CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES
OF WILD FAUNA AND FLORA

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Twenty-first meeting of the Plants Committee
Veracruz (Mexico), 2-8 May 2014

Interpretation and implementation of the Convention

Compliance and enforcement

Review of Significant Trade in specimens of Appendix-II species
[Resolution Conf. 12.8 (Rev. CoP13)]

SPECIES SELECTED FOLLOWING COP15

1. This document has been prepared by the Secretariat.

2. At its 19th meeting (PC19, Geneva, April 2011), the Plants Committee agreed, under the terms of paragraph a) of Resolution Conf 12.8 (Rev. CoP13), on *Review of Significant Trade in specimens of Appendix-II species,* to review trade in the five following species: *Pachypodium namaquanum, Dendrobium eriiflorum, Euphorbia itremensis, Alluaudiopsis fiherenensis* and *Alluaudia ascendens*.

3. The Secretariat subsequently notified the range States of the selected taxa, explained the reason for this selection and requested comments on any possible problems with the implementation of Article IV of the Convention. At PC20 (Dublin, March 2012), the Committee reviewed the available information in accordance with paragraph f) of Resolution Conf. 12.8 (Rev. CoP13), eliminated six species/country combinations and retained five such combinations (see Annex 1).

4. UNEP-WCMC was engaged to compile information on the biology and management of and trade in the species listed in Annex 2, and to provide a preliminary categorization of these species in compliance with paragraphs h) and i) of Resolution Conf. 12.8 (Rev. CoP13).

5. On 9 December 2013, the Secretariat transmitted the resulting reports to the range States, which had 60 days to submit comments, according to paragraph j) of the same Resolution. No comments were received.

6. The reports present conclusions on the effects of international trade on the selected species, the basis on which such conclusions are made, and problems related to the implementation of Article IV of the Convention. They provide preliminary categorizations of each species into one of the three categories outlined in Resolution Conf. 12.8 (Rev. CoP13), namely:

    i) 'species of urgent concern' shall include species for which the available information indicates that the provisions of Article IV, paragraph 2 (a), 3 or 6 (a) of the Convention are not being implemented;

    ii) 'species of possible concern' shall include species for which it is not clear whether or not these provisions are being implemented; and

    iii) 'species of least concern' shall include species for which the available information appears to indicate that these provisions are being met.

Actions required by the Plants Committee

7. In accordance with paragraphs k) and l) of Resolution Conf. 12.8 (Rev. CoP13), the Plants Committee is requested to review the reports and the responses received from range States and, if appropriate, to revise the preliminary categorizations proposed by the consultant.

8. Problems identified that are not related to the implementation of Article IV, paragraph 2 (a), 3 or 6 (a), should be referred to the Secretariat.

9. In accordance with paragraphs m) to o) of the same Resolution, the Plants Committee is also requested to formulate recommendations for species of urgent concern and of possible concern. Such recommendations should differentiate between short-term and long-term actions, and be directed to the range States concerned. Species of least concern shall be eliminated from the review.

Species and countries retained in the review after PC20
in compliance with Resolution Conf. 12.8 (Rev. CoP13), paragraph f)

SPECIES	**RANGE STATE**
Dendrobium eriiflorum	India
Dendrobium eriiflorum	Nepal
Euphorbia itremensis	Madagascar
Alluaudiopsis fiherenensis	Madagascar
Alluaudia ascendens	Madagascar

Review of Significant Trade: Species selected by the CITES Plants Committee following CoP15 and retained in the review following PC20

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CITATION

UNEP-WCMC (2013). *Review of Significant Trade: Species selected by the CITES Plants Committee following CoP15 and retained in the review following PC20*.

PREPARED FOR

CITES Secretariat, Geneva, Switzerland.

DISCLAIMER

Contents

Introduction

The provisional categorisation for each species sheet follows the criteria outlined in Resolution 12.8 (Rev. CoP13) as follows:

> i) 'species of urgent concern' shall include species for which the available information indicates that the provisions of Article IV, paragraph 2 (a), 3 or 6 (a), are not being implemented;
> ii) 'species of possible concern' shall include species for which it is not clear whether or not these provisions are being implemented; and
> iii) 'species of least concern' shall include species for which the available information appears to indicate that these provisions are being met;

Trade data was downloaded from the CITES Trade Database on 13th May 2013. Trade data in CITES annual reports received from range States after this date at the time of writing have also been incorporated (downloaded 4th September 2013). Trade data was downloaded for all years 2002-2012; however, since the deadline for submission for 2012 annual reports is 31st October 2013, annual reports for 2012 have not yet been received from many Parties. The trade sections within each species review include details of the annual reports submitted by each range State over the period 2002-2012.

