Inclusion of *Uncarina stellulifera* in Appendix II

Proponent: Madagascar

Summary: *Uncarina stellulifera* is a succulent shrub, one of around ten species in the genus, all of which occur in Madagascar. It has a relatively wide though evidently patchy distribution in south-west Madagascar, from Morondava southwards, where it grows in dry thorny thicket and dry forest, habitats that are affected by conversion to agriculture, burning and charcoal production. One observation on the ground found a density of around 160 mature individuals per hectare. The species is known to occur in at least three protected areas (Beza-Mahafaly Special Reserve and Kirindy-Mitea and Tsimanampetsotsa National Parks). The species is in cultivation, both as an ornamental plant (apparently on a small scale) in Madagascar and elsewhere. The species is said to be easy to propagate from seeds and to grow relatively rapidly. Some export of plants was reported in the early 2000s, amounting to just under 700 plants in total in the period 2000-2006, with a peak of just over 340 in 2004. It is not clear how many of these were wild collected. Export since 2006 has not been reported and the majority of the limited trade outside Madagascar at present appears to be in seeds. Current legal controls in Madagascar on collection and export are unclear.

Analysis: *Uncarina stellulifera* has a relatively wide distribution in south-west Madagascar. It is in cultivation, and is reportedly easy to propagate. Recent trade outside Madagascar appears to be largely in seeds. Some export of plants, presumed wild-collected has taken place in the past, although there is no indication of ongoing export of wild-collected plants The scale of the reported trade is very small compared with the likely population of the species based on observed densities. It seems very unlikely that regulation of trade is necessary to prevent the species becoming eligible for inclusion in Appendix I in the near future, or that harvest for trade is reducing the population to a level at which its survival might be threatened by other influences. The species would therefore not appear to meet the criteria for inclusion in Appendix II.

Supporting Statement (SS)	Additional information
Range	
Madagascar.	
IUCN Global Category	
	Not currently listed.
Biological and trade criteria for inclusion in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)	
A) Trade regulation needed to prevent future inclusion in Appendix I	
Ground observations in December 2010 in the South West region provided information about the abundance of *U. stellulifera*. It was estimated that within this region there were approximately 160 mature individuals per ha, and the estimated area occupied by the species in this region was 1.5 hectares, giving a total	

Supporting Statement (SS)	Additional information
subpopulation estimate in this region of 240 individuals.	
A future decline of 85% is predicted.	*The future decline predicted in the proposal is over an unspecified time period. The evidence upon which the decline is predicted is not detailed in the proposal.*
Regeneration of *U. stellulifera* is difficult, with a regeneration rate of 43.8%.	
In 2011, the species was assessed as endangered using the IUCN criteria.	*The conservation status of* U. stellulifera *is not published on the IUCN Red List. The IUCN status assessment given in the proposal was assigned using GIS data, which were used to calculate Area of Occupancy and Extent of Occurrence and to predict future decline (PC20 Inf. 5, 2012).*
	U. stellulifera *is reported as Near Threatened (NT) in the Guide des Plantes Medicinales et Alimentaires, but it is reported that if the plant is not soon brought under some type of conservation measure the species will be moved to one of the threatened categories (MPSG and Missouri Botanical Garden, 2011).*
U. stellulifera has a limited distribution, restricted to the South West of Madagascar. The Area of Occupancy is less than 500 km^2 and the Extent of Occurrence is 9,105 km^2. The zone occupied by the species continues to decrease due to diverse threats and pressures.	*The species is reported to be scattered from Mahafaly Plateau around Itampolo and Tsimanampetsotsa Lake to Morondav, not only from Tsimanampetsotsa Lake to North of Toliara as reported in the proposal (Rakotoarisoa* in litt., *2012).*
The species is found in two main types of habitat, dry thorny thicket and dry forest. The dry thorny thicket of the South and South West of the island covers an area of approximately 18 355 km^2 (of which 4.5% is located within protected areas). This type of land cover has reduced by 29.7% since the 1970s. The dry forest of the West of the island covers an area of 31 970 km^2 (of which 17.1% is within protected areas). This type of forest reduced by 39.7% since the 1970s.	*Observations in Manja (South of Morondava) in March 2012 reported an important population of mature individuals of* U. stellulifera *from Manja to Andranompasy (West towards the beach) (Rakotoarisoa* in litt., *2012).*
In collection areas, commercially exploitable individuals are reported as becoming increasingly rare. Collectors have to go further to find the species as it is no longer found in areas of previous collection, close to inhabited areas. The level of harvest and international trade could lead to the cessation of natural regeneration and the decline or even disappearance of populations in areas of collection which in the long term would constitute a serious threat to the species.	
B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences	
Uncarina stellulifera is traded legally internationally as a living plant.	*Yuan* in litt. *(2012) reports that trade of* U. stellulifera *is not common in China and that trade that is there, is of seed.*
Reported export numbers of living plants are as follows: 2000 (17), 2001 (2), 2002 (0), 2003 (10), 2004 (343), 2005 (154) and 2006 (136).	*No trade was reported subsequent to 2006.*

