

Inclusion of *Adenia subsessifolia* in Appendix II

[According to the standard nomenclatural reference adopted by the Conference of the Parties, this species is named *Adenia subsessilifolia*]

Proponent: Madagascar

Summary: *Adenia subsessilifolia* is a succulent plant with caudiciform roots and tubers. It is one of 100 or so members of *Adenia*, a genus widespread in Madagascar and Africa. It is endemic to Madagascar; it occurs in the southern part of the country where it has been recorded at various locations from Toliara in the west to Andohahela in the east. It forms a low-lying multi-branched herb or sub-shrub. It is reported not to grow at high densities but is evidently relatively widespread within its range and is known from at least three protected areas (Cap Sainte Marie Special Reserve and Andohahela and Tsimananpetsotsa National Parks). Its habitat is affected by clearance for agriculture and charcoal production, and by fire. The species has been in international trade as a horticultural plant, chiefly grown by specialist collectors. However, it is reported not to be considered particularly attractive and demand is said to be low. It is reportedly very difficult to extract mature wild plants intact from the limestone in which they grow; in contrast, artificial propagation is said to be easy, although information on the latter is inconsistent. However, some wild collection has been reported, notably from the Table de Toliara Mountain near Toliara in the early 2000s. The CITES Management Authority of Madagascar has reported a small number of specimens (126) exported in the period 2003-2006, virtually all (115) in 2004; it seems likely that at least some of these were wild-collected. No export has been reported since 2006. Very few plants have been found offered for sale outside Madagascar recently. Prices are low, indicating that they are very likely to have been artificially propagated. Current legal controls in Madagascar on collection and export are unclear.

The species was proposed for inclusion in Appendix II at CoP15 but the proposal was withdrawn at the meeting. At CoP15 one Malagasy *Adenia* species (*Adenia olaboensis*) was included in Appendix II; no trade in it has been recorded under CITES since the listing.

Analysis: *Adenia subsessilifolia* is a relatively widespread plant in southern Madagascar, easy to propagate but difficult to collect from the wild. It has in the past appeared in international trade with at least some of these specimens very likely to have been wild-collected. However, no trade from the range State has been recorded for the past six years and the species is evidently in low demand in horticulture. The few specimens offered for sale recently are very likely to have been artificially propagated. It seems highly 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
Madagascar.	<p style="text-align: center;"><u>Range</u></p> <p style="text-align: center;"> </p> <p style="text-align: center;"><u>IUCN Global Category</u></p> <p style="text-align: center;"> </p> <p style="text-align: center;"><i>Not currently listed.</i></p>

Supporting Statement (SS)	Additional information
Biological and trade criteria for inclusion in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)	
<u>A) Trade regulation needed to prevent future inclusion in Appendix I</u>	
<p>The species has reportedly been assessed as endangered using the IUCN criteria.</p> <p>A combination of large-scale collection for export and the destruction of habitat is causing the gradual decline in the population, which is predicted in the future to decline by 82%.</p> <p>In 2006, approximately 100 individuals were counted in the mountains of Toliara (Andatabo) and 50 mature individuals were counted at Cap Sainte Marie and at Behara. Approximately 76 mature individuals per ha were counted at Andatabo, an area in which collectors operate where <i>A. subsessilifolia</i> has become very rare. Due to habitat degradation, natural regeneration is disrupted and has become very low. Regeneration potential at collection sites is 22%.</p> <p>The species has a restricted distribution from the Toliara region to la Réserve Spéciale de Cap Sainte Marie. The Area of Occupancy of <i>A. subsessilifolia</i> is 117 km² and the Extent of Occurrence is 32 541 km².</p> <p>Populations are very fragmented. <i>A. subsessilifolia</i> is found in the dry thorny thicket of the South West of the island (4.5% is found within protected areas). This type of land cover has reduced by 29.7% since the 1970s.</p> <p>Subpopulations have been recorded in the national parks of Cap Sainte Marie, Andohaëla and Tsimanapetsotse.</p> <p>The absence of individuals at a size suitable for exportation can be seen at collection sites. Collection can prohibit natural regeneration and cause decline or even the disappearance of populations in the areas of collection.</p> <p>As the geographic distribution of the species is fragmented, collectors change areas of collection when individuals at previous collection sites are exhausted.</p>	<p><i>A. subsessilifolia</i> is not currently listed on the IUCN Red List. The IUCN status estimate 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. 4, 2012).</p> <p>Hearn in litt. (2012) notes that during fieldwork in the early 2000s his team came across multiple individuals of <i>A. subsessilifolia</i>, in particular along the roadside between Toliara and St. Augustin. He notes that these species were intact in the early 2000s.</p> <p><i>A. subsessilifolia</i> is noted to be rare in comparison with <i>A. firingalavensis</i> (which is also proposed for inclusion in Appendix II at CoP16). Field observations in Andohahela National Park provide an estimated distribution of 4-5 mature individuals per hectare. It is noted that sometimes during a 2 km walk in this area no individuals of this species are observed (Rakotonasolo in litt., 2012).</p>
<u>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</u>	
<p>This species is difficult to uproot, due to its swollen roots with one or more tubers. When collectors are unable to harvest the whole plant including the root, they reject the plant without replanting it. There are uprooted seedlings scattered at collection sites in the Andatabo area.</p>	<p>Collection of this species from the wild is noted to be rare and extraction is reported to be very difficult from the limestone upon which it grows (Rakotonasolo in litt., 2012).</p>