The CITES Management and Scientific Authorities (or non-Party equivalents) for each range State were contacted by post and, where possible, by email in January/February 2013. Authorities were asked to provide information on conservation status, trade and management of each taxon, including the basis for making non-detriment findings. Where possible, national experts were also contacted to provide additional country-specific information.

Dendrobium eriiflorum Griffith: India, Nepal

Orchidaceae

Selection for Review of Significant Trade

At its 19th meeting, the Plants Committee recommended the inclusion of *Dendrobium eriiflorum* in the Review of Significant Trade as a species of priority concern, following consideration of document PC19 Doc. 12.4 (PC19 Summary Record). The analysis in Annex 2 of PC19 Doc. 12.4 specified that *D. eriiflorum* met the criterion of a sharp increase in trade in 2008, compared to the previous five years. At the 20th meeting of the Plants Committee, Bhutan, Malaysia, Myanmar and Thailand were excluded from the review on the basis of no reported wild trade (PC20 WG2 Doc. 1). India was retained in the review based on possible wild trade and Nepal on recorded wild trade; no written response had been received from either range State (PC20 WG2 Doc. 1).

A. Summary

Overview of *Dendrobium eriiflorum* recommendation.

Range State	Provisional category	Summary
India	Least Concern	Very low trade in artificially propagated plants 2002-2011. The export of wild specimens is prohibited. Occurs in northeastern and eastern India, where considered rare and threatened. On the basis of very low trade, categorised as Least Concern.
Nepal	Least Concern	No trade was reported by Nepal; high levels of wild-sourced roots and stems were reported by countries of import in 2008-2009. Widespread in Nepal but population status is unknown. On the basis of no international trade, categorised as Least Concern, however questions not related to the implementation of Article IV, paragraphs 2 (a), 3 or 6 (a) remain.

B. Species overview

Taxonomic note: Seidenfaden *et al.* (1992) treated the southern populations in Tenasserim (Myanmar), peninsular Thailand, Malaysia and Indonesia as *Dendrobium incurvum*, whereas the CITES standard reference (Roberts *et al.*, 1997) retains these populations in *D. eriiflorum*. Lucksom (2007) described *Dendrobium eriiflorum* var. *sikkimense* but Govaerts *et al.* (2013) regarded it as a synonym of the monotypic *D. eriiflorum*.

Biology: *Dendrobium eriiflorum* is an epiphytic orchid that occurs in moist temperate forests, usually growing on trees and shrubs, and also occasionally on exposed rocks, between altitudes of 800 and 2100 m above sea level (White and Sharma, 2000; Ghimire, 2008; Yonzone *et al.*, 2011).

General distribution and status: *D. eriiflorum* was reported to occur in Nepal, India, Bhutan, Myanmar (Roberts *et al.*, 1997; Pearce and Cribb, 2002), Indonesia, Malaysia and Thailand (Roberts *et al.*, 1997). According to the WCSP (2013) and eMonocot (2010), the species distribution does not include Malaysia (Figure 1).

Figure 1. Distribution of *Dendrobium eriiflorum*. (Source: WCSP, 2013; eMonocot, 2010.)

C. Country reviews

INDIA

Distribution in range State: *D. eriiflorum* was reported to occur in several states in northeastern India, including Arunachal Pradesh (Rao, 2010; Lokho, 2013), Nagaland (Department of Forests, Ecology, Environment and Wildlife, 2011; Lokho, 2013), Meghalaya (White and Sharma, 2000; Lokho, 2013), Assam (Bhattacharjee and Dutta, 2010; Lokho, 2013) and Manipur (Lokho, 2013). It was also recorded in eastern India in the states of Sikkim (Lucksom, 2008, 2011; Lokho, 2013) and West Bengal (Yonzone *et al.*, 2011, 2012).

Population trends and status: Lokho (2013) considered *D. eriiflorum* to be rare and threatened in northeastern India. Brühl (1926) regarded it as common in Sikkim, but based on more recent surveys, Lucksom (2011) found it to be uncommon in Sikkim, while a local variant, *D. eriiflorum* var. *sikkimensis*, was categorised as rare and endangered. The CITES Management Authority of India (in litt. to UNEP-WCMC, 2013) reported no indication of population decline.

Threats: Orchids were reported to be illegally collected in Sikkim and Darjeeling (West Bengal) for live plant trade and as seed capsules for tissue culture (Kholia and Joshi, 2010).

