

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



Eighteenth meeting of the Plants Committee
Buenos Aires (Argentina), 17-21 March 2009

Proposals for possible consideration at CoP15

Proposals to amend the Appendices

REVIEW OF SUCCULENT *EUPHORBIA* SPP. IN APPENDIX II

1. This document has been submitted by Switzerland as chair of the intersessional working group co-ordinating and monitoring the Periodic Review (PC17 WG5)*.

Background

2. The listing of "*Euphorbia* spp." in Appendix II came into effect on 1 July 1975. It is annotated with #1 [Designates all parts and derivatives, except: a) seeds, spores and pollen (including pollinia); b) seedling or tissue cultures obtained *in vitro*, in solid or liquid media, transported in sterile containers; and c) cut flowers of artificially propagated plants]. Non-succulent species of *Euphorbia* were excluded from CITES provisions effective 18 September 1997. However, there were concerns about inconsistent interpretation and implementation problems among Parties because there was no clear definition of the term 'succulent.' Therefore, the *CITES Checklist of Succulent Euphorbia Taxa* (Carter & Egli, 1997) was established as a reference. As many new succulent *Euphorbia* species had been described in a variety of botanical journals, it was decided at the 12th meeting of the Plants Committee, to update this Checklist. The 2nd edition (Carter & Egli, 2003) was adopted as a reference (CoP13 Bangkok, 2004). The Checklist now contains ca. 900 names of accepted taxa of succulent *Euphorbia*, including species and subspecific taxa. A number of cultivars have been excluded from CITES: *E. trigona* Miller (18/09/97), *E. lactea* Haworth with certain characteristics (12/01/2005) and *E. 'Miliii'* when traded in quantities of 100 or more specimens (12/01/2005). These exclusions reflect efforts to remove species that are not of conservation concern and are internationally traded in large quantities as artificially propagated specimens.
3. Taylor (2001) analyzed international trade in succulent *Euphorbia* species, with emphasis on artificially propagated live specimens; key taxa and countries were identified. According to CITES trade data, 328 species are recorded in international trade. The report concludes with a number of recommendations, including maintaining all *Euphorbia* taxa native to Madagascar in the Appendices, and down-listing or removal of 249 *Euphorbia* species (Taylor 2001).
4. Since its 15th meeting (Geneva, 2005), the Plants Committee has sought ways to reduce the number of succulent *Euphorbia* species listed in Appendix II.

* The geographical designations employed in this document do not imply the expression of any opinion whatsoever on the part of the CITES Secretariat or the United Nations Environment Programme concerning the legal status of any country, territory, or area, or concerning the delimitation of its frontiers or boundaries. The responsibility for the contents of the document rests exclusively with its author.

5. Switzerland submitted a proposal to the 14th meeting of the Conference of the Parties (The Hague, 2007) to amend the listing of *Euphorbia* species in Appendix II in order to exclude certain species (CoP14 Prop. 29, <http://www.cites.org/eng/cop/14/prop/E14-P29.pdf>). After discussion at the CoP, the proposal was withdrawn. However, Decision 14.131 was adopted, which directed the Plants Committee to:
 - a) *analyse trade data and conservation status of succulent Euphorbia species (except those species currently included in Appendix I);*
 - b) *prepare a revised list of succulent Euphorbia species that meet the criteria of Resolution Conf. 9.24 (Rev. CoP14) for inclusion in Appendix II;*
 - c) *prepare proposals for consideration at the 15th meeting of the Conference of the Parties that provide for the deletion of Euphorbia species from Appendix II that do not meet the criteria of Resolution Conf. 9.24 (Rev. CoP14), are frequently traded and can be clearly identified by non-specialists; and*
 - d) *determine the need for identification material for species retained in Appendix II.*

6. Based on document PC17 Doc. 14, the Plants Committee, at its 17th meeting (Geneva, 2008) included the above mandate (paragraph 5) with the working group on the Periodic Review of the Appendices (PC17 WG5). Based on the WG's report, the Plants Committee established an intersessional working group with the following mandate (PC17 Summary record page 25-26:
 - a) *Analyse the trade data provided in document PC17 Doc. 14 (Annex);*
 - b) *Identify species for possible exclusion from Appendix II, based on this and all other available, relevant information; and*
 - c) *Prepare a list of candidate species for possible delisting for consideration at PC18 and submit a report containing this list and all other available, relevant information.*

In addition, the Committee agreed that the intersessional WG should: Prepare a proposal for submission to CoP15 to annotate the current listing of the genus *Euphorbia* in the Appendices to the effect that the genera *Chamaesyce*, *Cubanthus*, *Elaeophorbia*, *Endadenium*, *Monadenium*, *Synadenium* and *Pedilanthus* are excluded from the listing and present this for discussion at PC18.

