)(iii) a majority of individuals, during one or more life-history phases, being concentrated in one sub-population; or	

A)(iv) large short-term fluctuations in the number of individuals appropriate to measuring population size for the species concerned;	If the population was/is characterized by large short-term fluctuations in the numbers of individuals, what was/is the average magnitude in orders of magnitude? What was/is the average period of fluctuation in years? Insufficient information -detailed demographic study of populations not completed.
A)(v) a high vulnerability due to the species' biology or behaviour (including migration).	**Not possible to say**
B) The wild population has a restricted area of distribution and is characterized by at least one of the following (see definitions below):	What was/is the estimated area of distribution? If listing on the basis of one or more sub-populations, what were/are the estimated areas of distribution of the subpopulation(s)? Please include units of measurement? Yes - the single population is no more than c. 50 sq.m **This criterion was easy to apply for this taxon**
B)(i) fragmentation or occurrence at very few locations; or	Occurring in a single population **This criterion was easy to apply for this taxon**
B)(ii) large fluctuations in the area of distribution or the number of sub-populations; or	Populations not known or expected to fluctuate **This criterion was easy to apply for this taxon**
B)(iii) a high vulnerability due to the species' biology or behaviour (including migration); or	Not applicable **This criterion was easy to apply for this taxon**
B)(iv) an observed, inferred or projected decrease in any one of the following:	Yes **This criterion was easy to apply for this taxon**
• the area of distribution; or	Likely

• the area of habitat; or	Habitat already degraded
• the number of sub-populations; or	**Not applicable**
• the number of individuals; or	**Don't know**
• the quality of habitat; or	Habitat already degraded
• the recruitment.	**Don't know**
C) A marked decline in population size in the wild, which has been either (see definitions below):	Historical extent of decline - To what extent has the population or the area of distribution (please specify which) declined since historical times (i.e., going back 100 years or more if known; else based on whatever information is available)? (Ex. The ___ has declined down to ____% of the historical levels of ___ years ago.) Recent rate of decline - Characterize the recent (10-20 year) trends in population size or area of distribution (please specify which). **Little or no information available to apply this criterion**
C)(i) observed as ongoing or as having occurred in the past (but with a potential to resume); or	**Not observed**
C)(ii) inferred or projected on the basis of any one of the following:	**Not observed**
• a decrease in area of habitat; or	**Not observed**
• a decrease in quality of habitat; or	**Not observed**
• levels or pattern of exploitation; or	**Not known**

• threats from extrinsic human-induced factors such as competition/predation by introduced species or the effects of hybridization, toxins and pollutants; or	**Possibly** – introduced Strawberry-Guava and Rambling Rose serious introduced pests nearby.
• a decreasing recruitment	**Not known**
D) If not included in Appendix I, is likely to satisfy one or more of criteria A-C within 5 years?	Already fulfils A & B

For criteria **A)(v)** and **B)(iii)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity		species associations such as symbiosis and other forms of co-dependency
X	slow growth rate	**X**	fragmentation and habitat loss
X	high age at first maturity		reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure		high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
	specialized niche requirements (e.g. diet and habitat)		selectivity of removals (that may compromise recruitment)
	Other (please specify		

Ravenea louvelii **Criterion**	**Comments from reviewer on applicability of criteria for listing on Appendix II**
Trade Criterion **Is or may the species be affected by trade?**	**Yes**
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.	Regulation of trade in this species may have little if any effect on avoiding eligibility for inclusion in Appendix I
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:	**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
B)(i) Exceeding, over an extended period, the level that can be continued to perpetuity.	**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 -
B)(ii) Reducing it to a population level at which its survival would be threatened by other influences.	**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.

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.**	**Not applicable**
D)	**There are compelling reasons, other than those given in C to ensure that effective control of trade in currently listed species is achieved.**	**Not applicable**

For criteria **A)** and **B)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity		species associations such as symbiosis and other forms of co-dependency
X	slow growth rate	**X**	fragmentation and habitat loss
X	high age at first maturity		reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure		high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
	specialized niche requirements (e.g. diet and habitat)		selectivity of removals (that may compromise recruitment)
	Other (please specify		

Satranala decussilvae **CRITERION**	**Reviewers:** John Dransfield Herbarium, Royal Botanic Gardens, Kew, Richmond, Surrey, TW9 3AE, UK **Contact person:** Noel McGough **Contact address:** Conventions and Policy Section, Royal Botanic Garden, Kew, Richmond, Surrey, TW9 3AE, United Kingdom. Tel: +44 -(0)20- 83325722 Fax: +44 -(0)20- 83325757 e-mail N.McGough@rbgKew.org.uk **Comments from reviewers on applicability of criteria for listing on Appendix I**
Trade Criterion **Is or may the species be affected by trade?**	Yes **This criterion was easy to apply for this taxon**
A) The wild population is small, and is characterized by at least one of the following (see definitions below):	What was/is the estimated size of the population? Please include units of measurement. Yes, less than 1000 mature individuals **This criterion was easy to apply for this taxon.** However there is limited published information on this taxon and the other Palms. It is important that is the case of many plants where limited published information is available that the views of local national and international experts that have field knowledge of the relevant taxa be given equal weight to published data on better known species.
A)(i) an observed, inferred or projected decline in the number of individuals or the area and quality of habitat; or	Yes, habitat threatened with destruction for shifting cultivation **This criterion was easy to apply for this taxon**
A)(ii) each sub-population being very small; or	What were/are the estimated sizes of the subpopulation(s)? Please include units of measurement. 500, 100, 100, c. 30 mature individuals in 4 widely separated populations **This criterion was easy to apply for this taxon**.
A)(iii) a majority of individuals, during one or more life-history phases, being concentrated in one sub-population; or	

A)(iv) large short-term fluctuations in the number of individuals appropriate to measuring population size for the species concerned;	If the population was/is characterized by large short-term fluctuations in the numbers of individuals, what was/is the average magnitude in orders of magnitude? What was/is the average period of fluctuation in years? Detailed demographic study of populations completed at one site, but no indications of fluctuations**.**
A)(v) a high vulnerability due to the species' biology or behaviour (including migration).	Not possible to say, nothing known of biology. **Insufficient information to apply this criterion to this taxon.**
B) The wild population has a restricted area of distribution and is characterized by at least one of the following (see definitions below):	What was/is the estimated area of distribution? If listing on the basis of one or more sub-populations, what were/are the estimated areas of distribution of the subpopulation(s)? Please include units of measurement? Some populations are very restricted in size **This criterion was easy to apply for this taxon**
B)(i) fragmentation or occurrence at very few locations; or	Occurring in 4 known populations, three relatively close, the other c. 200 km distant **This criterion was easy to apply for this taxon**.
B)(ii) large fluctuations in the area of distribution or the number of sub-populations; or	Populations not known or expected to fluctuate **This criterion not applicable to this taxon?**
B)(iii) a high vulnerability due to the species' biology or behaviour (including migration); or	**Not applicable?**

B)(iv) an observed, inferred or projected decrease in any one of the following:	
• the area of distribution; or	Likely
• the area of habitat; or	**Not known**
• the number of sub-populations; or	**Could easily happen**
• the number of individuals; or	**Not known**
• the quality of habitat; or	**Don't know**
• the recruitment.	**Don't know**
C) A marked decline in population size in the wild, which has been either (see definitions below):	Historical extent of decline - To what extent has the population or the area of distribution (please specify which) declined since historical times (i.e., going back 100 years or more if known; else based on whatever information is available)? (Ex. The ___ has declined down to ____% of the historical levels of ___ years ago.) Recent rate of decline - Characterize the recent (10-20 year) trends in population size or area of distribution (please specify which). Information not available to answer any of Section C. Lack of data here is critical and likely to be the case when you consider similar plant taxa.
C)(i) observed as ongoing or as having occurred in the past (but with a potential to resume); or	**Not known**
C)(ii) inferred or projected on the basis of any one of the following:	
• a decrease in area of habitat; or	**Not observed**

• a decrease in quality of habitat; or	**Not observed**
• levels or pattern of exploitation; or	**Not known**
• threats from extrinsic human-induced factors such as competition/predation by introduced species or the effects of hybridization, toxins and pollutants; or	**Probably not applicable**
• a decreasing recruitment	**Not known**
D) If not included in Appendix I, is likely to satisfy one or more of criteria A-C within 5 years?	**Yes**

For criteria **A)(v)** and **B)(iii)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity		species associations such as symbiosis and other forms of co-dependency
X	slow growth rate	**X**	fragmentation and habitat loss
X	high age at first maturity		reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure		high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
	specialized niche requirements (e.g. diet and habitat)		selectivity of removals (that may compromise recruitment)
	Other (please specify		

Satranala decussilvae Criterion	**Comments from reviewer on applicability of criteria for listing on Appendix II**
Trade Criterion **Is or may the species be affected by trade?**	Yes **This criterion was easy to apply for this taxon**
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.	Regulation of trade in this species may have little if any effect on avoiding eligibility for inclusion in Appendix I
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:	**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.	**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)(ii) Reducing it to a population level at which its survival would be threatened by other influences.	**Not known**

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.**	**Not applicable**
D)	**There are compelling reasons, other than those given in C to ensure that effective control of trade in currently listed species is achieved.**	**Not applicable**

iFor criteria **A)** and **B)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity		species associations such as symbiosis and other forms of co-dependency
X	slow growth rate	**X**	fragmentation and habitat loss
X	high age at first maturity		reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure		high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
	specialized niche requirements (e.g. diet and habitat)		selectivity of removals (that may compromise recruitment)
	Other (please specify		

Pseudophoenix ekmanii **(Non-CITES)** *Pseudophoenix ekmanii* Burret (Arecaceae) This palm is endemic to the Dominican Republic where the entire population occurs in a national park, but the seeds continue to some out of the country and plants are killed for fermented sap. Common names: Cacheo, Dominican Cherry palm **CRITERION**	**Reviewers:** Michael Maunder, Ph.D. (Fairchild Tropical Garden) Scott Zona, Ph.D. (Fairchild Tropical Garden) Carl Lewis, Ph.D. (Fairchild Tropical Garden) Patricia S. De Angelis, Ph.D. (US FWS, Division of Scientific Authority) **Contact person:** Robert R. Gabel US Fish and Wildlife Service **Tel:** 703-358-1708 Division of Scientific Authority **Fax:** 703-358-2276 4401 N. Fairfax Dr., Room 750 Arlington, Virginia, USA 22203 **e-mail**: Roddy_Gabel@fws.gov **Comments from reviewers on applicability of criteria for listing on Appendix I**
Trade Criterion **Is or may the species be affected by trade?**	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. GENERAL COMMENTS: While it may be implicitly understood, this question should specify international trade (see below). The definition also requires clarification (as mentioned below) and the reader should be asked to discuss any domestic trade issues within the context of the subsequent criteria (i.e with regard to decline, vulnerability, etc.). **THE FOLLOWING EDITORIAL CHANGES ARE PROPOSED:** **Trade Criterion** Is or may the species be affected by **international** trade? **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** 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, that may be detrimental to its survival in the wild.**

A) The wild population is small, and is characterized by at least one of the following (see definitions below):	What was/is the estimated size of the population? Please include units of measurement. Unknown, but probably no more than 5000 adults **THE FOLLOWING EDITORIAL CHANGE IS PROPOSED:** **What was/is the estimated size of the population? Where available, please include units of measurement and specify whether this number refers to the total population size or effective population size (see definition for population).** GENERAL COMMENTS: It seems impractical to characterize a population as small or very small – it's either small or it's not. If appropriate biological information is provided, the seriousness of the "bottleneck" will be apparent within the context of the review. The reference to "very small" populations should be deleted. In defining "small," numeric values should not be offered to the reviewer as part of the definition. See suggested language, below. Numbers can be misleading. A population of plants consisting of 5000 members can actually be quite small if they reproduce clonally. Does "wild" need to be defined here? In keeping with the next question (Part B), definitions for "wild population is small" should be broken out into parts – "wild" can be defined, "population" can be defined and "small" can be defined. **THE FOLLOWING EDITORIAL CHANGES ARE PROPOSED:** Small wild population **Provide the numerical, biological, and/or geographical factors to substantiate the characterization of the population in question as being "small."** ~~For some species where data exist to make an estimate, a figure of less than 5,000 individuals has been found to be an appropriate guideline (not a threshold) of what constitutes a small wild population. However, this figure is presented only as an example, since it is impossible to give numerical values that are applicable to all taxa. There will be many cases where this numerical guideline does not apply.~~ Population size When providing details on the size of a population or sub-population, **clarify** ~~it should be made clear~~ whether the information ~~presented~~ **provided** relates to an estimate of the **total** number of individuals, or to the **effective** population size (i.e., individuals capable of reproduction, excluding individuals that are environmentally and behaviourally or otherwise reproductively suppressed in the wild), or to another appropriate measure or component of the population. **In the case of species biologically dependent on other species for all or part of their life cycles, biologically appropriate values for the host or co-dependent species should also be ~~chosen~~. noted.**