Chakrabarti (2009) reported that deforestation and illegal collection for trade had led to severe depletion of certain orchid species in northeastern India.

Takamiya *et al.* (2011) showed that the stems of *D. eriiflorum* were used as an ingredient in traditional herbal medicine ('Dendrobii Herba') which was sold in China.

Trade: CITES annual reports have been received from India for the years 2002-2010. India has not published any CITES export quotas for *D. eriiflorum*. According to data in the CITES Trade Database, direct exports reported by India 2002-2012 consisted of two live, artificially propagated plants exported in 2006, while countries of import reported the import of live, artificially propagated plants traded for commercial purposes in 2007 (125 plants) and 2008 (16 plants). The United States was the principal country of import according to data reported by countries of import. No indirect exports of *D. eriiflorum* originating in India were reported 2002-2012.

According to data in the CITES Trade Database, countries of import reported trade in 722 artificially propagated, live *Dendrobium* spp. originating in India 2002-2010, while India reported the export of small quantities of extract in 2002 and two artificially propagated, live individuals in 2008.

Management: *D. eriiflorum* is not a protected species under the Wild Life (Protection) Act of 1972 (Amended 2002) (India, 1972). However, the export of all orchid plants, plant portions and their derivatives and extracts obtained from the wild is prohibited in India (Notification No. 2 (RE-98)/1997-2002 dated the 13th April, 1998) (Ministry of Commerce, 1998; CITES MA of India, in litt. to UNEP-WCMC, 2013).

NEPAL

Distribution in range State: *D. eriiflorum* was reported to inhabit the tropical and subtropical zones in Nepal in altitudes between 1500-2100 m above sea level and possibly lower (CITES MA of Nepal, *in litt.* to UNEP-WCMC, 2013). It was recorded in several districts including Rolpa (southwestern Nepal); Mustang, Manang, Gorkha, Rasuwa, Lalitpur, Sindhupalchok, Dolkha (north-central Nepal); Argakhachi, Parbat, Kaski, Dhading, Nuwakot, Makwanpur and Kabhre Palanchok (central Nepal); Sankhuwasabha (northeastern Nepal); and Ilam (eastern Nepal) (Royal Botanic Garden Edinburgh, 2013). White and Sharma (2000) also reported occurrence in Makwanpur.

Population trends and status: In a study based on direct observations, interviews and existing publications to estimate the wild stock of *D. eriiflorum*, Koirala *et al.* (2010) sampled 17 out of the 51 village development committees (VDCs) of the Rolpa district. The VDCs were chosen to represent potential areas of orchid distribution, and the Rolpa district was considered to host a particularly high orchid diversity (Koirala *et al.*, 2010). *D. eriiflorum* was recorded in four out of the 17 VDCs, and its total distribution was estimated to cover 819 ha, based on the availability of suitable habitat (Koirala *et al.*, 2010). Measured densities varied between 26 640-35 530 individuals /ha, and the total stock in the four villages was estimated to be 36 114 kg (Koirala *et al.*, 2010). In a similar study conducted in 15 villages in the Jajarkot district (western Nepal), Pyakurel and Gurung (2010) did not record the species.

Threats: The CITES MA of Nepal (*in litt.* to UNEP-WCMC, 2013) described the commercial exploitation and trade of *D. eriiflorum* as "very limited" in Nepal. Pyakurel and Baniya (2011) reported collection for medicinal purposes in Langtang (National Park north of Kathmandu). However, the list of 82 species of orchids used as herbal medicine in Nepal by Acharya and Rokaya (2011) did not include *D. eriiflorum*.

Trade: CITES annual reports have been received from Nepal for all years 2002-2011. Nepal has not published any CITES export quotas for *D. eriiflorum*. According to data in the CITES Trade Database, Nepal has not reported any direct exports of the species 2002-2012. China, the only country of import, reported the import of 18 990 kg of stems in 2008 and 5000 kg of roots in 2009 directly from Nepal, all wild-sourced and traded for commercial purposes. No indirect exports of *D. eriiflorum* originating in Nepal were reported 2002-2012.

The CITES MA of Nepal (*in litt.* to UNEP-WCMC, 2013) confirmed that no trade was reported by Nepal, but noted that there was some anecdotal evidence of unreported trade from Makawanpur and the Mid West Developmental Region. Koirala *et al.* (2010) reported that the species was collected for trade in Rolpa district, and the price of NPR 150-200 per kg (ca. USD 1.5-2 at the time of writing) was considered high compared to other orchid species.