7. The WG recommended that following PC17, the Secretariat publish a Notification to Parties as soon as possible, asking Range States of succulent *Euphorbia* species to indicate, as far as possible, species that are actually or potentially negatively impacted by wild-harvest for international trade (Notification No. 2008/042). Parties were requested to report their findings by the 30 September 2008, [six months before the 18th meeting of the Plants Committee (PC18)]. An evaluation of responses is contained in Annex 3 of this document.

Decisions to be taken and schedule

8. According to the WG's mandate, a draft Annotation for the listing of the genus *Euphorbia* in Appendix II is included in Annex 1. This draft Annotation applies to the current listing and would possibly not apply to an amended listing. The Plants Committee will decide on a finished version of the Annotation, which is in line with an amended listing of succulent *Euphorbia* species, and prepare a proposal for submission to CoP15.
9. The WG developed two lists (Annex 2): List A which includes species proposed for removal from Appendix II because they are frequently traded as artificially propagated specimens. Alternatively, List B includes species proposed for retention in Appendix II because they meet the listing criteria of Resolution Conf. 9.24 (Rev. CoP14). The Plants Committee will review these two lists and decide how to proceed with its mandate to submit a proposal for an amended listing of *Euphorbia* species in Appendix II to CoP15.

Comments

10. This document is submitted to the Plants Committee for discussion and further input by range States. In particular, range States that may have concerns about species that are included in List A for exemption or not included in List B for retention, and which may be exempted from CITES as a result of this process.
11. The Chair of the Working Group wishes to thank the Authorities of China, Ethiopia, Madagascar, Mexico and the United States of America for their responses and reports, and to all people involved, for their

contributions. Special thanks go to Patricia Ford of the Scientific Authority of the United States of America for significantly contributing to this document.

12. None of the *Euphorbia* species included in this review are included in the current Review of Significant Trade in specimens of Appendix-II species following CoP14 (PC17 Doc. 8.5).

References (including for Annexes 1 and 2)

Bruyns, P. V., R. J. Mapaya and T. J. Hedderson (2006): A new subgeneric classification for *Euphorbia* (Euphorbiaceae) in southern Africa based on ITS and psbA-trnH sequence data. *Taxon* 55(2): 397–420.

Carter, S. and U. Egli (1997): The CITES Checklist of Succulent Euphorbia Taxa (Euphorbiaceae). Bundesamt für Naturschutz. Bonn, Germany.

Carter, S. and U. Egli (2003): The CITES Checklist of Succulent Euphorbia Taxa (Euphorbiaceae). Second Edition. Bundesamt für Naturschutz. Bonn, Germany.

Taylor, K. (2001): Review of Trade in Artificially Propagated Plants. Royal Botanic Gardens. Kew, England.

DRAFT ANNOTATION

1. At PC17, Working Group 5 (PC17 WG5 (Rev. 1) – p. 2) reported that the genus *Euphorbia* was substantially amplified to include species that are currently included in the genus *Chamaesyce* (never generally accepted) as well as the smaller, well established genera *Cubanthus*, *Elaeophorbia*, *Endadenium*, *Monadenium*, *Synadenium* and *Pedilanthus*. This is the result of recent molecular research (Bruyns et al., 2006). *Euphorbia*, in this new, amplified sense, is very large, very widely distributed and diverse genus that is equal to the entire subtribe Euphorbiinae of the family Euphorbiaceae. As a result of the new classification, a considerable number of additional succulent species may thus fall unintentionally under CITES provisions. The WG therefore, recommended to investigate whether any of the subgeneric units of the genus *Euphorbia* in the new, amplified sense correspond to the former listing and, if possible, reduce the listing of succulent *Euphorbia* species in Appendix II to the subgeneric taxon or those subgeneric taxa.
2. The objective is to prevent widening the scope of this listing to include additional succulent species that were not commonly included in the genus *Euphorbia* at the time the genus was listed in Appendix II, and which are now implicitly and unintentionally (i.e. regardless of criteria Resolution Conf. 9.24) included in Appendix II because of new classification of the genus. Time will show, whether the new classification of the genus is widely accepted by botanical community. However, potential enforcement problems can be avoided by maintaining the scope of the listing.
3. *Chamaesyce* species (if recognized at genus level) are non-succulent herbs, and *Cubanthus* species are soft-wooded shrubs or small trees. Therefore these genera would not be included with succulent *Euphorbia* species. The WG's draft annotation is the following:

