

## Inclusion of *Senna meridionalis* in Appendix II

### Proponent: Madagascar

**Summary:** *Senna meridionalis* is a deciduous much-branched shrub or shrubby tree, two to five metres tall found only in Madagascar. It is one of 250 or so species of *Senna*, a genus of leguminous plants widespread in the tropics. The species has a relatively extensive distribution over an area of at least 20 000 km<sup>2</sup> in southern and western Madagascar, growing mainly on calcareous soils in arid and semi-arid areas in deciduous forest and thorny scrub. Distribution within this area is fragmented, but the species is at least locally common and is reported from at least two protected areas (Tsimanampetsotsa National Park and Cap Sainte Marie Special Reserve). *Senna meridionalis* has a bonsai-like appearance and is in some demand for the international horticultural trade, chiefly grown by hobbyists. It does not appear to be widely available at present. The plant is reported to have been collected particularly from the Table de Toliara mountain (Andatabo) near Toliara in south-west Madagascar. Malagasy authorities report the export of some 700 in the period 2003–2006, most of these (just under 500) in 2004. No subsequent exports are reported. It may be assumed that some or all of these were wild-collected plants. The species can reportedly be propagated from both seeds and cuttings.

This species was proposed for inclusion in Appendix II of CITES by Madagascar at CoP15. The proposal was withdrawn at the CoP.

**Analysis:** *Senna meridionalis* has a reasonably widespread distribution in southern Madagascar, where it is at least locally common. It is offered for sale in various parts of the world, but trade appears to be limited. The plants offered for sale range from small individuals grown from cuttings, to larger individuals of unknown origin. Some wild collection is known to have taken place in the early 2000s. No exports have been reported from Madagascar since 2006. Given the distribution of the species and the absence of any reported recent trade from the range State, 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
<p>Synonyms: <i>Cassia viguierella</i> var. <i>Meridionalis</i> , <i>Cassia meridionalis</i>.</p> <p>Madagascar.</p>	<p style="text-align: center;"><u>Taxonomy</u></p> <p style="text-align: center;"> </p> <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>
<b>Biological and trade criteria for inclusion in Appendix II (Res. Conf. 9.24 (Rev. CoP15) Annex 2 a)</b>	
<p style="text-align: center;"><b><u>A) Trade regulation needed to prevent future inclusion in Appendix I</u></b></p>	<p style="text-align: center;"><i>The species normally grows on limestone and has a very slow growth rate (Rakotoarisoa in litt., 2012).</i></p>

Supporting Statement (SS)	Additional information
<p>Around 420 individuals, of which 150 are mature individuals, were counted in Ahaviro Toliara. Recent observations (since January 2012) in Andatabo, an area of collection, found around 73 mature individuals per hectare, with a total population in this two hectare area estimated to be 146 mature individuals.</p> <p>The species has been assessed using the IUCN criteria as endangered.</p> <p>A future decline of 78% is predicted due to extraction from the wild and habitat destruction through anthropogenic activities.</p> <p>The species has a fragmented and restricted distribution. It is found in the xerophitic thicket of the South West of the island, for example Itampolo Tsimanampetsotsa, Soalaro, and Andatabo. The Area of Occupancy of <i>S. meridionalis</i> is 126 km<sup>2</sup> and the Extent of Occurrence is 21 532 km<sup>2</sup>.</p> <p>The dry thorny thicket of the South west, covers an area of approximately 18 355 km<sup>2</sup> (of which 4.5% is found within protected areas). This type of land cover has reduced by 30% since the 1970s.</p> <p>Exploitation for export could lead to the absence of natural regeneration, which is already very low (9%) and the decline or even disappearance of populations in collection areas. In the long term this would pose a serious threat to the species.</p>	<p><i>The area of Andatabo, for which population numbers are reported in the proposal, is a much degraded site due to human activities, particularly charcoal production. The sites of Soalaro and Itampolo are thought to be more representative of the population as they are less perturbed. Although no formal population assessment of the species was undertaken at this site, it is thought that the population greatly exceeds 500 individuals as the species is widely distributed on the Mahafaly plateau from Itampolo to Andatabo. All sites noted in the proposal (Itampolo, Tsimanampetsotsa, Andatabo and Soalaro) are parts of Mahafaly Plateau and therefore not thought to be fragmented. All sites are collection sites (Rakotoarisoa in litt., 2012).</i></p> <p><i>The conservation status of S. meridionalis 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. 4, 2012).</i></p> <p><i>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.</i></p>
<p><b><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></b></p>	
<p><i>S. meridionalis</i> is sought after in the international market as an ornamental plant. When its stems are cut, this species takes the form of a bonsai. It is collected from the wild and is reported to be becoming rare. An absence of individuals of juvenile to adult size is observed in areas of collection. Andatabo is the principal area of collection for this species. However, this area did not have any conservation measures in place before 2008.</p> <p><i>S. meridionalis</i> is exported as a living plant. Reported export numbers of living plants are as follows: 2004 (483), 2005 (166) and 2006 (23).</p>	<p><i>Yuan in litt. (2012) reports that S. meridionalis is sold in Hong Kong and Taiwan POC as seedlings, but notes that mature plants may not be available. Wang and Chen in litt. (2012) report that the species is available for sale in China.</i></p> <p><i>No trade was reported subsequent to 2006.</i></p>