Countries of import reported trade in 4000 kg and 5000 kg of live, artificially propagated *Dendrobium* spp. traded for commercial purposes in 2008 and 2009 originating in Nepal; these imports were not confirmed by Nepal.

The CITES MA of Nepal (*in litt.* to UNEP-WCMC, 2013) considered illegal collection and trade to be uncommon.

Management: The Forest Rules, 2051 (1995), as amended by the Forest (Third Amendment) Rules, 2062 (2005), which came into force on 26 September 2005, includes all orchid species in Schedule 3; under Rule 11 any collection of these species requires a permit. The CITES MA of Nepal (*in litt.* to UNEP-WCMC, 2013) reported that the collection and trade of Orchids in Nepal were banned prior to the 14th of April 2008, when the Government of Nepal published a notification permitting the collection of wild Orchids for trade. More recently, the Orchids Collection and Cultivation Procedural Directive, published on the 7th of March 2013 allows the "cultivation, collection and trade" of 21 species including *D. eriiflorum* (CITES MA of Nepal, *in litt.* to UNEP-WCMC, 2013). Subedi *et al.* (2011) noted that the "absence of clear guidelines on sustainable harvesting and weak enforcement of policies could explain the recent increase in illegal trade in orchids".

The CITES MA of Nepal (*in litt.* to UNEP-WCMC, 2013) reported that the Department of Forests require the District Forest Offices to record the status of the species as a part of non-timber forest product inventories, and draft sustainable harvesting guidelines in District Forest Management Plans. This was regarded as the basis of the Non-Detriment Finding (CITES MA of Nepal, *in litt.* to UNEP-WCMC, 2013).

It was reported that the species has been commercially cultivated in Nepal since 2010 by the company Dang Suyang Feng *Dendrobium eriiflorum* Technology Product Pvt. Ltd. using seeds and seedlings imported from China (the CITES MA of Nepal, *in litt.* to UNEP-WCMC, 2013). The production capacity of the company was reported to be 1000 kg per year (the CITES MA of Nepal, *in litt.* to UNEP-WCMC, 2013).

D. Problems identified that are not related to the implementation of Article IV, paragraphs 2 (a), 3 or 6 (a)

India has not yet submitted its CITES annual report for the year 2011.

There was a notable discrepancy in trade reported by countries of import and Nepal.

Some trade in *Dendrobium* spp. has been reported in the family and genus level.

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Euphorbia itremensis Kimnach & Lavranos: Madagascar

Euphorbiaceae

Selection for Review of Significant Trade

Euphorbia itremensis (with Madagascar as the only range State) was initially selected for the Review of Significant Trade following CITES CoP14 (PC18 Doc. 8.3). The species was later excluded from the review based on a response received from Madagascar confirming that the export of wild-sourced specimens was prohibited (PC18 Doc. 16.1.1; CoP15 Doc. 7.3.1 Rev.1). At the 19th meeting of the Plants Committee, *E. itremensis* was again included in the Review of Significant Trade as a species of priority concern (PC19 Summary Record), as the analysis in Annex 1 of PC19 Doc. 12.4 indicated that trade in wild specimens occurred during 2004-2008. At the 20th meeting of the PC, the species was retained in the review based on reported wild trade and a lack of data on Non-detriment findings (PC20 WG2 Doc. 1).

A. Summary

Overview of *Euphorbia itremensis* recommendations.

Range State	Provisional category	Summary
Madagascar	Possible Concern	Moderate levels of trade 2002-2011 mainly in wild-sourced, live plants. Endemic and very restricted distribution in Madagascar, and categorised as Vulnerable in the IUCN Red List. The CITES MA of Madagascar reported in 2008 that the export of wild specimens was prohibited, but wild exports were reported by Madagascar 2005-2012. Therefore, categorised as Possible Concern.

B. Species overview

Taxonomic note: *E. itremensis* was described in 2001 by Kimnach and Lavranos (2001). Haevermans (2004) considered it to be potentially a hypochromous form of *E. quartziticola*, but Carter and Eggli (2003; the CITES Standard Reference for Succulent Euphorbias) recognise it as a separate species. Haevermans *et al.* (2009) described the taxonomy of the Malagasy Euphorbias as "chaotic", and included *E. itremensis* in the subgenus *Lacanthis*. However, more recently the species was included in the 'Goniostema' section of the subgenus *Euphorbia* in a phylogenetic analysis by Dorsey *et al.* (2013).