A)(i) an observed, inferred or projected decline in the number of individuals or the area and quality of habitat; or	Decline due to over-collection; the rate of harvest is unknown and needs quantification. Re: Decline Often, there is insufficient baseline data upon which to base a percentage decline in the species. Is it sufficient to estimate the decline in suitable habitat and extrapolate the presumed decline in population? What supporting information is expected to support the extrapolation? Long- and short-term decline need to be defined by the reviewer presented in context with the biology of the species. What about decline caused by natural phenomena, such as hurricanes? Again, a caution against the numerical examples to characterize decline. Decline will be species-dependent and the biological context within which the decline is occurring needs to be provided. **The definition requires extensive revision.**
A)(ii) each sub-population being very small; or	What were/are the estimated sizes of the subpopulation(s)? Please include units of measurement. This palm appears to exist as one single population without subpopulation structure. GENERAL COMMENTS: The reviewer should provide the numerical, biological, or geographical information to substantiate the use of the terms "sub-population" and "small." Reviewer should be prompted to see definitions. Again, avoid use of "very small" and avoid providing numerical values in the definition. **The following editorial changes are proposed:** **~~each sub-population being very small; or~~ CHANGE TO…being made up of several small sub-populations** .
A)(iii) a majority of individuals, during one or more life-history phases, being concentrated in one sub-population; or	**Where do issues such as recruitment and generation time (as defined in the appendix) come into the scenario?.**
A)(iv) large short-term fluctuations in the number of individuals appropriate to measuring population size for the species concerned;	If the population was/is characterized by large short-term fluctuations in the numbers of individuals, what was/is the average magnitude in orders of magnitude? What was/is the average period of fluctuation in years? GENERAL COMMENTS: Caution against the out-of-context use of numbers in defining both the length of time and magnitude of a "fluctuation" – two years is superfluous in absence of a concrete example. E.g., saguaro cacti do not reach sexual maturity until between 35-50 years of age. E.g., Many perennials require three years before reaching sexual maturity. **The reviewer should be asked to provide numerical, biological or geographic information that characterizes the fluctuation and to substantiate its importance to the survival of the species in the wild..**

A)(v) a high vulnerability due to the species' biology or behaviour (including migration).	Vulnerability due to specialized habitat, slow rate of growth, and high age at first maturity. GENERAL COMMENTS: Why is the definition for vulnerability different in the appendix than the checklist at the end of this table? Note: Several clarifications/additions to vulnerability checklist. **THE FOLLOWING EDITORIAL CHANGES ARE PROPOSED:** **Using the checklist provided at the end of this table (and accompanying definitions in the glossary) as a guide, please explain which vulnerability factors affect this species/population/sub-population and why..**
B) **The wild population has a restricted area of distribution and is characterized by at least one of the following** (see definitions below):	What was/is the estimated area of distribution? If listing on the basis of one or more sub-populations, what were/are the estimated areas of distribution of the subpopulation(s)? Please include units of measurement? The area of distribution is unknown, but thought to occur entirely within the boundaries of Parque Nacional Jaragua and Isla Beata, Barahona Peninsula, Dominican Republic. GENERAL COMMENTS: In defining "area of distribution," numeric values should not be offered to the reviewer as part of the definition. The reviewer should be asked to provide numerical, biological or geographical factors that characterize the population's area of distribution. **Does "wild" need to be defined here?**
B)(i) fragmentation or occurrence at very few locations; or	GENERAL COMMENTS: In defining "fragmentation," numeric values should not be offered to the reviewer as part of the definition. The reviewer should be asked to provide numerical, biological or geographical factors that characterize the population's fragmentation..
B)(ii) large fluctuations in the area of distribution or the number of sub-populations; or	
B)(iii) a high vulnerability due to the species' biology or behaviour (including migration); or	Vulnerability due to specialized habitat, slow rate of growth, and high age at first maturity. GENERAL COMMENTS: Why is the definition for vulnerability different in the appendix than the checklist at the end of this table? Note: Several clarifications/additions to vulnerability checklist. **THE FOLLOWING EDITORIAL CHANGES ARE PROPOSED:** **Using the checklist provided at the end of this table (and accompanying definitions in the glossary) as a guide, please explain which vulnerability factors affect this species/population/sub-population and why.**

B)(iv) an observed, inferred or projected decrease in any one of the following:	
• the area of distribution; or	
• the area of habitat; or	
• the number of sub-populations; or	The rate of decline needs quantification, but suspected.
• the number of individuals; or	Impact of local land use not known, needs field assessment.
• the quality of habitat; or	
• the recruitment.	GENERAL COMMENTS: The term "recruitment" is in glossary; should be underlined.
C) **A marked decline in population size in the wild, which has been either** (see definitions below):	Historical extent of decline - To what extent has the population or the area of distribution (please specify which) declined since historical times (i.e., going back 100 years or more if known; else based on whatever information is available)? (Ex. The ___ has declined down to ____% of the historical levels of ___ years ago.) Recent rate of decline - Characterize the recent (10-20 year) trends in population size or area of distribution (please specify which). The rate of decline is unknown. GENERAL COMMENTS: **Should "wild" be defined?** Caution against use of numeric values out of context. Issues such as generation time factor in. E.g., saguaro cacti take 35-50 years to reach sexual maturity; many perennials take three.
C)(i) observed as ongoing or as having occurred in the past (but with a potential to resume); or	
C)(ii) inferred or projected on the basis of any one of the following:	GENERAL COMMENTS: Vulnerability could be applied in this Category – see general comment above. Ensure definition of vulnerability in appendix coincides with checklist at the end of this table. Note: Several clarifications/additions to vulnerability checklist. **THE FOLLOWING EDITORIAL CHANGES ARE PROPOSED:** **Using the checklist provided at the end of this table (and accompanying definitions in the glossary) as a guide, please explain which vulnerability factors affect this species/population/sub-population and why.**

• a decrease in area of habitat; or	
• a decrease in quality of habitat; or	
• levels or pattern of exploitation; or	
• threats from extrinsic human-induced factors such as competition/predation by introduced species or the effects of hybridization, toxins and pollutants; or	GENERAL COMMENTS: **Remove reference to "human-induced" and include stochastic events in this question (with example, such as hurricanes).**
• a decreasing recruitment	**Demographic viability of population needs assessment** **This is in glossary; should be underlined**
D) If not included in Appendix I, is likely to satisfy one or more of criteria A-C within 5 years?	GENERAL COMMENTS: The characterization of "near future" as 5 years is spurious in relevance to a preponderance of species. Aside from the "5-year" characterization, what is the difference between this Category, versus Appendix-II, Category A.

For criteria **A)(v)** and **B)(iii)**, please check which if any of the vulnerability factors listed below apply:
General Comments: Specifically request reviewers use these factors as a guide in their review of the taxon. Refer reviewer to glossary for explanations of vulnerability factors. Ensure that glossary definitions coincide more closely with the checklist (see below).

	low fecundity		species associations (such as) delete (symbiosis and other forms of co-dependency, **pollinators, dispersal mechanisms)**
X	slow growth rate		fragmentation and habitat loss
X	high age at first maturity		reduced genetic diversity **(clonal growth : For plants that grow clonally, a clonal population consisting of 5000 members essentially has the genetic diversity of zero).**
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure	**X**	high degree of endemism
	extensive migratory behaviour		threats from disease/**predators**
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
X	specialized niche requirements (e.g. diet and habitat)		selectivity of removals (that may compromise recruitment) **???does this mean selective harvest for the part in trade??? limited dispersal capability**
	Other (please specify		

PROPOSALS TO SOME DEFINITIONS (ANNEX 5)

***Pseudophoenix ekmanii* (non-CITES)** **Criterion**	**Comments from reviewer on applicability of criteria for listing on Appendix II**
Trade Criterion **Is or may the species be affected by trade?**	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/domestic** trade" if: 1. it is known to be in **international/domestic** 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/domestic** trade, or there is potential international demand for the species, that may be detrimental to its survival in the wild.

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.	Not known, needs field work to assess impact of harvesting on wild population. GENERAL COMMENTS: 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.**
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:	**THE FOLLOWING EDITORIAL CHANGES ARE PROPOSED:** 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 **?survival of the species in the wild?** by ~~either~~:
B)(i) Exceeding, over an extended period, the level that can be continued to perpetuity.	Not known. GENERAL COMMENTS: "Extended period" is in glossary and should be underlined. 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.**
B)(ii) Reducing it to a population level at which its survival would be threatened by other influences.	Not known. **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.**

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.**	Needs specialist skills to identify seed, seedlings or young plants.
D)	**There are compelling reasons, other than those given in C to ensure that effective control of trade in currently listed species is achieved.**	Why does this refer to Category C, but not to Categories A and B?.

For criteria **A)** and **B)**, please check which if any of the vulnerability factors listed below apply:

General Comments: Specifically request reviewers use these factors as a guide in their review of the taxon. Refer reviewer to glossary for explanations of vulnerability factors. Ensure that glossary definitions coincide more closely with the checklist (see below).

	low fecundity		species associations (such as) delete (symbiosis and other forms of co-dependency, **pollinators, dispersal mechanisms)**
X	slow growth rate		fragmentation and habitat loss
X	high age at first maturity		reduced genetic diversity **(clonal growth : For plants that grow clonally, a clonal population consisting of 5000 members essentially has the genetic diversity of zero).**
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure	**X**	high degree of endemism
	extensive migratory behaviour		threats from disease**/predators**
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
X	specialized niche requirements (e.g. diet and habitat)		selectivity of removals (that may compromise recruitment) **???does this mean selective harvest for the part in trade??? limited dispersal capability**
	Other (please specify		

PROPOSALS TO SOME DEFINITIONS (ANNEX 5)

Prunus africana **CRITERION**	**Reviewers:** Yves-Marie Allain, Autorité Scientifique française, Muséum National d'Histoire Naturelle **Contact person:** Yves-Marie Allain, Muséum National d'Histoire Naturelle, 57 rue Cuvier 75005 Paris Tel: 33 1 40 79 33 18 Fax: 33 1 40 79 38 23 e-mail: allainym@mnhn.fr **Comments from reviewers on applicability of criteria for listing on Appendix I**
Trade Criterion **Is or may the species be affected by trade?**	
A) The wild population is small, and is characterized by at least one of the following (see definitions below):	What was/is the estimated size of the population? Please include units of measurement.
A)(i) an observed, inferred or projected decline in the number of individuals or the area and quality of habitat; or	**No**
A)(ii) each sub-population being very small; or	What were/are the estimated sizes of the subpopulation(s)? Please include units of measurement. **No**
A)(iii) a majority of individuals, during one or more life-history phases, being concentrated in one sub-population; or	**No** **Commentaires:** Le point A(iii) ne me semble pas pertinent pour le *Prunus africana* et de façon plus générale pour les plantes, sauf à considérer que pour des raisons diverses, certaines populations de plantes ne peuvent plus avoir de reproduction efficace car, par exemple, la pollution atmosphérique rend stérile le pollen..
A)(iv) large short-term fluctuations in the number of individuals appropriate to measuring population size for the species concerned;	If the population was/is characterized by large short-term fluctuations in the numbers of individuals, what was/is the average magnitude in orders of magnitude? What was/is the average period of fluctuation in years? **No** .