Supporting Statement (SS)	Additional information
<p>The species is exported internationally as an ornamental plant in the form of seedlings. Reported exports of living plants are as follows: 2003 (0), 2004 (115), 2005 (3), 2006 (8), 2007 (0) and 2008 (0).</p> <p>No illegal trade in <i>A. subsessilifolia</i> has been recorded. The species is rarely sold in local markets.</p> <p>Two web sources of <i>A. subsessilifolia</i>, selling mature plants of unknown origin are reported in the proposal. Prices per plant ranged from USD8.00 – 15.65.</p>	<p><i>The vegetative part of the plant is reported not to be attractive, so international trade is low if any (Rakotonasolo in litt., 2012).</i></p> <p><i>Eggli in litt. (2012) reports that there is no substantial market for large ex-habitat specimen plants and that the hobby community interested in the warmth-loving Madagascan succulents is not very large. He also notes that the demand from public gardens should be negligible due to CBD/ABS regulations.</i></p> <p><i>Trade in A. subsessilifolia is reported to be uncommon in mainland China, but common in Hong Kong and Taiwan (Yuan in litt., 2012).</i></p> <p><i>Dotort (2007) reports that the genus Adenia are 'not easy to find for sale, but a few succulent garden nurseries are currently propagating them'.</i></p> <p><i>A web review identified records of previous sales of seeds of A. subsessilifolia (sales made in 2010). Seed sales were not reported in the proposal.</i></p> <p><i>A nine-day web survey to investigate web trade for A. subsessilifolia was conducted in 2011. Only one plant was found offered from USA for USD5.50 (Augugliaro in litt., 2012).</i></p>

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

	<p><i>The species is reported to be relatively easy to distinguish from other Adenia species, only one of which, A. olaboensis is currently included in the Appendices. The latter, also endemic to Madagascar, was included in Appendix II in 2010. No trade in it has been reported since then.</i></p>
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Other information

Threats

Habitat destruction.

Its habitat is affected by clearance for agriculture and charcoal production, and by fire (Jenkins in litt., 2012).

Conservation, management and legislation

Collection and export are only regulated at a national level.

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

Para 7.1 of the SS states: collection and export [of this species] are not subject to

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<p>any controls.</p> <p>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.</p> <p>The delineation of new protected areas including the preferential collection area of Andatabo could contribute to the conservation of the species and its habitat.</p>	<p><i>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.</i></p> <p><i>According to PlantSearch, an online database of botanic garden collections maintained by Botanic Gardens Conservation International (BGCI), 6 gardens record holding A. subsessilifolia in their collection. None of these gardens are within Madagascar, potentially limiting their involvement in restoration activities.</i></p> <p><i>The species is not held in the collection of Phyto-logic Paradise Gardens in Madagascar (Cooke in litt., 2012) or the Parc Botanique et Zoologique de Tsimbazaza (PBZT). Efforts were made to grow individuals from seed collected at Andohahela in the nursery at PBZT but this was not successful (Rakotonasolo in litt., 2012).</i></p>

Captive Breeding/Artificial Propagation

Propagation by seed is easy but slow. Propagation by cuttings is also possible.

Rakotonasolo in litt. (2012) reports that propagation from seed is reported to be very difficult. It is thought that a particular substrate may be needed for successful propagation from seed. However, Hearn in litt. (2012) reports that the species propagates well from stem cuttings and seeds. Cuttings produce the tubers and growth habit that is typical from seedlings. Hearn also notes that as the species propagates well there is no reason for field collection of mature plants, which are very hard to extract intact from the field.

Other comments

Adenia subsessilifolia was previously the subject of a trade study in 2010, providing information for its integration in Appendix II of CITES at CoP15. Under an agreement between the CITES Secretariat and the Scientific Authority Flore-Madagascar, *A. subsessilifolia* will continue to be the object of research for the year 2012 to supplement existing data. Biological and ecological data obtained were updated and supplemented for the preparation of this new proposal.

The leaves of *Adenia* plants are eaten by butterfly larvae of the genus *Acrae*.

The local population prepare a powder from the stems of the plant which is used to heal wounds.

The tubers are bitter and inedible (Schmelzer and Gurib-Fakim, 2008).

Hearn in litt. (2012) notes that he wouldn't consider the species to be a succulent liana, as stated in the proposal. It almost always remains as a low-lying, multi-branched herb or sub-shrub. Only occasionally do stems become long vines, in which case the stem remains narrow with a low degree of woodiness.

The species resembles a Seyrigia plant. It is easy to distinguish from other Adenia species by its sessile leaves which are the smallest of all the Madagascan species (Rauh, 1998).

Hearn in litt. (2012) also notes that the species resembles Seyrigia and that few other taxa resemble A. subsessilifolia.

Eggli in litt. (2012) reports that differentiating between various Adenia taxa is difficult, and that this is especially true when plants are shipped as pruned individuals, and without leaves or other growth.

Reviewers: C. Augugliaro, A. Cattabriga, U. Egli, D. Hearn, D. Newton, F. Rakotonasolo.

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