Biology: *Euphorbia itremensis* is a succulent geophyte endemic to Madagascar (Madagascar Catalogue, 2013; CITES Management Authority of Madagascar, *in litt.* to UNEP-WCMC, 2013). It occurs on quartzite sands (Haevermans, 2004), rock-faces, and inselbergs in subhumid areas at altitudes between 1500-2000 m above sea level (Missouri Botanical Garden, 2012).

C. Country reviews

MADAGASCAR

Distribution in range State: *E. itremensis* has been recorded in three localities in the Fianarantsoa Province (southeastern Madagascar): 25 km west of Col d'Itremo (20°34'30"S 46°37'30"E) and two sites about 15 km to the south-west (20°37'51"S 46°31'17"E and 20°37'53"S 46°32'36"E) (Kimnach and Lavranos, 2001; Missouri Botanical Garden, 2013) (Figure 2).

Figure 2. Distribution of *Euphorbia itremensis* in Madagascar. Note that the map is based on available confirmed specimen locality records and may not represent the full range of the species. (Source: Missouri Botanical Garden, 2013)

Population trends and status: *E. itremensis* was categorised as Vulnerable in the IUCN Red List on the basis that it is only known from one site and, although its area of occupancy and extent of occurrence are unknown, they are likely to be very small (Haevermans, 2004). Its population trend was considered to be unknown (Haevermans, 2004).

The CITES MA of Madagascar (*litt.* to UNEP-WCMC, 2013) described the species as sporadic and localised in occurrence.

Threats: Habitat disturbance was regarded as a threat to the Madagascan *Euphorbia* spp. (DeFilipps, 1987; Frontier-Madagascar, 2003), and they were also reported to be used for charcoal production (Oldfield and Supthut, 1997). *E. itremensis* was reported to be threatened by habitat degradation, fire, and collection for horticultural trade (Haevermans, 2004), and it was considered to belong in the five plant species in highest demand exported from Madagascar (UNEP and UNCTAD, 2008). Kimnach and Lavranos (2001) found evidence of large-scale uprooting caused by road construction in the type locality of *E. itremensis*.

Trade: *E. itremensis* was listed in CITES Appendix II on 01/07/1975 under *Euphorbia* spp.

CITES annual reports have been received from Madagascar for all years 2002-2011. Madagascar has not published any CITES export quotas for *E. itremensis*. According to data in the CITES Trade Database, direct exports of *E. itremensis* from Madagascar 2002-2012 primarily consisted of live, wild-sourced specimens traded for commercial purposes (Table 1). The principal countries of import were the United States and Germany. No indirect exports of *E. itremensis* originating in Madagascar were reported 2002-2012.

Table 1. Direct exports of *Euphorbia itremensis* from Madagascar, 2005-2011 (Madagascar's annual report for 2012 has not yet been received; no trade was reported in 2002-2004 or 2012).

Term	Source	Purpose	Reported by	2005	2006	2007	2008	2009	2010	2011	Total
live	W	P	Importer								
			Exporter	31							31
		T	Importer	183	20	220	108	150		180	861
			Exporter	504	225	290	125	150	310	80	1684
		-	Importer		45						45
			Exporter								
	A	P	Importer								
			Exporter	8							8
dried plants	W	S	Importer								
			Exporter		2						2

Source: CITES Trade Database, UNEP-World Conservation Monitoring Centre, Cambridge, UK

Madagascar also reported direct trade in significant quantities of *Euphorbia* spp. recorded at the genus level 2002-2012, principally consisting of live plants traded for commercial purposes; Madagascar reported a total of 28 919 artificially propagated plants and 4516 wild-sourced plants over the ten-year period, while countries of import reported 317 and 2664 plants, respectively.

Management: Madagascar confirmed in 2008 that an export ban was in place for wild specimens and only the export of artificially propagated *E. itremensis* was allowed (CoP15 Doc. 7.3.1). However, more recently, the CITES MA of Madagascar (*in litt.* to UNEP-WCMC, 2013) stated that exported plants must in general be artificially propagated, but confirmed the export of wild-sourced specimens during the period 2005-2011. Further to the information in the CITES Trade Database, it was reported that 829 wild-sourced individuals were exported in 2004 and 110 individuals were exported in 2012 (CITES MA of Madagascar, *in litt.* to UNEP-WCMC, 2013).

It was reported that permission to collect specimens from the wild may be issued for the creation of a horticultural centre, and must be authorised by the General Directorate of Forestry; it was reported that no new permits had been granted since 2005 (Direction Générale des Forêts) (CITES MA of Madagascar, *in litt.* to UNEP-WCMC, 2013). The amount of harvest allowed was reported to be determined by the CITES Scientific Authority, and based on the conservation and population status of the species in the wild (CITES MA of Madagascar, *in litt.* to UNEP-WCMC, 2010).