A)(v) a high vulnerability due to the species' biology or behaviour (including migration).	**No** .
B) The wild population has a restricted area of distribution and is characterized by at least one of the following (see definitions below):	What was/is the estimated area of distribution? If listing on the basis of one or more sub-populations, what were/are the estimated areas of distribution of the subpopulation(s)? Please include units of measurement? **No** **Commentaires:** Sur l'ensemble du point B. L'aire de répartition du *Prunus africana* est très importante puisque les pays recensés sont au nombre d'une vingtaine. Lorsque le terme de fragmentation est employé, il semble avoir une signification plus géographique que biologique. Si la question se pose pour le *Prunus africana*, c'est parce que sous un même taxon se trouve des populations génétiquement très différentes. Sont-elles suffisamment éloignées au point de devoir être considérées comme des espèces différentes ou des sous-espèces incompatibles. Le critère n'est-il pas trop morphologique et pas assez biologique? Par ailleurs, sur des végétaux dont le cycle de révolution est de l'ordre du siècle, la notion de temps est extrêmement importante et il devient difficile d'apprécier la diminution des populations sur de telles périodes lorsque la littérature est pratiquement muette sur l'espèce et que les botaniste n'ont pas réglés certains problèmes de taxonomie. Comme beaucoup d'autres taxons de la flore forestière, les ligneux à cycle long sont sensibles aux variations macro climatiques
B)(i) fragmentation or occurrence at very few locations; or	**No**
B)(ii) large fluctuations in the area of distribution or the number of sub-populations; or	**No**
B)(iii) a high vulnerability due to the species' biology or behaviour (including migration); or	**No**

B)(iv) an observed, inferred or projected decrease in any one of the following:	**No**
• the area of distribution; or	
• the area of habitat; or	
• the number of sub-populations; or	
• the number of individuals; or	
• the quality of habitat; or	
• the recruitment.	
C) A marked decline in population size in the wild, which has been either (see definitions below):	Historical extent of decline - To what extent has the population or the area of distribution (please specify which) declined since historical times (i.e., going back 100 years or more if known; else based on whatever information is available)? (Ex. The ___ has declined down to ____% of the historical levels of ___ years ago.) Recent rate of decline - Characterize the recent (10-20 year) trends in population size or area of distribution (please specify which).
C)(i) observed as ongoing or as having occurred in the past (but with a potential to resume); or	**No**
C)(ii) inferred or projected on the basis of any one of the following:	**No**
• a decrease in area of habitat; or	
• a decrease in quality of habitat; or	
• levels or pattern of exploitation; or	

• threats from extrinsic human-induced factors such as competition/predation by introduced species or the effects of hybridization, toxins and pollutants; or	
• a decreasing recruitment	
D) If not included in Appendix I, is likely to satisfy one or more of criteria A-C within 5 years?	**No**

For criteria **A)(v)** and **B)(iii)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity		species associations such as symbiosis and other forms of co-dependency
	slow growth rate		fragmentation and habitat loss
	high age at first maturity		reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure		high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
	specialized niche requirements (e.g. diet and habitat)		selectivity of removals (that may compromise recruitment)
	Other (please specify		

Prunus africana Criterion	**Comments from reviewer on applicability of criteria for listing on Appendix II**
Trade Criterion **Is or may the species be affected by trade?**	**Commentaires:** L'espèce n'est pas dans le commerce, ce n'est q'une partie par prélèvement sur des individus vivants. Le prélèvement peut ne pas avoir d'influence sur la vie ou la survie des individus après écorçage. Il est donc important que les critères fassent apparaître les modes d'exploitation et les conséquences sur la vie et reproduction de l'espèce.
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.	**No**
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:	
B)(i) Exceeding, over an extended period, the level that can be continued to perpetuity.	Oui, si aucune regulation n'est effectuée non sur la récolte mais les méhodes et modes de récolte, surtout dans les régions d'abatage, car ce sont les semenciers qui sont détruits !
B)(ii) Reducing it to a population level at which its survival would be threatened by other influences.	**No**

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.**	**Non, car l'écorce meme broyée et séchée partiellement garde son odeur caractéristique.**
D)	**There are compelling reasons, other than those given in C to ensure that effective control of trade in currently listed species is achieved.**	Oui, principe de précaution **Commentaires:** Pour des taxons dont l'aire de répartition est aussi importante, peut-être faudrait-il prévoir d'analyser les critères non seulement sur l'ensemble de la population mais en même temps sur les sous populations avec des propositions séparées dans les annexes pour tenir compte des pressions relatives exercées dans chaque régions bio-géographiques et des différences génétiques des sous populations.

For criteria **A)** and **B)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity		species associations such as symbiosis and other forms of co-dependency
	slow growth rate		fragmentation and habitat loss
	high age at first maturity		reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure		high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
	specialized niche requirements (e.g. diet and habitat)		selectivity of removals (that may compromise recruitment)
	Other (please specify		

Populus tremuloides **(Non-CITES)** *Populus tremuloides* Michx. Trembling aspen, Quaking aspen (English) Peuplier faux-tremble (French) **CRITERION**	**Reviewers:** **Ken Farr, Natural Resources Canada, Canadian Forest Service** **Contact person:** **Ken Farr** **580 Booth Street, Ottawa,** **Ontario, Canada K1A 0E4** **Tel: 613-947-9007** **Fax: 613-947-9090** **e-mail: kfarr@nrcan.gc.ca** **Comments from reviewers on applicability of criteria for listing on Appendix I**
Trade Criterion **Is or may the species be affected by trade?**	Not applicable to *Populus tremuloides*. **Definition of affected by trade as listed on Annex 5, is clear and easily interpreted with regard to this species.**
A) The wild population is small, and is characterized by at least one of the following (see definitions below):	What was/is the estimated size of the population? Please include units of measurement. No: *P. tremuloides* is continentally distributed, ranging across boreal and temperate North America. Range in Canada covers 5,153,890 sq. km.
A)(i) an observed, inferred or projected decline in the number of individuals or the area and quality of habitat; or	Interpretation of this criterion unclear, with respect to *P. tremuloides* and to other plant species that employ partially or exclusively, non-sexual reproductive strategies. In the case of *P. tremuloides*, clones, or groups of clones occupying 80 hectares are known to have originated from a single seedling. The resulting population consists of many thousands of "trees" (stems) all of which share a common (or commonly originated) root system. As such, a specific definition of "individual" in the case of vegetatively reproducing species should ideally include a measure of genetic differentiation among or between clonal populations. Interpretation of "decline in area and quality of habitat" is also problematic. Particularly for early succession temperate and boreal tree species, habitat quality is synonymous with "presence" in a given geographical area and at a specific point in time. Decline in habitat of an early succession species such as *P. tremuloides* could equate to a normal, natural cycle in which habitat quality for mid-succession and climax species is improving. The distribution and temporal "mobility" of temperate and boreal tree species suggests if decline in quality or quantity of forest habitat is to be considered as a threat, it must be considered (a) at a broad landscape-level scale, and (b) with some anticipation that a natural cycle from high quality to low quality and back again, for tree species or for stable species associations, may be occurring.

A)(ii) each sub-population being very small; or	What were/are the estimated sizes of the subpopulation(s)? Please include units of measurement. **Not specifically applicable to *P. tremuloides*. However, with regards to vegetatively reproducing species, a specific definition of sub-population might be required.** Reference to the degree of genetic similarity or variance rather than geographic population, is probably required to accurately delineate subpopulations within a species.
A)(iii) a majority of individuals, during one or more life-history phases, being concentrated in one sub-population; or	**Not applicable to *P. tremuloides*. Interpretation of the criterion would be difficult for forest species in which sexual reproduction occurs either periodically or rarely during the life cycle of an individual "tree".** (I.e. sexually reproducing members of a largely clonal population might be considered a sub-population. The relative ratio of one form to another within a species population can fluctuate over time, without implying species decline)..
A)(iv) large short-term fluctuations in the number of individuals appropriate to measuring population size for the species concerned;	If the population was/is characterized by large short-term fluctuations in the numbers of individuals, what was/is the average magnitude in orders of magnitude? What was/is the average period of fluctuation in years? **Not applicable to *P. tremuloides*,** owing to its extended distribution. However, disturbance (often from wildfire or severe climatic events) regularly results in dynamic, short-term fluctuations (as measured in individual stem counts) for many species that reproduce from a single root system. Disturbance events of this type, whether of natural or anthropomorphic origin, normally result in subsequent rapid, exponential increase in production of stems by the root system. .
A)(v) a high vulnerability due to the species' biology or behaviour (including migration).	**Easily interpreted, not applicable to *P. tremuloides*..**
B) The wild population has a restricted area of distribution and is characterized by at least one of the following (see definitions below):	What was/is the estimated area of distribution? If listing on the basis of one or more sub-populations, what were/are the estimated areas of distribution of the subpopulation(s)? Please include units of measurement? **Not applicable to *P. tremuloides*.**
B)(i) fragmentation or occurrence at very few locations; or	**Not applicable to *P. tremuloides*..**
B)(ii) large fluctuations in the area of distribution or the number of sub-populations; or	**Not applicable to *P. tremuloides*.**
B)(iii) a high vulnerability due to the species' biology or behaviour (including migration); or	**Not applicable to *P. tremuloides*.**

B)(iv) an observed, inferred or projected decrease in any one of the following:	**Not applicable to *P. tremuloides.*** In general, the criteria (Biv), do not employ effective silvicultural and biological proxies for determination of threat of extinction of temperate and boreal forest tree species. Determination of threat of extinction using observed, inferred or projected decline in the per cent number of individuals, or decrease in area of distribution or number of sub-populations, is not likely to capture characteristics critical to the species under review. Rate-based measurement, for example, decline over a given unit of time of population, distribution, number of sub-populations, or of other identified factors, would be more likely to yield specific, quantifiable data with which to interpret the degree to which a forest tree species is threatened.
• the area of distribution; or	**Easily interpreted, not applicable to *P. tremuloides.***
• the area of habitat; or	**Easily interpreted, not applicable to *P. tremuloides.***
• the number of sub-populations; or	**Easily interpreted, not applicable to *P. tremuloides.***
• the number of individuals; or	**Easily interpreted, not applicable to *P. tremuloides.***
• the quality of habitat; or	**The criterion does not account for the success ional nature of species distribution in temperate and boreal forests**. Often, habitat area and quality are expected to cycle over time. Working under that assumption, this criterion must be interpreted at a broad, landscape-level scale, and considered over a period of time appropriate to the disturbance cycle of the site.
• the recruitment.	**Easily interpreted, not applicable to *P. tremuloides.***

C) **A marked decline in population size in the wild, which has been either** (see definitions below):	Historical extent of decline - To what extent has the population or the area of distribution (please specify which) declined since historical times (i.e., going back 100 years or more if known; else based on whatever information is available)? (Ex. The ___ has declined down to ____% of the historical levels of ___ years ago.) Recent rate of decline - Characterize the recent (10-20 year) trends in population size or area of distribution (please specify which). **Not applicable *to P. tremuloides*. Note that the definition of "effective population size" (i.e., individuals capable of reproduction) is ambiguous in the context of clonally reproducing species.** Also, as is noted above, the criteria for all subsections of (C) do not closely address the success ional nature of species distribution in temperate and boreal forests. As habitat area and quality are normally expected to naturally cycle over time, interpretation of the criteria must be carried out at a very broad landscape scale, and over extended time periods.
C)(i) observed as ongoing or as having occurred in the past (but with a potential to resume); or	**Easily interpreted, not applicable to *P. tremuloides*.**
C)(ii) inferred or projected on the basis of any one of the following:	
• a decrease in area of habitat; or	**Easily interpreted, not applicable to *P. tremuloides*.**
• a decrease in quality of habitat; or	**Interpretation unclear for early-succession species such as *P. tremuloides*.** "Decrease in appropriate habitat across an identifiable geographic zone" (e.g. a watershed or other landscape-scale entity) would better capture the cyclic nature of such species.
• levels or pattern of exploitation; or	**Easily interpreted, not applicable to *P. tremuloides*.**

• threats from extrinsic human-induced factors such as competition/predation by introduced species or the effects of hybridization, toxins and pollutants; or	**Easily interpreted, not applicable to *P. tremuloides*.**
• a decreasing recruitment	**Easily interpreted, not applicable to *P. tremuloides*.**
D) If not included in Appendix I, is likely to satisfy one or more of criteria A-C within 5 years?	**Speculative, but can be interpreted relative to *P. tremuloides***

For criteria **A)(v)** and **B)(iii)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity		species associations such as symbiosis and other forms of co-dependency
	slow growth rate		fragmentation and habitat loss
	high age at first maturity		reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure		high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
	specialized niche requirements (e.g. diet and habitat)		selectivity of removals (that may compromise recruitment)
	Other (please specify		

***Populus tremuloides* (Non-CITES)** **Criterion**	**Comments from reviewer on applicability of criteria for listing on Appendix II**
Trade Criterion **Is or may the species be affected by trade?**	**Not applicable to *Populus tremuloides*. Definition of "affected by trade" as listed in Annex 5, is clear and easily interpreted with regard to this species.**
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.	**Not applicable *to P. tremuloides*.**
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:	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.
B)(i) Exceeding, over an extended period, the level that can be continued to perpetuity.	**Easily interpreted, not applicable to *P. tremuloides***
B)(ii) Reducing it to a population level at which its survival would be threatened by other influences.	**Easily interpreted, not applicable to *P. tremuloides***

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.**	**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.
D)	**There are compelling reasons, other than those given in C to ensure that effective control of trade in currently listed species is achieved.**	**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.**