Supporting Statement (SS)	Additional information
<p>No illegal trade of <i>S. meridionalis</i> has been recorded to date. The species is rarely sold in local markets. The harvest and export of this species is not subject to any regulation.</p> <p>The proposal reports four web sources selling mature plants and seeds of <i>S. meridionalis</i> of wild or unknown origin. Price per plant ranged from USD20.35 – 150.00 and per seed USD0.51.</p>	<p><i>A nine-day web survey to investigate web trade for S. meridionalis was conducted in 2011. The species was observed to not be subject to wide sales; only three plants and one package of seeds were offered from France and the USA (Augugliaro in litt., 2012).</i></p> <p><i>Additional web sites selling S. meridionalis within the price range identified in the proposal were identified during the analysis process. These sellers were based in the USA, Thailand and Reunion. Some sales were of root cuttings, for example a seller in the USA offered small rooted cuttings in one-gallon pots for USD25 and it is noted that a caudex-like trunk will form with time. An individual with 2 cm trunk and 29 cm in height, of unknown origin was available from a seller located in Thailand for USD35. Seeds were available for USD3.4 per seed from a seller based in Reunion. The origin of the material is not provided. It notes the rarity of the species and that it is ideal for bonsai.</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

*Senna meridionalis* is easily identifiable.

### Other information

#### Threats

Habitat destruction; the limestone rock found there has been used for making bricks. The habitat of this species has therefore undergone progressive destruction, leading to natural regeneration difficulties.

#### 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.

Certain populations of this species are found within the National Parks of

*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.*

*According to PlantSearch, an online database of botanic garden collections maintained by Botanic Gardens Conservation International (BGCI), 7 gardens record holding *S. meridionalis* in their collection. None of these gardens are within Madagascar, potentially limiting their involvement in restoration activities.*

*In addition, *S. meridionalis* is also held in the collections of Phyto-Logic Paradise*

Supporting Statement (SS)	Additional information
<p>Andohahela and Tsimanampetsotse, and la Réserve Spéciale de Cap Sainte Marie. Other populations are assumed to be found in the new protected areas of Amoron'ny Onilahy, which would reinforce the conservation of the habitat of <i>S. meridionalis</i>.</p>	<p><i>Gardens and Arboretum d'Antsokay in Madagascar. Phyto-Logic Paradise Gardens have not attempted propagation of the species yet (Cooke in litt., 2012). It is not known whether Arboretum d'Antsokay is propagating the species.</i></p>
<b><u>Captive Breeding/Artificial Propagation</u></b>	
<p>Even though propagation from seed is easy for this species, harvesters have a tendency to collect from the wild.</p>	<p><i>S. meridionalis is reported as being easily grown and in varying light, water and soil conditions (Anon, undated).</i></p> <p><i>Bihrmann in litt. (2012) notes that S. meridionalis is rather fast growing. Small seedlings do form the caudex. Propagation is rather easy from seed as well as cuttings. Cuttings do not form the same size caudex.</i></p>
<b><u>Other comments</u></b>	
<p>This species was already the subject of a study on trade with the aim of its integration in Annex II of CITES in 2010. Biological and ecological data obtained were updated and supplemented for the preparation of this new proposal.</p> <p>Under an agreement between the CITES Secretariat and the Scientific Authority Flore-Madagascar, <i>S. meridionalis</i> will continue to be the subject of research in 2012 to supplement existing data.</p> <p>In addition to the species' ornamental value, the wood is used for construction and the leaves have medicinal value, used to treat haemorrhoids.</p>	

**Reviewers:** C. Augugliaro, S. Rakotoarisoa, D. Newton.

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