The formulation of non-detriment findings for artificially propagated specimens was reported to be based on stock inventories of the horticultural operators, and the stock of *E. itremensis* was reported to be 386 individuals (CITES MA of Madagascar, *in litt.* to UNEP-WCMC, 2013).

The CITES MA of Madagascar (*in litt.* to UNEP-WCMC, 2013) reported that *E. itremensis* was found in the Nouvelle Aire Protégée (NAP) of Itremo managed by the Royal Botanical Garden, Kew in Madagascar. It was also reported that recent actions to improve the conservation status of plants included i) enhanced control over illegal collection, and ii) improved income-generating activities to local communities, to compensate for restricted access and eliminate illegal collection (CITES MA of Madagascar, *in litt.* to UNEP-WCMC, 2013).

D. Problems identified that are not related to the implementation of Article IV, paragraphs 2 (a), 3 or 6 (a)

The species was considered to be difficult to distinguish from *E. quartziticola* (Appendix I) and also closely resemble *E. cremersii* and *E. moratii* (both Appendix I) (CoP14 Prop. 29 Annex 3).

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Alluaudia ascendens (Drake) Drake: Madagascar

Didiereaceae

Selection for Review of Significant Trade

At its 19th meeting, the Plants Committee recommended the inclusion of *Alluaudia ascendens* (with Madagascar as the only range State) in the Review of Significant Trade as a species of priority concern (PC19 Summary Record). The analysis in Annex 2 of PC19 Doc. 12.4 specified that *A. ascendens* met the criterion of high variability in reported trade between 1999 and 2008. At the 20th meeting of the PC, the species was retained in the review based on reported wild trade but lack of data on Non-Detriment Findings (PC20 WG2 Doc. 1).

A. Summary

Overview of *Alluaudia ascendens* recommendation.

Range State	Provisional category	Summary
Madagascar	Least Concern	Moderate levels of trade 2002-2011 in artificially propagated and live plants; no trade reported since 2008. The CITES MA of Madagascar reported in 2008 that the export of wild specimens was prohibited. Endemic to southern Madagascar where area of occupancy estimated to be 80 km^2. Unfavourable conservation status. On the basis of virtually no wild trade, categorised as Least Concern; questions not related to the implementation of Article IV, paragraphs 2 (a), 3 or 6 (a) remain.

B. Species overview

Biology: *Alluaudia ascendens* is a deciduous Madagascan endemic tree that grows up to 10-15 m height (Rauh, 1963; Innes, 1977). It typically occurs on alluvial sand (Rakotovao *et al.*, 1996) at elevations up to 500 m (Helme and Rakotomalaza, 1999; Missouri Botanical Garden, 2013).

C. Country review

MADAGASCAR

Distribution in range State: *A. ascendens* is restricted to southern Madagascar (Jacobsen, 1970), where it occurs in the Mandrare valley between the Tsimelahy river (Ankariva Bevilany Rural Municipality of the District of Fort Dauphin) and the Mandrare river north of the town of Tsivory and south of the town of South Amboasary (Rakotovao *et al.* , 1996; CITES Management Authority of Madagascar, *in litt.* to UNEP-WCMC, 2013). Missouri Botanical Garden (2013) mapped ten localities within this range (Figure 3).

Population trends and status: According to an unpublished Red List assessment by Phillipson (2010), the species was categorised as Endangered. Its area of occupancy was estimated to cover approximately 80 km^2 (Phillipson *et al.*, 2010).

Figure 3. Distribution of *Alluaudia ascendens* in Madagascar. Note that the map is based on available confirmed specimen locality records and may not represent the full range of the species. (Source: Missouri Botanical Garden, 2013.)

Rakotomalaza and Messmer, N. (1999) found *A. ascendens* to be one of the commonest trees in the spiny forest of the Andohahela National Park. Its population density was estimated to be 1700 plants/ha (M.V.A. Balzac, *in litt.* to the CITES MA of Madagascar, 2013). Schatz *et al.* (2008) modelled the potential changes in the distribution of *A. ascendens* under six climate change scenarios, and found that its distribution was likely to increase in five out of six scenarios.

Threats: The wood of *A. ascendens* was reported to be used locally for construction and charcoal production (Frontier-Madagascar, 2003), and sold in the domestic markets (Oldfield and Supthut, 1997).

Trade: *A. ascendens* was listed in CITES Appendix II on 04/02/1977 under Didiereaceae spp.

