

Inclusion of all species of Ponytail Palms in the genus *Beaucarnea* in Appendix II

Proponent: Mexico

Summary: *Beaucarnea* species, known as Ponytail Palms (although not strictly palms), occur in Mexico and northern parts of Central America (possibly as far south as northern Nicaragua). According to the Kew Plant Checklist there are nine accepted species: *Beaucarnea compacta*, *B. goldmanii*, *B. gracilis*, *B. guatemalensis*, *B. hiriartiae*, *B. plibilis*, *B. recurvata*, *B. sanctomariana* and *B. stricta*. Two other species listed as synonyms (*B. inermis*, *B. purpusii*) are sometimes recognised as separate species¹ *Beaucarnea* species feature in the horticultural plant trade, with *B. recurvata* the main species in trade. It is still frequently traded under the synonym *Nolina recurvata*.

Beaucarnea recurvata can reach almost 15m in height and is endemic to the low deciduous forests in rocky and mountainous areas of Veracruz and Oaxaca, Mexico. Regeneration is reportedly limited. Individuals do not flower every year, and establishment rates are apparently low, owing to a lack of water, herbivory grazing, extraction and other causes. Adult plants may live for hundreds of years, and are reported to start flowering when they reach three metres tall after around 30 years (artificially propagated plants reportedly flower sooner)¹. There is no accurate estimate of the number or size of wild populations. Maximum recorded density is of 135 individuals per ha (calculated from an area of 1.2ha in Veracruz). A study currently underway in central Veracruz has found few populations with more than 30 adult individuals, although it is believed that such populations exist in inaccessible areas, and that isolated individuals are still relatively abundant in the range¹. Observed population structure apparently varies according to site accessibility, with relatively few seedlings and juveniles observed along flat roads near areas of human population.

There are nurseries in Mexico (registered under the Unidades de Manejo para la Conservación de la Vida Silvestre (UMA) or Predios Intensivos de Manejo y Vida Silvestre (PIMVS) systems) that legally propagate *Beaucarnea* species; it is reported that volume of production and sizes of available specimens do not satisfy the demand and that seeds, seedlings, juveniles and adults are consequently harvested from the wild to supplement artificial propagation. The main *B. recurvata* mass producers are reported to depend entirely on seeds from the wild. Flowering specimens produce an average of approximately seven inflorescences, with each inflorescence typically producing more than 2000 seeds. Only one nursery is known to have a closed cycle of production, and it is very small compared to mass producers in the main region of production of *B. recurvata* in Mexico¹. While examples of sustainable management with scientifically-based harvest limits for seed are in place, such production is reportedly undercut by cultivation of specimens illegally harvested from the wild². Mexican seizure data indicate that over 2000 specimens were confiscated from nurseries in the period 2004 to 2014.

Beaucarnea recurvata is also widely propagated outside Mexico and very common in ornamental plant markets in Europe and elsewhere. Denmark has reported an annual average export of 200,000 specimens. Information collected from various countries in the European Union noted that China is a major source of propagated specimens. The origin of parent material of live plants offered outside Mexico is unknown, although the species has been widely in cultivation since the first half of the nineteenth century³.

There is virtually no information on export from Mexico. Trade data from the USA do not report any imports from Mexico in the period 2004 to 2013⁴. It has been stated that wild-collected plants are exported after acclimatisation in nurseries in Mexico although there does not appear to be clear evidence for this.

Other *Beaucarnea* species that are known to be in cultivation are *B. inermis*, *B. goldmanii*, *B. plibilis*, *B. hiriartiae* and *B. guatemalensis*. Limited trade in seeds of *B. gracilis*, *B. stricta* and *B. sanctomariana* has also been recorded.

