

Deletion of all species of the subfamily Opuntioideae, family Cactaceae, from Appendix II. Proponent: Switzerland.

Summary: See the general introduction to proposals 43, 44 and 45. The subfamily Opuntioideae is one of three currently recognised subfamilies in the cactus family (Cactaceae). It comprises four genera with some 200-400 species, or 5-10% of the total number of species in the family. Its natural range extends through much of the Americas and the Caribbean, from southern Canada to southern South America. A few species have become extremely widely naturalised in arid and semi-arid regions elsewhere in the world and are regarded as major pests. Species show a wide range of growth patterns, from dwarf, largely subterranean forms to large tree-like plants. The subfamily is characterised by the presence of small, hooked, easily-detached spines called glochids not found in other cacti. Stems are generally segmented and may be cylindrical, spheroid or flattened and pad-like, as in the familiar prickly pears (genus *Opuntia*, sub-genus *Opuntia*), and typically have rudimentary leaves at the growing points, which are usually lost as stems mature.

Six species, all from the Galapagos Islands, Ecuador, are currently included in the IUCN Red List of Threatened Species; a further 45 species were assigned pre-1994 threatened species categories in the 1997 IUCN Red List of Threatened Plants and other taxa are considered rare or threatened in various range States. Members of the sub-family are subject to a range of local uses in various parts of their range and also feature in international trade.

The subfamily was included in Appendix II of CITES in 1975, as part of the entire family Cactaceae. Subsequently cultivars of *Opuntia microdasys* were excluded from the provisions of the Convention under annotation °608, which also excludes a number of other cacti all in the subfamily Cactoideae. Annotation #4 further excludes separate stem joints (pads) and parts and derivatives thereof of naturalised or artificially propagated plants of the genus *Opuntia* subgenus *Opuntia*, as well as fruit and fruit derivatives of naturalised or artificially-propagated plants, seeds, cut flowers and *in vitro* seedlings and tissue cultures of all members of the subfamily. Six genera, 25 species and two subspecies of cactus are included in Appendix I, but all these are members of the subfamily Cactoideae.

The Opuntioideae are proposed for deletion from the Appendices on the grounds that no species has ever been reported to be threatened through international trade in unsustainable quantities of wild-collected specimens. The supporting statement also maintains that members of the subfamily are easily distinguishable from other members of the family Cactaceae and that therefore deletion of the Opuntioideae will not create enforcement problems for those species in the family retained in the Appendices. The genera *Pereskopsis* and *Quiabentia* are also included in proposal 12.45, deletion from Appendix II of leaf-bearing cacti.

Analysis There is very little information on the wild status of most opuntioid species. Based on the available information on international trade in these species, almost all from CITES Annual Reports, it seems likely that for most, or all, species such trade in wild-collected plants is small-scale and does not pose a significant threat. It is conceivable that, in a few cases, harvest for use may not be sustainable, but in these cases it seems likely that domestic use is a considerably more important factor than international trade. However, it seems likely that removing the Opuntioideae from the Appendices may cause significant problems in implementation of the Convention for those species of cacti that would remain listed in the Appendices. The chief distinguishing characteristics that separate opuntioids from those in the subfamily Cactoideae are neither consistent nor readily apparent to non-experts, even though they may arguably be to professional botanists. Some species may, to non-experts, quite closely resemble some Appendix I listed cacti.

Supporting Statement (SS)	Additional information
<p style="text-align: center;"><u>Taxonomy</u></p> <p>Includes the currently recognised genera <i>Opuntia</i>, <i>Pereskopsis</i>, <i>Pterocactus</i>, and <i>Quiabentia</i>. The CITES Cactaceae Checklist accepts 205 species names in total in the subfamily and provisionally accepts a further 156.</p> <p>A recent review of the family recognises eight further genera.</p>	<p><i>One of three currently recognised subfamilies of the family Cactaceae, the other two being the Pereskioideae and the Cactoideae. The last of these includes approximately 90% of the cactus species.</i></p>

Supporting Statement (SS)	Additional information
<p>The subfamily is native to North and South America and the Caribbean, from southern Canada to Patagonia. Various species are introduced in many other regions of the world with Mediterranean or semiarid climates, such as Australia, South Africa, Madagascar and the Mediterranean region.</p>	<p style="text-align: center;"><u>Range</u></p> <p><i>Argentina; Bahamas; Bolivia; Brazil; Canada; Cayman Islands (United Kingdom); Chile; Columbia; Costa Rica; Cuba; Dominican Republic; Ecuador; El Salvador; Guatemala; Guyana; Haiti; Honduras; Jamaica; [Lesser Antilles]; Mexico; Netherlands Antilles (Netherlands); Nicaragua; Panama; Paraguay; Peru; Puerto Rico (USA); Suriname; Trinidad and Tobago; USA; Uruguay; Venezuela; [Virgin Islands] (Hunt, 1999)</i></p> <p style="text-align: center;"><u>IUCN Global Category</u></p> <p><i>Six species of Opuntia from the Galapagos Islands, Ecuador, are included in the 2000 IUCN Red List of Threatened Species. One is classified as Critically Endangered, two as Endangered and three as Vulnerable.</i></p> <p><i>A further 45 species are assigned pre-1994 threatened species categories in the 1997 IUCN Red List of Threatened Plants. Of these, seven are Endangered, ten Vulnerable, 19 Rare, eight Indeterminate and one extinct. The majority of names used in the list are of accepted or provisionally accepted taxa in the CITES checklist of Cactaceae (2nd edition, 1999).</i></p>