CITES annual reports have been received from Madagascar for all years 2002-2011. Madagascar has not published any CITES export quotas for *A. ascendens*. According to data in the CITES Trade Database, direct exports of *A. ascendens* from Madagascar 2002-2012 primarily consisted of live, artificially propagated plants traded for commercial purposes (Table 2). The principal country of import was France. No direct trade was reported after 2008, and no indirect exports of *A. ascendens* originating in Madagascar were reported 2002-2012.

The CITES MA of Madagascar (*in litt.* to UNEP-WCMC, 2013) reported a peak in exports of wild-sourced *A. ascendens* in 2005 (2206 individuals). This trade was not reported by Madagascar in its 2005 annual report (see Table 2). No exports of wild-sourced specimens were reported to have taken place 2008-2012 (CITES MA of Madagascar, *in litt.* to UNEP-WCMC, 2013).

Table 2. Direct exports of *Alluaudia ascendens* from Madagascar, 2003-2008 (no trade was reported in 2002 or 2009-2011).

Term	Source	Purpose	Reported by	2003	2004	2005	2006	2007	2008	Total
live	W	B	Importer		6					6
			Exporter							
		G	Importer		1					1
			Exporter							
		P	Importer							
			Exporter	9		6				15
		T	Importer							
			Exporter			100	2	720		822
	A	T	Importer	700		2100		720	720	4240
			Exporter			2100	10	600		2710
dried plants	W	S	Importer							
			Exporter					3		3
leaves	W	S	Importer							
			Exporter					1		1

Source: CITES Trade Database, UNEP-World Conservation Monitoring Centre, Cambridge, UK

Management: The CITES MA of Madagascar (*in litt.* to UNEP-WCMC, 2013) stated that exported *A. ascendens* must in general be artificially propagated, although permits can be given to collect them from the wild to establish horticultural centres. According to the Scientific Authority of Madagascar (2012, in S. Rabesihanaka, 2013), licensed operators were reported to hold a stock of 2316 individuals of *A. ascendens* in the country.

The species was reported to occur in the Andohahela National Park (Oldfield and Supthut, 1997; Phillipson *et al.*, 2010; Andriaharimalala *et al.*, 2012;) and the Berenty Reserve (Phillipson *et al.*, 2010; Missouri Botanical Garden, 2012).

F. Problems identified that are not related to the implementation of Article IV, paragraphs 2 (a), 3 or 6 (a)

There was a notable discrepancy in trade reported by countries of import and Madagascar.

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Alluaudiopsis fiherenensis Humbert & Choux: Madagascar

Didiereaceae

Selection for Review of Significant Trade

At its 19th meeting, the Plants Committee recommended the inclusion of *Alluaudiopsis fiherenensis* (with Madagascar as the only range State) in the Review of Significant Trade as a species of priority concern (PC19 Summary Record). The analysis in Annex 1 of PC19 Doc. 12.4 indicated that trade occurred during 2004-2008, and at the 20th meeting of the PC, the species was retained in the review based on reported wild trade but lack of data on Non-Detriment Findings (PC20 WG2 Doc. 1).

A. Summary

Overview of *Alluaudiopsis fiherenensis* recommendation.

Range State	Provisional category	Summary
Madagascar	Least Concern	Low levels of trade 2004-2006 in wild-sourced, live plants. Endemic to southwestern Madagascar, where area of occupancy estimated to be 170 km^2. Unfavourable conservation status. On the basis of low trade levels, categorised as Least Concern.

B. Species overview

Biology: *A. fiherenensis* is a decicuous shrub (Rauh, 1975) that that may grow up to 3 m in height (Jacobsen, 1970) and occurs at elevations up to 500 m above sea level (Missouri Botanical Garden, 2013).

C. Country review

MADAGASCAR

Distribution in range State: *A. fiherenensis* is endemic to southwestern Madagascar (Jacobsen, 1970), where it was reported to occur in the calcareous plateau subregion of the spiny forest ecoregion in the Toliara province (Fenn, 2003). Rakotovao *et al.* (1996) specified occurrence in the Manerandra valley, and the CITES Management Authority of Madagascar (*in litt.* to UNEP-WCMC, 2013) reported occurrence between the Mangoky river to the north and the Linta river to the south, with the Mozambique Channel to the west and Sakaraha to the east. It was also considered to have a patchy distribution on the Mahafaly plateau (CITES Management Authority of Madagascar, *in litt.* to UNEP-WCMC, 2013). Within this range, 18 localities were mapped and listed by Missouri Botanical Garden (2013; Figure 4).