For criteria **A)** and **B)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity		species associations such as symbiosis and other forms of co-dependency
	slow growth rate		fragmentation and habitat loss
	high age at first maturity		reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure		high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
	specialized niche requirements (e.g. diet and habitat)		selectivity of removals (that may compromise recruitment)
	Other (please specify		

***Taxus brevifolia* (Non-CITES)** *Taxus brevifolia* Nutt. Western yew, Pacific yew (English) If de l'Ouest (French) **CRITERION**	**Reviewers:** Ken Farr, Natural Resources Canada, Canadian Forest Service **Contact person:** Ken Farr 580 Booth Street, Ottawa, Ontario, Canada K1A 0E4 Tel: 613-947-9007 Fax: 613-947-9090 e-mail: kfarr@nrcan.gc.ca **Comments from reviewers on applicability of criteria for listing on Appendix I**
Trade Criterion **Is or may the species be affected by trade?**	**Not applicable *to Taxus brevifolia*. Definition of affected by trade as listed on Annex 5, is clear and easily interpreted with regard to this species.**
A) The wild population is small, and is characterized by at least one of the following (see definitions below):	What was/is the estimated size of the population? Please include units of measurement. Given the extensive range of the species, exact population number is difficult to estimate. The population is not small under the CITES definition. An available reference notes that non-Federal lands in parts of the United States (California, Oregon, and Washington) where inventories were made in the 1980's contained an estimated 700,000 *Taxus brevifolia* trees 28 cm (11 in) diameter at breast height, and larger.
A)(i) an observed, inferred or projected decline in the number of individuals or the area and quality of habitat; or	**The general guideline for "marked rate of decline" (see below) is poorly suited to evaluating *T. brevifolia* (average lifespan of about 350 years) or to many other long-lived, irregularly reproducing forest tree species. The length of time corresponding to three generations could prove unworkable. I would suggest omitting the phrase "whichever is the longer" or including a workable upper time limit.** **A general guideline for a marked recent rate of decline is a percentage decline of 50% or more in the last 10 years or three generations, whichever is the longer.**
A)(ii) each sub-population being very small; or	What were/are the estimated sizes of the subpopulation(s)? Please include units of measurement. **Easily interpreted, not applicable to *T. brevifolia*** .
A)(iii) a majority of individuals, during one or more life-history phases, being concentrated in one sub-population; or	**Easily interpreted, not applicable to *T. brevifolia*** ·

A)(iv) large short-term fluctuations in the number of individuals appropriate to measuring population size for the species concerned;	If the population was/is characterized by large short-term fluctuations in the numbers of individuals, what was/is the average magnitude in orders of magnitude? What was/is the average period of fluctuation in years? **This criterion could pose problems of interpretation**. Forest disturbances can result in short-term fluctuations (often increases) in individual stem counts, particularly for understorey tree species. **Including reference to "fluctuations outside of normal population cycles" would assist in interpretation.** .
A)(v) a high vulnerability due to the species' biology or behaviour (including migration).	**Easily interpreted, not applicable to *T. brevifolia*** .
B) The wild population has a restricted area of distribution and is characterized by at least one of the following (see definitions below):	What was/is the estimated area of distribution? If listing on the basis of one or more sub-populations, what were/are the estimated areas of distribution of the subpopulation(s)? Please include units of measurement? Area of distribution in Canada is estimated at 223,858 km^2, area of distribution in United States larger, very roughly estimated at more than 300,000 km^2. **Easily interpreted, not applicable to *T. brevifolia*** .
B)(i) fragmentation or occurrence at very few locations; or	**Easily interpreted, not applicable to *T. brevifolia*** .
B)(ii) large fluctuations in the area of distribution or the number of sub-populations; or	**Easily interpreted, not applicable to *T. brevifolia***
B)(iii) a high vulnerability due to the species' biology or behaviour (including migration); or	**Easily interpreted, not applicable to *T. brevifolia***
B)(iv) an observed, inferred or projected decrease in any one of the following:	As a general observation, the criteria under (Biv), seem better suited to evaluation of late-successional species such as *T. brevifolia*, than to early-successional species, which can be expected to follow a cycle of decline and re-establishment, in response to natural forest succession.

• the area of distribution; or	**Easily interpreted, not applicable to *T. brevifolia***
• the area of habitat; or	**Easily interpreted, not applicable to *T. brevifolia***
• the number of sub-populations; or	**Easily interpreted, not applicable to *T. brevifolia***
• the number of individuals; or	**Easily interpreted, not applicable to *T. brevifolia***
• the quality of habitat; or	**Requires caution in interpretation.** *T. brevifolia* is adaptable to a range of light regimes and forest types. While some produce better growth rates than others, this does not equate to better survival or recruitment rates.
• the recruitment.	**Easily interpreted, not applicable to *T. brevifolia***
C) A marked decline in population size in the wild, which has been either (see definitions below):	Historical extent of decline - To what extent has the population or the area of distribution (please specify which) declined since historical times (i.e., going back 100 years or more if known; else based on whatever information is available)? (Ex. The ___ has declined down to ____% of the historical levels of ___ years ago.) Recent rate of decline - Characterize the recent (10-20 year) trends in population size or area of distribution (please specify which). **Easily interpreted, not applicable to *T. brevifolia***
C)(i) observed as ongoing or as having occurred in the past (but with a potential to resume); or	**Easily interpreted, not applicable to *T. brevifolia***
C)(ii) inferred or projected on the basis of any one of the following:	**Easily interpreted, not applicable to *T. brevifolia***

• a decrease in area of habitat; or	**Easily interpreted, not applicable to *T. brevifolia***
• a decrease in quality of habitat; or	**This criterion poses difficulties in interpretation.** *T. brevifolia* is a highly adaptive species, able to tolerate habitat change (particularly changes in light regime). Inference or projection on the basis of habitat quality requires assessment of the ecological amplitude of each species in question.
• levels or pattern of exploitation; or	**Easily interpreted, not applicable to *T. brevifolia***
• threats from extrinsic human-induced factors such as competition/predation by introduced species or the effects of hybridization, toxins and pollutants; or	**Easily interpreted, not applicable to *T. brevifolia***
• a decreasing recruitment	**Interpretation of "effective population size" " (i.e., individuals capable of reproduction) and "decreasing recruitment" is critical and, for certain tree species, would require careful inventory and appropriate interpretation of ongoing ecological processes**. *T. brevifolia* for example, normally reproduces from seed, but is capable of reproducing vegetatively (branch layering or stump sprouts) under specific conditions. **Suggest explicit reference to vegetative reproduction be included under definition "Population Issues, Population Size", similar to the reference under definition of "recruitment".**
D) If not included in Appendix I, is likely to satisfy one or more of criteria A-C within 5 years?	**Speculative, but likely easily interpreted relative to *T. brevifolia***

For criteria **A)(v)** and **B)(iii)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity		species associations such as symbiosis and other forms of co-dependency
	slow growth rate		fragmentation and habitat loss
	high age at first maturity		reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure		high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
	specialized niche requirements (e.g. diet and habitat)		selectivity of removals (that may compromise recruitment)
	Other (please specify		

***Taxus brevifolia* (Non-CITES) Criterion**	**Comments from reviewer on applicability of criteria for listing on Appendix II**
Trade Criterion **Is or may the species be affected by trade?**	**Not applicable *to Taxus brevifolia*. Definition of affected by trade as listed on Annex 5, is clear and easily interpreted with regard to this species.**
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.	**Clearer definition of "near future" would assist objective interpretation of this criterion.**
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:	**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"** **The general guideline for "marked rate of decline" is poorly suited to evaluating *T. brevifolia* (average lifespan of about 350 years) or to many other long-lived, irregularly reproducing forest tree species**. The length of time corresponding to three generations could prove unworkable. **I would suggest omitting the phrase "whichever is the longer" or including a workable upper time limit.** **A general guideline for a marked recent rate of decline is a percentage decline of 50% or more in the last 10 years or three generations, whichever is the longer.** **Explicit reference to a specific rate-based approach to MVP is required to interpret these criteria.**
B)(i) Exceeding, over an extended period, the level that can be continued to perpetuity.	**Explicit reference to a specific rate-based approach to MVP is required to interpret these criteria.**

B)(ii)	Reducing it to a population level at which its survival would be threatened by other influences.	**Explicit reference to a specific rate-based approach to MVP is required to interpret these criteria.**
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.**	**Easily interpreted relative to *T. brevifolia.***
D)	**There are compelling reasons, other than those given in C to ensure that effective control of trade in currently listed species is achieved.**	**Easily interpreted, not applicable to *T. brevifolia***

For criteria **A)** and **B)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity		species associations such as symbiosis and other forms of co-dependency
	slow growth rate		fragmentation and habitat loss
	high age at first maturity		reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure		high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
	specialized niche requirements (e.g. diet and habitat)		selectivity of removals (that may compromise recruitment)
	Other (please specify		

Morchella esculenta **(Non-CITES)** Ascomycotina, Cl: Discomycetes, Or:Pezizales, Fam: Morchellaceae, Gro: Morchella Dill.Ex Pers 1794, Sp: *M. esculenta* (L.:Fr) Pers. , Syn: *M. Vulgaris* Pers.:Fr.; *M. esculenta* (L.) Pers.:Fr. forma vulgaris (Per.:Fr)Boud. **CRITERION**	**Reviewers:** Lic. Milena Sosa Schmidt Coordinación de Conservación de la Biodiversidad Secretaría de Ambiente y Desarrollo Sustentable Lic. Victoria Lichtschein Coordinación de Conservación de la Biodiversidad Secretaría de Ambiente y Desarrollo Sustentable Dr. Greg Leach Principal Scientist, Botanical Services Natural Systems Division Department of Infrastructure, Planning & Environment P.O.Box 496 Palmerston 0831 Australia **Contact Person:** **Lic. Victoria Lichtschein** Coordinación de Conservación de la Biodiversidad Secretaría de Ambiente y Desarrollo Sustentable San Martín 459, 2do of 244 1004- Buenos Aires- Argentina ph: 00-54-11-4-348-8551/8552 fax: 00-54-11-4-348-8554 e-mail: vlichtsc@medioambiente.gov.ar **Comments from reviewers on applicability of criteria for listing on Appendix I**
Trade Criterion **Is or may the species be affected by trade?**	**There are trade data available. It is possible to obtain trade data for macrofungi**.
A) The wild population is small, and is characterized by at least one of the following (see definitions below):	What was/is the estimated size of the population? Please include units of measurement. **Applicable to macrofungi. If we consider the fruiting body as "an individual", macrofungi can be easily counted.**
A)(i) an observed, inferred or projected decline in the number of individuals or the area and quality of habitat; or	**Applicable to macrofungi.**
A)(ii) each sub-population being very small; or	What were/are the estimated sizes of the subpopulation(s)? Please include units of measurement. **Applicable to macrofungi. Lack of information for most of the species.**.
A)(iii) a majority of individuals, during one or more life-history phases, being concentrated in one sub-population; or	**Applicable to macrofungi.**.