Supporting Statement (SS)	Additional information
No illegal trade in *U. stellulifera* has been registered. The species is rarely sold in local markets. A study by the Royal Botanic Gardens Kew found four web sources selling mature plants and seeds of *U. stellulifera* of wild or unknown origin. Price per plant was USD70.00 and per seed ranged from USD0.66 – 2.52.	*A further web search found various sites selling seeds of* U. stellulifera*. No seedlings or mature plants were found for sale. Seeds were identified as available from sellers in the USA and Réunion. Packages of up to 50 seeds could be purchased, at a price of USD20.09. Other species of* Uncarina *were noted to be available to buy from online sellers, including species with narrow distributions, such as* U. roeoesliana*.* *An additional nine-day web survey to investigate web trade for* U. stellulifera *was conducted in Autumn 2012, which identified three packages of seeds sold and eighteen packages of seeds offered from the USA and Réunion. Prices of seeds ranged from USD10 (for 10 seeds) to USD30 (for 50 seeds) (Augugliaro* in litt., *2012).*

Inclusion in Appendix II to improve control of other listed species

A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP15) Annex 2 a or listed in Appendix I

	U. stellulifera *when not in leaf and/or pruned will be difficult to distinguish from other species of the genus (Eggli* in litt., *2012).* U. grandidieri *is proposed for inclusion in Appendix II (CoP16 Prop. 68).*

Other information

Threats

Habitat degradation by slash and burn agriculture threatens *U. stellulifera*. The increasing expansion of shifting cultivation of maize and associated fires along with grazing animals constitutes a serious threat to habitat.	

Conservation, management and legislation

Collection and export are only regulated at a national level. Para 7.1 of the SS states: collection and export [of this species] are not subject to any controls. Para 8.1 of the SS states: National management measures are detailed in the proposal: The number of specimens authorised for export is based on the supply of the species in horticultural centres. A single harvest authorization per species per operator is provided, to serve as parental stock. Operators should undertake ex situ reproduction. Permits and exportation authorizations are supplied only for individuals reproduced artificially.	*The level of national legislation afforded to this species is unclear as the proposal notes that harvest and export are not subject to regulation and later that they are subject to national authorization procedures. Information as to whether national management measures have been enforced or how successfully is not provided. Expert reviewers were asked to provide additional information about national legislation and its effectiveness but none of the comments received clarified this.*