Figure 4: Distribution of *Alluaudiopsis fiherenensis* in Madagascar. Note that the map is based on available confirmed specimen locality records and may not represent the full range of the species. (Source: Missouri Botanical Garden, 2013.)

Population trends and status: According to an unpublished Red List assessment by Phillipson (2010), the species was categorised as Vulnerable. Its area of occupancy was considered to cover approximately 170 km² (Phillipson *et al.*, 2010). M.V.A. Balzac (pers. comm.to S. Rabesihanaka, 2013) reported 750 mature plants per 1 ha of habitat at Soalara-Atsimo (Toliara province). Schatz *et al.* (2008) modelled the potential changes in the distribution of *A. fiherenensis* under six climate change scenarios, and found that its distribution was likely to increase in all of the six scenarios.

Threats: M.V.A. Balzac (pers. comm.to S. Rabesihanaka, 2013) considered habitat loss as a likely cause of population decline. Deforestation and conversion of land for agricultural purposes were considered potential threats to forest flora throughout southwestern Madagascar (Frontier-Madagascar, 2003).

Trade: *A. fiherenensis* was listed in CITES Appendix II on 04/02/1977 under Didiereaceae spp.

CITES annual reports have been received from Madagascar for all years 2002-2011. Madagascar has not published any CITES export quotas for *A. fiherenensis*. According to data in the CITES Trade Database, direct exports of *A. fiherenensis* from Madagascar 2002-2012 comprised wild-sourced, live plants; Madagascar reported the export of ten plants in 2005 and 215 plants in 2006 for commercial purposes, while countries of import reported the import of two plants in 2004 for botanic gardens and 200 plants in 2006 for commercial purposes. The principal country of import was the United States. The CITES MA of Madagascar (*in litt.* to UNEP-WCMC, 2013) confirmed these figures and reported that no trade took place in 2012. No indirect exports of *A. fiherenensis* originating in Madagascar were reported 2002-2012.

The CITES Scientific Authority of Madagascar reported that the species is artificially propagated in the country (PC18 Doc. 16.1.1), however, according to the CITES Trade Database, no exports of artificially propagated specimens were reported 2002-2012. According to the CITES MA of Madagascar (*in litt*. to UNEP-WCMC, 2013), no authorized plant operators hold stock of *A. fiherenensis*.

Management: The CITES MA of Madagascar (*in litt.* to UNEP-WCMC, 2013) stated that exported *A. fiherenensis* must in general be artificially propagated, although permits can be given to collect them from the wild to establish horticultural centres.

A. fiherenensis was reported to occur in the protected areas of Cap Sainte Marie (Oldfield and Supthut, 1997) and Tsimanampetsotsa (Phillipson *et al.*, 2010; Missouri Botanical Garden, 2013).

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Annex: Key to Purpose and Source Codes

Source of specimens

Code	Description
W	Specimens taken from the wild
R	Ranched specimens: specimens of animals reared in a controlled environment, taken as eggs or juveniles from the wild, where they would otherwise have had a very low probability of surviving to adulthood
D	Appendix-I animals bred in captivity for commercial purposes in operations included in the Secretariat's Register, in accordance with Resolution Conf. 12.10 (Rev. CoP15), and Appendix-I plants artificially propagated for commercial purposes, as well as parts and derivatives thereof, exported under the provisions of Article VII, paragraph 4, of the Convention
A	Plants that are artificially propagated in accordance with Resolution Conf. 11.11 (Rev. CoP15), as well as parts and derivatives thereof, exported under the provisions of Article VII, paragraph 5 (specimens of species included in Appendix I that have been propagated artificially for non-commercial purposes and specimens of species included in Appendices II and III)
C	Animals bred in captivity in accordance with Resolution Conf. 10.16 (Rev.), as well as parts and derivatives thereof, exported under the provisions of Article VII, paragraph 5
F	Animals born in captivity (F1 or subsequent generations) that do not fulfil the definition of 'bred in captivity' in Resolution Conf. 10.16 (Rev.), as well as parts and derivatives thereof
U	Source unknown (must be justified)
I	Confiscated or seized specimens (may be used with another code)
O	Pre-Convention specimens

Purpose of trade

Code	Description
T	Commercial
Z	Zoo
G	Botanical garden
Q	Circus or travelling exhibition
S	Scientific
H	Hunting trophy
P	Personal
M	Medical (including biomedical research)
E	Educational
N	Reintroduction or introduction into the wild
B	Breeding in captivity or artificial propagation
L	Law enforcement / judicial / forensic