A)(iv) large short-term fluctuations in the number of individuals appropriate to measuring population size for the species concerned;	If the population was/is characterized by large short-term fluctuations in the numbers of individuals, what was/is the average magnitude in orders of magnitude? What was/is the average period of fluctuation in years? **This criterion is almost impossible to assess since the definition of "fluctuation" is quite inapplicable to fungi** (see definitions).
A)(v) a high vulnerability due to the species' biology or behaviour (including migration).	**Applicable to macrofungi.**
B) The wild population has a restricted area of distribution and is characterized by at least one of the following (see definitions below):	What was/is the estimated area of distribution? If listing on the basis of one or more sub-populations, what were/are the estimated areas of distribution of the subpopulation(s)? Please include units of measurement? see definitions.
B)(i) fragmentation or occurrence at very few locations; or	
B)(ii) large fluctuations in the area of distribution or the number of sub-populations; or	**Not applicable to macrofungi. It is virtually impossible to identify sub-populations** (see definitions).
B)(iii) a high vulnerability due to the species' biology or behaviour (including migration); or	**Applicable to macrofungi. In fact, this is the situation for many species.**
B)(iv) an observed, inferred or projected decrease in any one of the following:	

• the area of distribution; or	**Difficult to determine (see discussion and suggestions under definitions).**
• the area of habitat; or	**Applicable to macrofungi.**
• the number of sub-populations; or	**Not applicable to macrofungi (see above).**
• the number of individuals; or	**Applicable to macrofungi.**
• the quality of habitat; or	**Applicable to macrofungi.**
• the recruitment.	**Very difficult to measure, almost inapplicable (see discussion of this item under definitions)**
C) A marked decline in population size in the wild, which has been either (see definitions below):	Historical extent of decline - To what extent has the population or the area of distribution (please specify which) declined since historical times (i.e., going back 100 years or more if known; else based on whatever information is available)? (Ex. The ___ has declined down to ____% of the historical levels of ___ years ago.) Recent rate of decline - Characterize the recent (10-20 year) trends in population size or area of distribution (please specify which). **Applicable.**
C)(i) observed as ongoing or as having occurred in the past (but with a potential to resume); or	**Applicable.**
C)(ii) inferred or projected on the basis of any one of the following:	**Applicable.**
• a decrease in area of habitat; or	**Applicable.**

• a decrease in quality of habitat; or	**Applicable.**
• levels or pattern of exploitation; or	**Applicable.**
• threats from extrinsic human-induced factors such as competition/predation by introduced species or the effects of hybridization, toxins and pollutants; or	**Applicable to macrofungi.** In fact, in some countries of the distribution area of *Morchella esculenta*, environmental pollution is the main threat on the species
• a decreasing recruitment	**Very difficult to measure, we would say impossible.** It is a not a very practical concept for these organisms. We could say that recruitment could be empirically assessed based on abundance of fruiting bodies. See comment under B(iv)
D) If not included in Appendix I, is likely to satisfy one or more of criteria A-C within 5 years?	**Yes. It is likely to satisfy criteria C) (i)**

For criteria **A)(v)** and **B)(iii)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity	**X**	species associations such as symbiosis and other forms of co-dependency
	slow growth rate	**X**	fragmentation and habitat loss
	high age at first maturity		reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure	**X**	high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
X	specialized niche requirements (e.g. diet and habitat)		selectivity of removals (that may compromise recruitment)
	Other (please specify		

***Morchella esculenta* (Non-CITES) Criterion**	**Comments from reviewer on applicability of criteria for listing on Appendix II**
Trade Criterion **Is or may the species be affected by trade?**	The species has been subject to trade over the last 25 years.
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.	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.
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:	
B)(i) Exceeding, over an extended period, the level that can be continued to perpetuity.	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.
B)(ii) Reducing it to a population level at which its survival would be threatened by other influences.	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 annually (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".

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.**	**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.**
D)	**There are compelling reasons, other than those given in C to ensure that effective control of trade in currently listed species is achieved.**	

For criteria **A)** and **B)**, please check which if any of the vulnerability factors listed below apply:

	low fecundity	**X**	species associations such as symbiosis and other forms of co-dependency
	slow growth rate	**X**	fragmentation and habitat loss
	high age at first maturity		reduced genetic diversity
	distorted age, size or sex ratio		depensation (prone to continuing decline, even in the absence of exploitation)
	complex social structure		high degree of endemism
	extensive migratory behaviour		threats from disease
	strong aggregating behaviour (e.g., schooling)		threats from invasive species
X	low population density (for sessile or semi-sessile species)		threats from rapid environmental change (e.g. climate regime shifts)
X	specialized niche requirements (e.g. diet and habitat)	**X**	selectivity of removals (that may compromise recruitment)
	Other (please specify		

ANNEX: General Comments, Proposals for Definitions, References

Tillandsia xerographica: Explanation of reviewers, NL.

During the review we realized that you can make at leas two errors:

1. You give a direct answer whether the species fulfils this criterion. For example B)(ii), fluctuations, seems not applicable for *Tillandsia xerographica*, so one would say NO. This is not correct.
2. You answer the question whether a criterion applies for this species negatively, and give the same answer for the applicability of the criterion. For example B)(ii), fluctuations; as far as known there are no fluctuations, so one would say NO, no fluctuations. This is not correct.

The purpose of the criteria is to test the appropriateness of listing a species in the Appendices of CITES. When a criterion applies either clearly positively or negatively, that criterion is most probably a good measuring staff. When it is unclear, vague or unknown whether a criterion applies to a species, than that criterion is probably not a good measuring staff for including a species in the Appendices.

For example we take B)(ii), fluctuations, again. There are clearly no fluctuations for *Tillandsia xerographica*, as far as known. So this factor does not contribute to the arguments for listing. The clear answer NO proves that this is a good criterion for this species. So the outcome of the evaluation for this criterion is YES.

We consider it useful to categorize the evaluation as follows:

A. This criterion as formulated is appropriate. It can as such be applied in decisions on the position of this particular species in relation to the CITES Appendices.

B. This criterion as formulated is appropriate. However some additional guidance, explanation or defining is needed. It can then be applied in decisions on the position of this particular species in relation to the CITES Appendices.

C. The formulation of this criterion is partly appropriate. In a (partly) amended form it can be applied in decisions on the position of this particular species in relation to the CITES Appendices.

D. The formulation of this criterion is not appropriate. It can as such not be applied in decisions on the position of this particular species in relation to the CITES Appendices.

E. It is unknown or vague whether the formulation of this criterion is appropriate. It is unknown or vague, on basis of available knowledge, whether it can be used in decisions on the position of this particular species in relation to the CITES Appendices.

"Geographically separate population" refers to parts of a species or a subspecies within particular geographical boundaries. 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.

Decline

A decline is a reduction in the abundance, or area of distribution, of a species. Decline can be expressed in two different ways: (i) the overall long-term extent of decline or (ii) the recent rate of decline. The long-term extent of decline is the total estimated or inferred percentage reduction from a baseline level of abundance or area of distribution. The recent rate of decline is the percentage change in abundance or area of distribution over a recent time period. The **data used to estimate or infer** a baseline for extent of decline should extend as far back into the past as possible.

A general guideline for a marked historical extent of decline is a percentage decline to 5%-30% of the baseline, depending on the reproductive biology of the species. The extremes of 5% and 30% will be applicable to only a relatively small number of species, but some species may even fall outside of these extremes. However, both these figures are presented only as examples, since it is impossible to give numerical values that are applicable to all taxa because of differences in their biology **(*see footnote with respect to application of decline to commercially exploited aquatic species).**

A general guideline for a marked recent rate of decline is a percentage decline of 50% or more in the last 10 years or three generations, whichever is the longer. If the population is small, a percentage decline of 20% or more in the last 5 years or 2 generations (whichever is the longer) may be more appropriate. However, these figures are presented only as examples, since it is impossible to give numerical values that are applicable to all taxa because of differences in their biology.

The historical extent of decline and the recent rate of decline should be considered in conjunction with one another. In general, the higher the historical extent of decline, and the lower the productivity of the species, the more important a given recent rate of decline is.

In estimating or inferring the historical extent of decline or the recent rate of decline, all relevant data should be taken into account. A decline need not necessarily be ongoing. If data are available only for a short period and the extent or rate of decline based on these data are cause for concern, the guidelines above (extrapolated as necessary or relevant) should still apply. However, natural fluctuations should not normally count as part of a decline, but an observed decline should not necessarily be considered part of a natural fluctuation unless there is evidence for this. A decline that is the result of **legal activities carried out pursuant to** a harvesting programme that reduces the population to a planned level, not detrimental to the survival of the species, is not covered by the term "decline".

Fluctuations

Fluctuations in population size or area of distribution are considered large when **the population size or area in question** varies widely, rapidly or frequently. Where data exist to make an estimate, one order of magnitude has been found to be an appropriate guideline (not a threshold) for population size. Similarly, fluctuations can be considered 'short term' if the period of fluctuation is about two years. However, this figure is presented only as an example, since it is impossible to give numerical values that are applicable to all taxa. There will be many cases where this numerical guideline does not apply.

Population size

When providing details on the size of a population or sub-population, it should be made clear whether the information presented relates to an estimate of the total number of individuals or to the effective population size (i.e., individuals capable of reproduction, excluding individuals that are environmentally and behaviourally or otherwise reproductively suppressed in the wild) **or to another appropriate measure or component of the population.**

In the case of species biologically dependent on other species for all or part of their life cycles, biologically appropriate values for the host or co-dependent species should be chosen.

Recruitment

Recruitment is the total number of individuals added to any particular demographic class of a population by either sexual or asexual reproduction.

Vulnerability

Vulnerability can be defined as the susceptibility **to intrinsic or external** effects which increase the risk of extinction. There are a number of taxon- or case-specific biological and other factors that may affect the extinction risk associated with a given percentage decline, small population size or restricted area of distribution. These can be, but are not limited to, aspects of any of the following:

- Life history (e.g., low fecundity, slow growth rate, high age at first maturity, long generation time)
- Low absolute numbers or biomass or restricted area of distribution
- Population structure (age/size structure, sex ratio)
- Behavioural factors (e.g., social structure, migration, aggregating behaviour)
- Density (for sessile or semi-sessile species)
- Specialized niche requirements (e.g., diet, habitat)
- Species associations such as symbiosis and other forms of co-dependency
- **Fragmentation and habitat loss**
- Reduced genetic diversity
- Depensation (prone to continuing decline even in the absence of exploitation)
- Endemism
- **Threats from disease or invasive species**
- Rapid environmental change (e.g., climate regime shifts)
- **Selectivity of removals (that may compromise recruitment)**

Zamia furfuracea: Comments to some definitions. Annex 5 (ZA & MX)

Generation length

Generation length is the average age of parents of the current cohort (i.e., newborn individuals in the population **(This subdefinition does not make sense).** Generation length therefore reflects the turnover rate of breeding individuals in a population. Generation length is greater than the age at first breeding and less than the age of the oldest breeding individual, except in taxa that breed only once. Where generation length varies under threat, the more natural (i.e., pre-disturbance) generation length should be used.

General References for *Pericopsis*

Aké Assi, L. (1988) Especes rare et en voie d'extinction de la flore de la Côte d'Ivoire. In: Goldblatt, P. and Lowry, P.P. (eds.) Modern systematic studies in African Botany. Proc Eleventh Pleanry Meeting, AETFAT, Missouri Botanic Garden, June 1985. Missouri Botanic Garden, Missouri.

Alder, D.(1989) Natural forest increment, growth and yield. In: Wong, J.L.G. (ed.) Forest inventory project, seminar proceedings, 29-30 March 1989, Accra. Overseas Development Administration, UK and Ghana Forestry Department.

Ampofo, S.T. (19) The problem of natural regeneration of *Pericopsis elata* (Harms) van Meeuwen in Africa. *Ghana Journal of Agricultural Sciences* 5(3):241-245

Anon. (1979) *Tropical legumes: Resources for the future*. Washington, DC: National Academy of Sciences.

ATIBT (2002) Technical report on *Pericopsis elata.* Unpublished document.

Auzel, P., Feteke, F., Fomete, T. Nguiffo, A. and Djeukam, R. (2001) Impact de l'exploitation forestière sur las fiscalité, sur le amenagément et sur le développement local. Forests Monitor, IUCN, DFID.

CEFDHAC (1999) Bases pour la mise en coherence des politiques et lois forestieres des pays d'Afrique Centrale. IUCN

Dunn, R.M and Otu, D.O. (1994) Reconnaissance inventory of high forest and swamp forest areas in Cross River State, Nigeria.

FAO Forestry Department (1986) *Databook on endangered tree and shrub species and their provenances*. Rome: FAO. 524pp.

Forests Monitor (2001) *Sold down the river. The need to control transnational forestry corporations: a European case study*. Forests Monitor Ltd, Cambridge, UK.

Forni, E. (1997) Types de fôrets dans l'est du Cameroun et étude de la structure diametrique de quelques essences. Memoir for the Diploma in Agronomic Science and Biology. Faculte Universitaire des Sciences Agronomiques de Gembloux.

Gabu Community Yala L.G.A (2002) Community Forest Management Plan for Gabu. Facilitated by CRSCFP/FC-CFSU

Global Witness (2002) Forest law enforcement in Cameroon. First summary report of the Independent Observer May – November 2001.

Hawthorne, W.D. 1995. *Ecological profiles of Ghanaian forest trees*. Oxford Forestry Institute. 345pp.

Howland, P. (1979) *Pericopsis elata* (Afrormosia). Commonwealth Forestry Institute Occasional Papers 9, Oxford.

IIED (2001)

ITTO (2002) Annual Review and Assessment of the World Timber Situation 2001.

ITTO (2002) Mission in support of the Government of the Congo for the realization of ITTO Objective 2000 and Sustainable Forest Management – Report of the Diagnostic Mission to the Congo 12-26 October 2001. ITTC (XXXII)/8 26 March 2002.