Juvenile and adult *Beaucarnea* specimens resemble each other to varying degrees. They can be distinguished to species level with some training, with information on identification published in a number of manuals^{5, 6, 7}. However, seeds and seedlings cannot be easily identified to species level by non-specialists. There are a number of synonyms used for species in this genus, including species falling under four other genera (*Dasyllirion*, *Dracaena*, *Nolina* and *Pincenectitia*). *B. inermis* is considered a synonym of *B. recurvata*⁸ (however it is included as an accepted species in this proposal) and *B. recurvata* var. *stricta* is considered a synonym for *B. stricta*.

The species has not been assessed by IUCN, but the Norma Oficial Mexicana NOM-059-SEMARNAT-2010 (the Mexican National Red List) classifies *B. recurvata* as threatened (A) although more recent consideration by experts, indicated that it could instead be classified at risk of extinction.

Analysis: *Beaucarnea recurvata* is an extremely widely grown ornamental plant, cultivated both within its range State (Mexico) and elsewhere. Wild populations are scattered over a relatively wide area; there is no information on total numbers or trends. There are reports of wild-collection of seeds as source material for nursery propagation in Mexico, and of collection of plants of varying sizes for the horticultural plant trade. It has been stated that some of the trade in wild-collected plants is destined for export although there appears to be no clear evidence for this. There are indications of fewer young plants in accessible populations than in less accessible ones, but no other information on the possible impact of harvest on wild populations. The species has been in cultivation outside the range State for many years; it is likely that established cultivated stock can provide both large plants for sale and source material (seeds) for propagation in adequate quantities to meet market demands. The species seems likely not to meet the criteria for inclusion in Annex 2 a of *Res. Conf. 9.24 (Rev. CoP16)*.

Evidence for trade in wild-collected plants of other *Beaucarnea* species is extremely limited and there is no indication that any of them meets the criteria in Annex 2 a of *Res. Conf. 9.24 (Rev. CoP16)*.

Species of *Beaucarnea* resemble each other to varying degrees. If any species were to be included in Appendix II, the others would meet the criteria in Annex 2 b of the Resolution (lookalike criteria).

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References:

Information not referenced in the Summary section is from the Supporting Statement.

¹ Contreras Hernandez, A. (2016) *In litt.* to the IUCN/TRAFFIC Analyses Team, Cambridge, UK.

² Osorio, M.I. & Contreras-Hernandez, A. (2013) Environmental policy for sustainable development and biodiversity conservation: a case study involving the exploitation of *Beaucarnea recurvata*. In: Yanez-Arancibia, A. & Davalos-Sotelo, R. (eds) *Ecological Dimensions for sustainable socio-economic development*. Great Britain: WIT Press, pp. 209-222.

³ Llifle (2005) *Nolina recurvata*.

http://www.llifle.com/Encyclopedia/SUCCULENTS/Family/Dracaenaceae/20519/Nolina_recurvata . Viewed on 4th July 2016.

⁴ Analysis of US Fish & Wildlife Service Law Enforcement Management Information System (LEMIS) data, May 2016.

⁵ Martinez, M., Hernandez Sandoval, L. & Carrillo, L. (2014) Foliar anatomy of *Beaucarnea* Lemaire Nolinaceae SS. *Plant Systematics and Evolution* 300: 2249-2258.

⁶ Osorio, M.I., Contreras, A., Equihua, M. & Benitez, G. (2011) Conservation and Utilization of Palma Nun, *Beaucarnea recurvata* (Lemaire), non-timber forest species. CONAFOR and Institute of Ecology AC.

⁷ Hernández, L., Osorio, M.I., Orellana, R., Martínez, M., Pérez, M., Contreras, A., Malda, G., Swords, C., Almanza, K., Castillo, H., and Felix. (2012) Management and conservation of species with commercial value elephant foot (*Beaucarnea*). Editorial Universitaria University of Queretaro, SAGARPA, SNICS, SINAREFI.

⁸ The Plant List (2013) Version 1.1. <http://www.theplantlist.org/>. <http://www.theplantlist.org/tp1.1/record/kew-300342>, and <http://www.theplantlist.org/tp1.1/record/kew-300352>. Viewed on 4th July 2016.