Supporting Statement (SS)	Additional information
Certain populations of *U. stellulifera* are found within the National Park of Tsimanampetsotsa and la Réserve Spéciale de Bezà-Mahafaly. The State policy to increase the extent of protected areas and define new protected areas could add to the conservation of the species in its natural habitat. The proposal suggests that reintroduction of the species to previous collections zones should be undertaken.	U. stellulifera *is also recorded in the Kirindy Mitea national park (Anon, undated).*
Captive Breeding/Artificial Propagation	
The proposal suggests that e*x situ* propagation is needed to create supplies for export. Propagation from cuttings is successful for *Uncarina* species, but it is also possible from seed.	*The species can be propagated easily from vegetative stem cuttings (Rakotoarisoa* in litt., *2012). Like other* Uncarina *spp., cultivation is easy as long as warmth and space is available. Propagation through seed (easily obtained via cross-pollination) or cuttings is straight-forward, and plants are rapid growers, so horticultural demand should be easy to meet via seed-grown plants (Eggli* in litt., *2012). Bihrmann* in litt. *(2012) reports that* U. stellulifera *grow rather fast. Seeds are common and propagation from cuttings does work but may be slightly difficult.* *According to the online database of Botanic Gardens Conservation International (BGCI), PlantSearch, 17 gardens record holding* U. stellulifera *in their collection. All of these gardens are located in Europe or the United States of America. In addition to this,* U. stellulifera *is also held in the collection of Phyto-Logic Paradise Gardens in Madagascar. The original specimen has been in the garden for more than ten years. This botanic garden is propagating* U. stellulifera *and* U. grandidieri *from cuttings and both species are being planted in gardens within the city of Antananarivo, where the botanic garden is located (Cooke* in litt., *2012). Parc Botanique et Zoologique de Tsimbazaza in Madagascar holds one individual of* U. stellulifera*. The plant was collected as a wild seedling and the garden is not currently propagating the species.*
The local population grow the species in enclosed gardens as an ornamental plant.	*Observations support the presence of the garden as an ornamental plant in a small number of gardens in rural areas and towns in the South of Madagascar. It is thought these plants may also be used for shampoo from the leaves, but this is not confirmed (Rakotoarisoa* in litt., *2012).*
Other comments	
Information on this species was presented to the Plants Committee in 2011. Biological and ecological data obtained were updated and supplemented for the preparation of this new proposal.	*Midgley and Illing (2009) hypothesised that the curious, heavily burred fruits of* Uncarina *spp. evolved to be dispersed on the feet of now-extinct elephant birds* Aepyornis.
This species has an important role in the daily lives of local people for its uses within traditional medicine. The *Uncarina* genus is also known for its use as a cosmetic	*U. stellulifera is also used in traditional medicine as a love spell (Ravaosolo, 2009).*

Supporting Statement (SS)	Additional information
plant. The leaves and stems are mainly used for hair care (such as hair regrowth and dandruff treatments). The leaves of *U. stellulifera* are used by cosmetic manufacturers to make shampoo and by local populations as soap. The constant removal of leaves from individuals throughout the year could affect the reproductive capacity of the species.	

Reviewers: C. Augugliaro, A. Cattabriga, U. Eggli, D. Newton, S. Rakotoarisoa.

References:

Anon. (undated). Madagascar National Parks: Kirindi Mitea. Available at: http://www.parcs-madagascar.com/fiche-aire-protegee_en.php?Ap=19 Viewed 24 October 2012

Augugliaro, C. (2012). In litt. to the IUCN/TRAFFIC Analyses Team, Cambridge, UK.

Bihrmann, E. (2012). In litt. to the IUCN/TRAFFIC Analyses Team, Cambridge, UK.

Cooke, B. (2012). In litt. to the IUCN/TRAFFIC Analyses Team, Cambridge, UK.

Eggli, U. (2012). In litt. to the IUCN/TRAFFIC Analyses Team, Cambridge, UK.

Midgley, J.J. and Illing, N. (2009). Were Malagasy *Uncarina* fruits dispersed by the extinct elephant bird? *South African Journal of Science* vol.105:11-12.

MPSG and Missouri Botanical Garden. (2011). Guide des plantes medicinales de Madagascar.

PC20 Inf. 5 (2012). Examen des propositions d'amendement des annexes I et II : Cas de deux espèces succulentes: *Cyphostemma laza et Adenia firingalavensis*. Information presented at the twentieth meeting of the Plants Committee. Available at: http://www.cites.org/common/com/PC/20/Inf%20docs/F20-05i.pdf Viewed on 25 October 2012

PlantSearch. (2012). http://www.bgci.org/plant_search.php Viewed on 24 October 2012

Rakotoarisoa, S.E. (2012). In litt. to the IUCN/TRAFFIC Analyses Team, Cambridge, UK.

Ravaosolo, J. (2009). Les plantes dans la fabrication de talismans utilises en phytotherapie dals ls Sud-Ouest malgache : Le cas de Toliara. *Etudes Ocean Indien* 42-43, p339-348

Yuan, W. (2012). In litt. to the IUCN/TRAFFIC Analyses Team, Cambridge, UK.