Keay, R.W.J., Onochie and Stanfield (1964) *Nigerian Trees* Volume 2

Maisels, F. (1996) Synthesis of information concerning the Park National d'Odzala, Congo. Project ECOFAC-COMPOSANTE

Ministry of Environment and Forestry (MINEF) (2002) Note technique sur *Pericopsis elata* (Assamela/Afrormosia). Cameroon

Ola-Adams, B. (1977) Conservation of the genetic resources of indigenous forest trees in Nigeria: Possibilities and limitations. *Forest Genetic Resources Information* 7:1-9

Rietbergen, S. (1988) Natural forest management for sustainable timber production. Volume 2, Africa. ITTO Pre-project report. IIED, London.

Sébastien, L.K. and Kiyulu N'Yanga-Nzo, J. (2001) Integration of biodiversity into the forestry sector in the Democratic Republic of Congo (DRC). Congo Case Study. Paper prepared for an international workshop on "Integration of Biodiversity in National Forestry Planning Programme" held in CIFOR HQ, Bogor, Indonesia, 13-16 August 2001.

Swaine and Whitmore (1988) On the definition of ecological species groups in tropical rain forests. *Vegetatio* 75: 81-86

Swaine, M.D., Agyeman, V.K., Kyereh, B., Orgle, T.K., Thompson, J. and Veenendaal, E.M. (1997) *Ecology of forest trees in Ghana*. ODA Forestry Series 7

Vivien, J and Faure, J.J. 1985 *Arbres des fôrets denses d'Afrique centrale*. ACCT, Paris, France. 565p.

WCMC (1998) *Contribution to an evaluation of tree species using the new CITES Listing Criteria* prepared by the UNEP World Conservation Monitoring Centre (UNEP-WCMC) on behalf of the CITES Management Authority of the Netherlands

Pseudophoenix ekmanii : General Comments- USA.

For plants, issues such as seed bank viability and primary mode of sexual reproduction should be provided/requested.

Terms such as "possibly extinct" and "threatened with extinction" are in the glossary but not mentioned in the texts of the tables. These terms are defined in the appendix but are not referred to in the text of the tables. Should there be a more direct reference to them?

I am told that "generation length" (a.k.a. generation time) is mentioned in A)(i), yet there is no prompt to the reader.

The distinction between the various categories (A, B, and C) is unclear – Is the following characterization correct?

Category A comprises a population that is vulnerable due primarily to its small number of individuals (and secondarily to other factors such as limited range and factors causing decline); Category B comprises a population that is vulnerable primarily due to a restricted location (and secondarily to small population size and factors causing decline), and Category C comprises a population that is vulnerable due primarily to decline (and secondarily to small numbers and decline factors)?

It seems that these are all circuitous distinctions that add unnecessary complexity and repetition to the criteria. At the same time, they are disjunct – for example, some aspects are similar to two Categories but missing in another.

E.g., "recruitment" discussed in Categories B)(iv) and C)(ii), but not in, e.g., Categories A)(ii),(iii), or (v)?

E.g., "vulnerability" discussed in Categories A)(v) and B)(iii), but not C(ii)?

Pseudophoenix ekmani : PROPOSALS TO SOME DEFINITIONS (Annex 5) USA

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 by experts as subject to expert interpretation.***

~~The two terms also cover varieties~~.

"Geographically separate population" refers to parts of a species or a subspecies within particular geographical boundaries. ***Geographic boundaries may include natural or man-made features (e.g. mountain ranges, islands, or dams) or biogeographical boundaries (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 of this separation in the survival of the species should be enumerated.***

~~**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/domestic*** trade" if:

1. it is known to be in ***international/domestic*** 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/domestic*** trade, or there is potential international demand for the species, that may be detrimental to its survival in the wild.

Area of distribution

In defining "area of distribution," numeric values should not be offered to the reviewer as part of the definition. Rather, the reviewer should be asked to provide numerical, biological or geographical factors that characterize the population's area of distribution.

Area of distribution of a species is defined as the area contained within the shortest continuous imaginary boundary which can be drawn to encompass all the known, inferred or projected sites of occurrence, excluding cases of vagrancy and introductions outside its natural range (though inferring and projecting area of occurrence should be undertaken carefully, and in a precautionary manner). The area within the imaginary boundary should, however, exclude significant areas where the species does not occur, and so in defining an area of distribution, account should be taken of discontinuities or disjunctions in the spatial distribution of species. For migratory species, the area of distribution is the smallest area essential at any stage for the survival of that species (e.g., colonial nesting sites, feeding sites for migratory taxa, etc.). For some species for which data were available to make an estimate, a figure of less than 10,000 km^2 has been found to be an appropriate guideline (not a threshold) of what constitutes a restricted area of distribution. However, this figure is presented only as an example, since it is impossible to give numerical values that are applicable to all taxa. There will be many cases where this numerical guideline does not apply.

Decline

Often, there is insufficient baseline data upon which to base a percentage decline in the species. Is it sufficient to estimate the decline in suitable habitat and extrapolate the presumed decline in population? What supporting information is expected to support the extrapolated? What about decline caused by natural phenomena, such as hurricanes?

A decline is a reduction in the abundance, or area of distribution, of a species. Decline can be expressed in two different ways: (i) the overall long-term extent of decline or (ii) the recent rate of decline. The long-term extent of decline is the total estimated or inferred percentage reduction from a baseline level of abundance or area of distribution. The recent rate of decline is the percentage change in abundance or area of distribution over a recent time period. The data used to estimate or infer a baseline for extent of decline should extend as far back into the past as possible.

A general guideline for a marked historical extent of decline is a percentage decline to 5%-30% of the baseline, depending on the reproductive biology of the species. The extremes of 5% and 30% will be applicable to only a relatively small number of species, but some species may even fall outside of these extremes. However, both these figures are presented only as examples, since it is impossible to give numerical values that are applicable to all taxa because of differences in their biology (*see footnote with respect to application of decline to commercially exploited aquatic species).

A general guideline for a marked recent rate of decline is a percentage decline of 50% or more in the last 10 years or three generations, whichever is the longer. If the population is small, a percentage decline of 20% or more in the last 5 years or 2 generations (whichever is the longer) may be more appropriate. However, these figures are presented only as examples, since it is impossible to give numerical values that are applicable to all taxa because of differences in their biology.

The historical extent of decline and the recent rate of decline should be considered in conjunction with one another. In general, the higher the historical extent of decline, and the lower the productivity of the species, the more important a given recent rate of decline is.

In estimating or inferring the historical extent of decline or the recent rate of decline, all relevant data should be taken into account. A decline need not necessarily be ongoing. If data are available only for a short period and the extent or rate of decline based on these data are cause for concern, the guidelines above (extrapolated as necessary or relevant) should still apply. However, natural fluctuations should not normally count as part of a decline, but an observed decline

should not necessarily be considered part of a natural fluctuation unless there is evidence for this. A decline that is the result of legal activities carried out pursuant to a harvesting programme that reduces the population to a planned level, not detrimental to the survival of the species, is not covered by the term "decline".

Population issues

Sub-population

Sub-populations are defined as geographically or otherwise distinct groups in the popuation between which there is limited genetic exchange.

The reviewer should provide the numerical, biological, or geographical information to substantiate the use of the terms "sub-population" and "small."

Population size

When providing details on the size of a population or sub-population, ***clarify*** ~~it should be made clear~~ whether the information ~~presented~~ ***provided*** relates to an estimate of the **total** number of individuals or to the **effective** population size (i.e., individuals capable of reproduction, excluding individuals that are environmentally and behaviourally or otherwise reproductively suppressed in the wild) or to another appropriate measure or component of the population.

In the case of species biologically dependent on other species for all or part of their life cycles, biologically appropriate values for the host or co-dependent species should ***also*** be ~~chosen~~. ***noted.***

Small wild population

In defining "small" and "very small," numeric values should not be offered to the reviewer as part of the definition. Rather, the reviewer should be asked to provide numerical, biological or geographical factors that leads one to characterize the population in question as being "small" or "very small.

Does "wild" need to be defined here?

For some species where data exist to make an estimate, a figure of less than 5,000 individuals has been found to be an appropriate guideline (not a threshold) of what constitutes a small wild population. However, this figure is presented only as an example, since it is impossible to give numerical values that are applicable to all taxa. There will be many cases where this numerical guideline does not apply.

Very small wild sub-population

Caution against use of term "very small."

For some species where data exist to make an estimate, a figure of less than 500 individuals has been found to be an appropriate guideline (not a threshold) of what constitutes a very small sub-population. However, this figure is presented only as an example, since it is impossible to give numerical values that are applicable to all taxa. There will be many cases where this numerical guideline does not apply.

Recruitment

Recruitment is the total number of individuals added to any particular demographic class of a population by either sexual or asexual reproduction.

For plants, issues such as seed bank viability and primary mode of sexual reproduction should be provided/requested at some point.

Vulnerability

Why is the definition for vulnerability different than the checklist at the end of the table?

Note: Several clarifications/additions to vulnerability checklist (above) need to be incorporated in definition (below)..

Vulnerability can be defined as the susceptibility to intrinsic or external effects which increase the risk of extinction. There are a number of taxon- or case-specific biological and other factors that may affect the extinction risk associated with a given percentage decline, small population size or restricted area of distribution. These can be, but are not limited to, aspects of any of the following:

- Life history (e.g., low fecundity, slow growth rate, high age at first maturity, long generation time)
- Low absolute numbers or biomass or restricted area of distribution
- Population structure (age/size structure, sex ratio)
- Behavioural factors (e.g., social structure, migration, aggregating behaviour)
- Density (for sessile or semi-sessile species)
- Specialized niche requirements (e.g., diet, habitat)
- Species associations such as symbiosis and other forms of co-dependency
- Fragmentation and habitat loss
- Reduced genetic diversity
- Depensation (prone to continuing decline even in the absence of exploitation)
- Endemism

  Endemism is a measure of uniqueness, defined by geography (e.g. endemic to Australia, endemic to the Black River Gorge, Mauritius) and by phylogenetics (the evolutionary status of the species). For instance a monotypic genus (Ginkgo) restricted to a single hypothetical valley is a more extreme endemic than an endemic Astragalus in a similarly restricted location (one of thousands of species, all fairly recent in evolutionary origin and quite closely related to each other).

  The phylogenetic status is one measure of potential conservation value, while the area of occupancy (area of endemism) is one measure of level of threat. We need to keep each separate in the assessment.
- Threats from disease or invasive species
- Rapid environmental change (e.g., climate regime shifts)
- Selectivity of removals (that may compromise recruitment)

Morchella esculenta: GENERAL COMMENTS ON FUNGI AND THE CRITERIA AND DEFINITIONS (AR, AU)

1. In the case of fungi, it should be pointed out, as an initial assumption, that we have applied the criteria **ONLY** to macrofungi.

2. In the case of macrofungi, most of the life history is not visible. It is only when the reproductive structures are produced and become visible above the soil surface that the presence and abundance can be easily recorded. Also, based on the "sclerotium" phase, which in the case of *Morchella*, is visible during the winter, or under adverse conditions during other seasons.

3. It is the reproductive structure that is harvested and the remainder of the organism is left in the soil, although sometimes, when collecting the mushrooms, people pull a fragment of the mycelium together with the mushroom and soil, so that part of the mycelium remains underground, but not all...it is virtually impossible to assess how much is left. The guidelines for collection discourage this practice, but sometimes it is hard to enforce.

4. "Clonal" growth occurs in part of the mycelium, specifically in the asexual mycelium. There is also plasmogamy (two mycelia may combine) to originate a secondary mycelium, in which case genetic recombination occurs. In this case, one cannot refer to clonal growth, and a "new generation" is produced. However, in our view the mycelium is not the important part of the analysis, if we agree that we will concentrate only on the visible part of the fungus, (the fruiting body) and treat this as an individual. Under this assumption, individuals may be identified and even counted, so that abundance can be assessed in some ways.

5. In the definitions under Population Issues it might be useful to have a new subheading – Individuals, where the following wording could be inserted: "In the specific case of macrofungi, individuals are counted as the visible reproductive structures, regardless of whether the structure has been produced by sexual or asexual reproduction."

   Bearing in mind the reproductive strategies of macrofungi, it could also be assumed that individuals (fruiting bodies) may be genetically different from each other, even within a same "colony", since the origin may be sexual (originating in a sexual mycelium) or asexual (originating in a primary mycelium).

It may be that these issues are not fundamentally different to that found in other types of organisms. For example, terrestrial perennial orchids that produce annual above-ground parts. It is not practical to measure abundance or decline other than by some measure of the above-ground phase.

Resolution of these types of situations in the criteria for seed-bearing plants is very likely to provide a solution for fungi.