Biological and trade criteria for retention in Appendix II

A) Trade regulation needed to prevent future inclusion in Appendix I

B) Harvesting for international trade has, or may have, detrimental impact on population

(i) exceeds sustainable yield; (ii) reduces population to potentially threatened level

The SS summarises trade in wild-collected specimens in Annual Reports to CITES since 1991, including that recorded under a number of genera not accepted in the current CITES Cactaceae checklist (*Austrocylindropuntia, Consolea, Cylindropuntia, Miahueniopsis, Nopalea, Tephrocactus*) and notes that trade in live specimens is minimal, consisting mainly of interchange of specimens for scientific purposes.

Wild-collected timber pieces and carvings are traded internationally, most from Mexico to Japan and USA and from USA to Japan and Europe. Harvest is restricted to dead plants (dried lignified vascular bundles) and therefore has no impact on live wild populations. The species concerned are all widespread and common.

Some 50 species of Opuntia and one species of Pterocactus have been recorded in trade in Annual Reports to CITES since 1991.

The trade in cholla (timber of cylindrical Opuntia = Cylindropuntia spp.) may merit monitoring as an increase in harvest of live plant material to supplement the gathering of dead specimens could destabilise wild populations affected by low rates of recruitment (Cody, 2000).

Barcenas (2002) notes that it may not be easy to define a dead cholla skeleton as, in some cases, the bottom part of a plant may appear dead while the upper part is still alive. He further questions whether the quantity and quality of dead skeletons available is sufficient to meet the demands of the carving and construction industries.

In 1998 the US Fish and Wildlife Service denied an application to export some 52 000 Opuntia that had been collected in a small area over a short period on the basis that the intensity of harvest may have had a detrimental impact on wild populations, which were not identified to species level and could have included rare or localised forms (Liebermann, 1998).

Supporting Statement (SS)	Additional information
Retention in Appendix II to improve control of other listed species	
<u>Specimens resemble other species and are difficult to distinguish, or most of taxon is already listed</u>	
<p>The SS states that definition of the subfamily is based on clear morphological criteria and that the subfamily is the easiest group within the Cactaceae to identify, even for non-experts.</p>	<p><i>Barcenas (2002) notes that there may be resemblance between some members of the Opuntioideae and of the Cactoideae. The genus Rhipsalis and the species Schlumbergera opuntoides have multiply-segmented stems. Stems of Opuntia bradtiana lack glochids and could be mistaken for an Echinocereus while the glochids of O. invicta resemble orthodox cactus spines. Several South American species of Opuntia could be mistaken for species of Turbinicarpus or Echinocereus. The entire genus Turbinicarpus and two taxa in the genus Echinocereus are currently included in Appendix I.</i></p> <p><i>Barcenas (2002) further notes that the presumption appears to be that all elements of the plant (roots, stems, flowers, fruits and seeds) will be available at once for identification purposes, which is unlikely to be the case when plants are being shipped.</i></p> <p><i>However, the federal agency enforcing CITES plant controls in the USA believes that the removal of Opuntoid cacti from the Convention would not complicate efforts to identify these and other cacti at USA ports of entry (Petitdemange, 2002)</i></p>

Other information

Threats

While the majority of species are not currently regarded as threatened, and a few are extremely widespread, some species with small ranges are believed to be affected by habitat loss and degradation.

Artificial propagation

Opuntias are very extensively propagated in horticulture in Europe and elsewhere. In particular *Opuntia microdasys* is propagated as an ornamental plant and *O. ficus-indica* for its edible fruits. Cultivars of the former and fruits and separate stem pads (and their derivatives) of naturalised or cultivated plants of the latter are excluded from the provisions of the Convention.

Some species are cultivated in only very limited quantities (Barcenas, 2002).

Griffith (2002) supports the proposal.

Reviewers: R. Barcenas, M. Griffith, TRAFFIC North America.

References:

- Barcenas, R., 2002. *in litt* to Robbins, C.J., 2002.
- Cody, M.L., 2000. Slow-motion population dynamics in Mojave Desert perennial plants. *Journal of Vegetative Science* 11(3): 351-58.
- Hunt, D., 1999. CITES *Cactaceae Checklist*. Second Edition. Royal Botanic Gardens and International Organization for Succulent Plant Study (IOS).
- Griffith, M. 2002. *in litt*. to IUCN/SSC Wildlife Trade Programme, Cambridge, UK.
- Lierberman, S. 1998. Memorandum from the Chief of the Office of Scientific Authority to the Chief of the Office of Management Authority at the U.S. Fish and Wildlife Service regarding a CITES Export Permit Application. August 26, 1998.
- Petitdemange, B., 2002. *in litt*. to TRAFFIC North America, Washington DC, USA.