We think these issues impact on the following definitions:

Decline

"reduction in abundance, or area of distribution". We would assume it could only be assessed by some abundance measure of the visible reproductive structure (see definition of "individual" above).

Generation Length

In the case of macrofungi, this aspect seems to be, for most practical purposes, not measurable. However, it is not very different from other cases, such as invertebrates that have a complex life history, or even sexual and asexual reproduction during their life cycles, and both phases are different – e.g. one is visible and another completely invisible (microscopic). The definition refers to taxa that breed only once in their lifetime, which is the case here. We assume that in such difficult cases the term generation length would not be used (see definition). Another option would be to mention how long it takes for a reproductive structure to mature and how frequently reproductive structures are produced. These data should be included under item 3.3 of Annex 6 of the proposal. We think that whether this is considered as "generation length" or not is not really relevant, however, it will provide an indication of important characteristics of the reproductive strategy of the species involved: long-lived/low fecundity versus short-lived/high fecundity, which we believe should be understood when assessing a proposal.

Population and Population Size

"refers to the number of individuals". If our initial definition of individual is valid, we see no problem here.

Small wild population and Very small wild population

Same as above.

Recruitment

This definition could apply conceptually, if our initial definition of an individual is valid, but could be difficult to apply methodologically. With macrofungi, it is not practical to assess and other variables should be selected preferably.

Area of distribution

We believe that with some explanations, the definition could ultimately be applied to fungi. There are sites where the presence of the species has been detected, that can be described like spots on a map. Of course, these places keep changing, because it could happen that on the following year the fungi grow somewhere else, close by, because of varying conditions on a very local scale and then the following year be found back at the original site – like many flowering plants. So, a new spot on the map appears. It is possible, however, to draw an imaginary boundary round these spots, so you can apply the first part of the definition and define the total theoretical area of distribution, but more often, it is more convenient to mention the habitat/ecosystem to which these populations are associated, for example, in the case of *Morchella*, the Andean-Patagonian forests of Argentina. By defining this you can then apply the second part of the definition – exclusion (or inclusion) of areas where the species cannot grow. Then what you are really mentioning are the boundaries of the ecosystem. So we suggest the definition could be improved by addition of something like "or the boundaries of the habitat/ecosystem to which the species is associated".

Fluctations

This is maybe, in our opinion, the most complicated term to apply to fungi. It is so difficult to distinguish natural fluctuations of fungi (their own strong population dynamics) from fluctuations resulting from some external impact, like harvesting. However, in theory, this could most readily be done if you could compare ecologically similar harvested and non-harvested areas.

Fragmentation

Difficult to assess because in the case of fungi, "subpopulations" (how do we identify subpopulations in fungi?) will grow in isolation as a response to their own strategy, not to actual fragmentation. However, *Morchella* has actually disappeared from some specific sites, which would be dealt with under decline rather than fragmentation – but an outcome of this disappearance may be fragmentation. Consequently, the first sentence of the definition, we think, does not apply to fungi, or applies only in some situations.We could simply assume that some definitions will not apply to all animal and plant taxa.

CONCLUSION

In summary, we conclude that the criteria generally can be applied to macrofungi. As with many other non-fungi taxa, there are elements in some definitions that are either conceptually or methodologically difficult to apply. We recognise this as a problem not peculiar to fungi and consider that there is sufficient flexibility in the options provided within the criteria.

Natural Resources Canada, Canadian Forest Service: CITES Criteria Test and Review: Assessment of Canadian Commercial Tree Species

Ken Farr, Mike Fullerton, Natural Resources Canada, Canadian Forest Service.

As requested, we have undertaken a review of the listing criteria for CITES with respect to Canadian commercial tree species, using the checklist provided.

We find the CITES Criteria can not be applied, and do not apply, to Canadian commercial tree species. Under any available definition, no Canadian commercial tree species has a wild population that is small (as required in Annex I A) and similarly, no Canadian commercial tree species has a restricted area of distribution (as required in Annex I B). No species can be included in Annex 2a A. or B. as none is close to extinct, and because harvesting of specimens has not, and will not, cause the populations of these species to be altered to a point where there is significant risk of extinction.

As a rule, large wild populations and extensive distribution are prerequisites for tree species to be economically viable trade commodities in Canada.

General Comments

Overall, the criteria listed in the Test and Review are quite broad and require subjective interpretation to accommodate relatively long-lived and widely distributed life forms such as forest trees.

Precise interpretation of key terms within the criteria is a source of difficulty. In this regard, the Comments from Canada contained in Notif. 2001/37(October, 2001, CITES review process) are relevant and apply directly to this CITES Criteria test and review. (In particular, the Annex 2b, Appendix II A look-alike issue, is directly addressed in those comments).

The test criteria generally do not employ appropriate silvicultural and biological proxies for determination of threat of extinction of forest tree species. Determining threat of extinction using observed, inferred or projected decline in the number of individuals, or by decrease in area of distribution or number of sub-populations, is less useful and objective than would be rate-based measurement; a decline over time of population, distribution or number of sub-populations, or of other identified factors.

A rate-based measure for would allow threat to a species to be expressed objectively and to be quantified in terms of the rapidity with which a species of concern is approaching a threshold value or minimum viable population size. Additionally, quantifying threat of extinction by rate of change would permit, in appropriate circumstances, continued commercial trade of a species at a level that would halt or reverse the species' approach to a point where recovery would not be possible.

In Annex I A., definition of A decline in individuals or area and quality of habitat is partially addressed, but reduction is not necessarily restricted to harvesting.

In Annex 5, the definition of decline suggests a per cent decrease over a given number of years or some number of generations, *whichever is longer,* and generation is defined as the average age of parents in the population. Most Canadian commercial tree species are capable of reproduction at relatively early stages in their development, and thereafter, over a period of time measured in centuries. As a result,

measuring generations based on the average age of parents in a population would reflect the history of the site itself (i.e. those reproducing individuals present as a result of natural disturbance or site management) but would result in arbitrary values not closely related to the actual biology of the species.

In Annex I B., the fecundity and resiliency of tree species and their specific abilities to rebound from population change is not addressed. The response of many tree species to disturbance, stress or decline in a population is exponential increase in rate of reproduction by remaining individuals. Similarly, for asexually reproducing tree species, disturbance, stress or decline in a population normally results in rapid and increased production of stems.

Interpretation as to definition of individual in the context of commercial tree species, is also required. Particularly unclear is whether individual refers to all age groups and size classes or only to sexually mature members of a population. How individual is to be applied to tree species that propagate primarily by asexual means, or both vegetatively and sexually depending on environmental conditions, is also unclear.

Interpretation of decline in area and quality of habitat A is problematic for forest tree species. To a great extent, forest trees are habitat; for most tree species habitat quality is synonymous to presence in a given geographical area. Under forest succession, change in the quality of habitat is natural and to be expected. Decline in habitat for pioneer species equates to improvement in habitat quality for mid-succession and climax species.

The extended distributions of many tree species (certainly commercial species in Canada) requires that decline in quality or quantity of forest habitat be interpreted at a very broad landscape level, with a presumption that habitat will cycle from high quality to low quality and back again, for a given tree species or for stable species associations. Regardless of scale, measure of decline of habitat quantity or quality would be best captured as a rate of change. Projection of species proximity to a specific threshold value (expressed either as area or stocking), would provide a better indication of threat of extinction than would simple inferred loss of habitat.

Under Annex IA and 1B, variation between species that exist naturally at low density levels yet are widely distributed and species that occur in densely populated but restricted distributions needs to be addressed.

Within Annex I, there appears to be considerable overlap between 1A. and 1C. These two sections could possibly be streamlined. As well, Annex 2a A is functionally similar to Annex 1. These two criteria could be possibly be streamlined.

In Annex 2a A the definition of near future is not clearly defined. In Annex 2a B ii., the term threatened is quite general. This clause should reflect reduction of the population to a threshold level at which other influences would guarantee species recovery would not be possible.

2a Bii is particularly difficult to apply as the use of term threatened requires an objective, quantifiable measure (eg. A per cent measure of risk or identification of specific risk factors) for the criterion to apply.

Conclusion:

As noted above, our results of the CITES Criteria test and review process indicate most of the items raised in the Comments from Canada contained in Notif. 2001/37(October, 2001, CITES review process) remain relevant and still apply to the Criteria as drafted.

ASSESSMENT OF THE PROPOSED CRITERIA FOR LISTING SPECIES ON APPENDIX I AND II OF CITES PROVIDED BY THE CANADIAN FOREST SERVICE – [Comments from **Canada** Notification 2001/037]

General Comments

The proposed framework for listing species on Appendix I and II of CITES does not sufficiently reflect the clear direction in the convention text. In the preamble of the Convention, the context is stated to be the need to protect species "against over exploitation through international trade". Operational Articles II 1) and II 2) reflect the same desire to protect species threatened by their international trade. However, the proposed framework of criteria do not reflect this need to assess the risk or degree to which a species is threatened by its international trade. This omission is most apparent in the the proposed criteria for Appendix I which are entitled "Biological Criteria", i.e. there is no reference to international trade in the title of the criteria. Also, in the definition of "Affected by Trade" in Annex 5 (specifically in the annotation of the text provided by the CITES Secretariat), it states that the Co-chairs of the Criteria Working Group are of the opinion that "if trade is known to exist it must be demonstrated that this trade has a detrimental impact". While this need would seem obvious, there is no requirement or mechanism in the proposed framework to accomplish this goal.

The proposed criteria are too broad/general. While it is understood that flexibility is desirable, the broadness of the proposed framework invites controversy and unnecessary debate. For many Parties, listing proposals are the only information to decide on whether to list a species. To facilitate such decisions, proposals should be required to include explanations of the range of views that exist on issues arising from the application or interpretation of listing criteria. The proposed listing framework (criteria, definitions and supporting information etc.) are essentially about assessing and categorizing the risk of extinction, notably due to international trade.

The application of the proposed framework would be more effective if the same criteria were used for Appendix I and II. The difference would be the time thresholds, immediate for Appendix I and within a certain time period appropriate to the species for Appendix II. This is the approach used by IUCN with its Red List criteria.

Specific Comments

Annex 1 - Appendix 1 Criteria

1) Is the definition of affected by trade found in Annex 5, page 11 appropriate?

We agree that if trade exists, it is necessary to show that it be detrimental to the status of a species. However, this need is not reflected in the biological criteria listed in Annex 1. The second half of the definition is very broad. While the explanation is clear, the text is vague and could lead one to conclude that international trade will always have a detrimental impact.

2) Is the definition of threatened with extinction found in Annex 5, page 15 appropriate?

No. It is difficult to see the relationship between the criteria in Annex 1 and the list of parameters found in the explanation to the definition. In general, it appears that the criteria in Annex 1 are proxies for defining a point where the risk becomes unacceptably high that a population is no longer viable and thus the species becomes extinct. However, there is no link to trade, as called for in Articles I and II, 2a) of the Convention.

Criterion A: "*The wild population has a restricted area of distribution and is characterized by at least one of the following*;"

1) Are the definitions of distribution and restricted distribution in Annex 5, page 11 appropriate? Is the guideline of 10,000 square kilometers appropriate ?

The definition of distribution seems adequate; however, the reference to "restricted distribution" is not, *per se,* a definition as it merely introduces the concept of "smallness" to the definition of distribution. The guideline of 10,000 km^2 is not suitable to all species and is very small in the context of Canadian trees species.

2) Is a "restricted" population distribution a good proxy for assessing the risk of extinction or the detrimental effect (now or in the future) of trade on Canadian commercial tree species?

No, it does not follow that trade necessarily results in an increase in the threat of extinction. The question is whether the specific level of trade is it too high, i.e. the current level will lead to extinction through its detrimental impact(s) on the status of the species. If the level of trade is greater than that permissible, given a population's status, size and distribution status, along with other stress factors, then it could lead to extinction. Considering biological criteria in isolation is not sufficient for banning international trade.

Regarding *" i) fragmentation or occurrence at very few locations:"*

3) Is the definition of fragmentation in Annex 5, page 13 appropriate?

No, fragmentation is not defined correctly (at least as it is used by the science community). It does not follow that isolated "patches" face a greater threat of extinction than contiguous distributions. In general, it is the change in fragmentation over time that is closely related to the threat of extinction. A necessary condition is that the level of international trade has a detrimental impact and thus increases the threat of extinction.

4) Is "occurrence" a good proxy for assessing the threat of extinction?

No, it does not follow that a reduced "occurrence" necessarily results in an increase in the threat of extinction. As above, it is the change in occurrence over time that is related to the risk of extinction. Again, the question is whether the level of trade results in a detrimental impact on the status of the species and thereby increases the threat of extinction.

REgarding *"ii) fluctuations in the distribution or the number of sub-populations:"*

5) Are the definitions in Annex 5, pages 10-11 and page 14 regarding species and populations appropriate?

Yes.

6) Are fluctuations in the distribution or the number of sub-populations a good predictor of the threat of extinction or the effects of trade?

No, as above, it is the size of fluctuations over time that should be the concern. Regarding international trade, the issue is whether it will have a detrimental impact and increase the risk of extinction through causing fluctuations that are too great given the reproductive and other biological characteristics of a species.

REgarding *"iii) a high vulnerability due to the species' biology or behaviour:"*

7) What is the biological meaning of this criterion? Presumably, the meaning is that, for example, a tree species that has a restricted distribution and that produces a small number of seeds is more vulnerable (to the threat of extinction and the effects of trade) than other tree species that have restricted distributions but that produce a large(r) quantity of seeds? Is this concept a good proxy for assessing whether a Canadian commercial tree species may be threatened by extinction or that they may be affected by trade?

Sub-criterion iii) is a consideration to be taken into account in Criteria i, ii, and iv), i.e. the threat of extinction to e.g. a small fragmented population varies according to a variety of biological characteristics or behavior, notably related to reproductive strategies. "Vulnerability" as a concept seems to have a greater direct link to population size (i.e. the number of individuals) than it does to the size of a population's distribution and thus could be moved to another Criterion. Vulnerability due to biological tendencies helps to describe/explain why there are "observed, inferred or projected declines" in a population. Also this Criterion is perhaps adequately accounted for in Annex 6 describing the format for listing proposals (notably section 3.3 Biological characteristics).

For these reasons, the Sub-criterion could be deleted.

***RE**garding* " iv) an observed, inferred or projected decrease in any of the following: the area of distribution; the area of habitat; or the number of sub-populations; or the number of individuals; quality of habitat; or recruitment:"

8) To what extent, if any, are issues in Sub-criterion iv) appropriate or repeated elsewhere in the Appendix I criteria?

The issues of the "area of habitat" and the "quality of habitat" should not be included explicitly as key dimensions of decline as they are explanatory factors for declines in the "area of distribution" and/or the "number of individuals". Also area and quality of habitat should not be included in Criteria B and C.

As the proposal format calls for information on habitat trends in section 4.1, this issue could be deleted from the criteria.

On a separate matter, the issue "number of individuals" is superfluous as it is fully taken into account in Criterion B. The issue of the "number of sub-populations" could perhaps be combined with Criterion B (i.e. include it in the merging of Sub criteria Bi and Bii)

Criterion B: "*The wild population is small, and is characterized by at least one of the following*:"

1) Is the definition of small populations found in Annex 5, page 15 appropriate?

No. First there is the issue of assexual reproduction. Also, the meaning of "individuals capable of reproduction" is unclear. If the meaning is that populations include both existing sexually mature individuals as well as the likely number of immature individuals likely to reach sexual maturity, then the definition is OK. If it only includes existing sexually mature individuals, then the definition seems overly biased in the case of tree species (given the apparent objective of trying to assess the viability of a population).

***RE**garding* " i) an observed, inferred or projected decline in the number of individuals or the area and quality of habitat;"

2) Is the definition of decline found in Annex 5, page 12 appropriate?

No, primarily because there is no explicit link between the rates of decline and the chief causes of decline, notably that attributable to international trade, i.e. "decline" is not a sufficient condition for a ban on international trade. Also, the statement "The estimated or inferred baseline for extent of decline should extend as far back in history as possible." is biased.

Extending back until the population was viable (where there was ecological integrity) would seem more appropriate.

3) Could this Criterion be easily applied to Canadian commercial tree species? For example, for a particular species, would a decline in a specific age class be an effective proxy for an increased threat of extinction or effect due to trade?

No. A decline in the number of individuals in any one age class, on its own, is not a sufficient criterion for establishing that a "small" population is not viable. It is recognized there are varying tolerances to decline and in the longer term, a lack of tolerance can lead to a greater threat of extinction, .e.g, though a loss in genetic diversity. The focus should be on decline over time. Species suffering a rapid or accelerating rate of decline over time toward a threshold level where the population collapses, clearly face a higher threat of extinction. Even in the context of mature trees, there are several examples where population declines are not significant, i.e. they can rebound completely after older/mature age classes have been completely removed (by harvesting, insects, fire or disease for example).

4) Does a decline in the area or quality of habitat always equate to an increased risk of extinction or effect from trade, or do some Canadian commercial tree species have varying tolerances to such declines?

No. See responses to questions 1-3 above. Also see the response to question 10, under Criterion A.

***RE**garding* " ii) each sub-population being very small;"

5) Is the definition of very small sub-populations found in Annex 5, page 15 appropriate?

No. See the response to question 1 above.

***RE**garding* " iii) a majority of individuals, during one or more life-history phases, being concentrated in one sub-population;"

6) Is this Sub-criterion relevant to Canadian commercial tree populations, if so how?

It appears this Sub-criterion is aimed at species other than trees, consequently it may not be relevant to trees. Also there are potential problems that arise due to the focus on "individuals", and because "smallness" *per se* is not a sufficient condition for banning international trade.

REgarding *" iv) a large short-term fluctuations in the number of individuals in those life history stages that are of critical importance for the continued survival of the species;"*

7) Is this Sub-criterion relevant to Canadian commercial tree populations, if so how and would these critical life history stages be easy to identify?

Possibly no, but needs discussion to establish the extent that this Sub criterion is appropriate to trees. Also see response to question 6 above.

***RE**garding* "v) a high vulnerability due to the species' biology or behaviour (including migration)."

8) See question 9 and its answer under Criterion A.

Criterion C: "*A marked decline in the number of individuals in the wild, which has been either*:"

1) In the context of Canadian commercial tree species, can the term "marked decline" be defined in biological, ecological or silvicultural terms?

Likely not.

There appears to be an unacceptable degree of overlap among Criteria Aiv), Bi) and Ci) and Cii).

2) What age classes should be considered to enable the consideration of the number of "individuals"?

A marked/significant decline *per se* is not a sufficient criterion to establish that a population is not viable. Depending on the age classes and biological characteristics, notably methods of reproduction, a marked/significant decline may not have approached the point where there is a corresponding unacceptable increase in the chance that the population will no longer be viable. In addition to this threshold concept, there is also the importance of the change in decline over time to an assessment of the risk of extinction. Also see answers under Criterion B, questions 3-7.

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 in the proposed framework, e.g. population size, fluctuation and marked decline. The proposed framework would be strengthened by highlighting and providing guidance on how to assess these important linkages to MVP.

REgarding *"i) observed as ongoing or as having occurred in the past (but with a potential to resume);"*

3) See Criterion A, questions 4 and 5. Are there natural fluctuations of declines in the number of individuals of Canadian tree species? Are such declines a good proxy for assessing whether a tree species is threatened with extinction due to international trade?

The definition of "decline" is unclear as is the concept of "declines having occurred in the past". "Declines", as defined, are reductions in abundance. As natural fluctuations should "not normally count as part of a decline" it is unclear whether natural periodic and/or stochastic declines due to e.g. disease or insect infestations should be considered or not. Once again, there should be explicit links to the causes of decline, notably due to international trade.

***RE**garding* "ii) inferred or projected on the basis of any one of the following: a decrease in area of habitat; or a decrease in quality of habitat; or levels or patterns of exploitation; or threats from extrinsic factors such as the effects of pathogens, competitors, parasites, predators, hybridization, introduced species and the effects of toxins and pollutants; or decreasing recruitment."

4) Is the definition of recruitment found in Annex 5, page 15 appropriate?

Yes.

5) Is inference a scientific concept? Is not inference a means for making a projection? If so, could "inferred" be deleted without significantly changing the proposed text?

Inference is an important statistical concept that in scientific research connotes that measurements have been made. On the other hand, to some "projection" connotes the use of model whose parameter may or may not be based measured observation (i.e. parameters could be based on expert opinion). As the terms inference and projection are not defined, the proposed framework would be strengthened by guidance highlighting the need to document the methods used to develop inferences and projections. This information could be included in section 4 of the proposal format found in Annex 6.

6) Are there not a larger number of biological/ecological and socioeconomic factors that would need to be taken into account in order to project whether there will be a marked decline in the number of individuals, notably due to international trade. Regarding socioeconomic factors, is the level and pattern of exploitation a good proxy for the demand for a species, i.e. should other variables such as the existence of substitute products be included?

Reference to "levels or patterns of exploitation"should be deleted as this is double counting, i.e. "levels of exploitation" are among the factors that can/could explain a population's decrease in individuals. Also, section 6 of the proposal format is the most appropriate place to include information regarding historical and current exploitation and end-use patterns. A distiction needs to be maintained between levels of exploitation and exploitation arising from international trade.

Annex 2a - Appendix II Criteria

"*A species should be included in Appendix II when, on the basis of available information on the status and trends of the wild population(s), one of the following criteria is met:*"

Criterion A: "*It is known, or can be inferred or projected that the regulation of trade in the species is necessary to avoid that it becomes eligible for inclusion in Appendix I in the near future*;

1 See Appendix I, Criterion C, question 5.

Delete "inferrence".

2 Is the definition of the near future found in Annex 5, page 13 appropriate?

No. The definition of near future in the context of Criterion A would require that all species not on Appendix I be included on Appendix II. The IUCN approach of specifying relative time in terms of a number of generations may be a reasonable approach to adopt.

3 As is the case for Appendix I, Criterion C ii), should the factors or variables to include in a projection be specified? If so, would the factors differ between Appendix I and II?

As with the IUCN Red List approach, the difference between Appendix I and II should be one of degree or extent according to a common set of criteria as defined by thresholds. Consequently, there should be one set of criteria that inter alia assess the threat of extinction due to international trade. Where the values for the criteria indicate a very high likelihood of imminent extinction and that controlling international trade will reduce this likelihood, the species should be listed on Appendix I. Where there is a strong likelihood the species will degrade to an Appendix I status within several generations, the species should be listed on Appendix II.

Criterion B: "*It is known, or can be inferred or projected that regulation of trade in the species is required to ensure that the harvest of specimens from the wild is not detrimental to the species concerned*."

1 See Appendix I, Criterion C, question 5.

2 Is the distinction between Criteria A and B significant? Is Criterion A the more relevant case and thus sufficient?

Delete this Criterion as it is not sufficiently different from Criterion A.

Annex 2b – Appendix II Criteria in accordance to Article 2 (b) of the Convention

Criterion A: "*The specimens of a 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, for which the proponent has demonstrated that a non-expert, using basic identification materials and with reasonable effort, is unlikely to be able to distinguish between them*;"

1 A common CITES annotation for timber species is "logs, sawn wood and veneer sheets". Would a look-alike situation arise when a similar species was used in some or all layers of plywood?

Strictly speaking, yes. However, this may not be the intent of Article 2b).

2 There have been advances in species identification. To what extent are there "hi-tech" operational tests for Canadian commercial tree species? Could the existence of such tests be grounds for excluding the listing of a commercial tree species on Appendix II pursuant to Article 2b) of the Convention?

There are genetic marker tests to determine tree species and this could be sufficient to exclude an Article 2b) listing. However, these tests may be prohibitively expensive, at least in some cases and for some countries. Criterion A is problematic as it does not relate directly to the text of the Convention which states that "look-alikes" will be listed so that traded specimens of an Appendix II listed species "may be brought under effective control". Criterion A implicitly assumes that effective control is not possible and goes directly to the operational problem of identification. Information that would aid the necessary assessment of whether effective control would be possible may include: number of "producer" and "consumer" countries; the current uses of the "look-alike" and whether it is already being used to produce the same products as the "listed" species; the potential for the "listed" species to be "laundered" as the "look-alike"; the ability of the range states of the "look-alike" species to control the trade in the products of the "look-alike" species. This "type of information should be required in the proposal format presented in Annex 6.

Criterion B: "*There are compelling reasons other than A) above to ensure that effective control of trade in currently listed species is achieved*."

1 What other compelling reasons might there be for listing a tree species on Appendix II so that trade of another species "can be brought under effective control"?

The Criterion is too broad. It needs to be mentioned that the text of the proposed Decision for COP12 states, in the first "Resolves" para that in the context of Appendix I or II listings, "Parties shall act in the best interest of the species concerned and of its conservation and adopt measures that are proportionate to the anticipated risks to the species." Consequently, there is already an overarching provision to list a "look-alike" if the level of risk warrants it. Criterion B, if necessary, should be redrafted and/or expanded to address risks arising from specific problems that will complicate establishing the effective control of the trade in specimens of "listed" species.