“***Euphorbia* spp. #1** (Succulent species only except the species included in Appendix I and except species that are also included in the genera *Elaeophorbia*, *Endadenium*, *Monadenium*, *Synadenium* and *Pedilanthus*. Artificially propagated specimens of cultivars of *Euphorbia trigona*, artificially propagated specimens of crested, fan-shaped or colour mutants of *Euphorbia lactea*, when grafted on artificially propagated root stock of *Euphorbia neriifolia*, and artificially propagated specimens of cultivars of *Euphorbia* ‘Mili’ when they are traded in shipments of 100 or more plants and readily recognizable as artificially propagated specimens, are not subject to the provisions of the Convention)”.
4. This annotation would lead to deletion from the current CITES Checklist (Carter & Egli, 2003, 2nd edition) of two species, noting that range States should be consulted to determine if there are conservation concerns or look-alike issues:

Euphorbia beillei = *Elaeophorbia beillei*

Euphorbia pedilanthoides = *Pedilanthus lycioides*
5. The WG provided a separate Annotation for List B of Annex 2 (page 6).
6. The WG asks the Plants Committee to decide on whether to proceed with List A and its Annotation or List B and its Annotation. It is also suggested that further consultation with range States occurs for species recommended for delisting.

LISTS OF CANDIDATE EUPHORBIA SPECIES
FOR POSSIBLE DELISTING FROM APPENDIX II

1. Some preliminary considerations:

- Succulent species of *Euphorbia* native to Madagascar should remain in Appendix II according to Taylor (2001). Reported shipments from Madagascar consist frequently of wild-collected specimens and some species are reported to be endangered by international trade (see Annexes 3 and 7).
- The present approach “Analyze the trade data provided in document PC17 Doc. 14 (Annex)” is targeted only at taxa that are traded in high volumes (regardless, whether they are wild-collected or not, as this information is not provided).
- However, many taxa are not known to be internationally traded and are not in horticulture, and therefore, do not need to be covered by the provisions of CITES.
- Further, some taxa are apparently collected from the wild and may be traded by the thousands, but this is not reported (possible illegal trade, e.g. wild-collected *E. turbiniformis* from Somalia, as illustrated in the internet, <http://www.explorelifeonearth.org/boxturbiniformis.jpg>). Reported trade data therefore needs thorough analysis and additional expert knowledge.
- The best solution would be to only have species listed in Appendix II that meet criteria of Resolution Conf. 9.24 (Rev. CoP14) and their look-alikes, and to have corresponding ID material (ID material is only available for *Euphorbia* spp. in Appendix I). The task is to identify species of conservation concern that are in international trade. The actual CITES-checklist contains ca. 900 taxa of succulent *Euphorbia* (i.e., species, subspecies, and varieties), the IUCN Red List contains 171 assessed *Euphorbia* spp. (including non-succulent), the UNEP-WCMC reported trade data show ca. 360 *Euphorbia* spp.

List A: Species proposed for removal from Appendix II because they are frequently traded as artificially propagated specimens.

2. According to paragraphs a-c of the mandate, the approach which leads to List A is to identify species with the highest reported trade (PC17 Doc. 14, Annex), to assess these species and to draft a list of candidate species for possible delisting for consideration of PC18. Species native to Madagascar were *a priori* excluded from this process. This approach leads to the following list of species:

E. abyssinica
E. canariensis
E. enopla
E. ferox
E. horrida
E. ingens
E. lactea (grafted, crested specimens already exempted)
E. tirucalli

3. In addition to the information in PC17 Doc. 14, Annex, the CITES trade database was checked for the export of wild-collected live specimens of these species from countries of origin, i.e. source code W, with the following result:

4 specimens of *E. ferox* in 2000 for scientific purposes (ZA to DE);
2 specimens of *E. horrida* in 1997 for commercial purposes (ZA to GB);
3 specimens of *E. horrida* in 2000 for scientific purposes (ZA to DE);
3 specimens of *E. tirucalli* in 2006, purpose not indicated (MG to TH).

Further, 26 specimens of *E. enopla* were exported from South Africa to US in 1980 for commercial purposes, without indication of the source. They were possibly wild-collected. This very low trade level seems not to be of concern with respect to conservation of these species. For the remaining species, no such trade is reported.

Table 1: Assessment of frequently traded species

Species	Reported trade 2000-2006	Reported source A / W (principal countries of export)	Distribution	Growth form	Comments	Candidate species for possible delisting
<i>Euphorbia abyssinica</i>	1,145,703	A (CR, HT)	Eritrea, Ethiopia, Somalia, Sudan	Candelabriform	Not on IUCN red list	Yes, if identifiable
<i>E. canariensis</i>	85,845	A (CA, HT)	Spain (Canary Islands)	Candelabriform	Not on IUCN red list	Yes, if identifiable
<i>E. enopla</i>	32,100	A (CA, NL)	South Africa	Small columnar and branching, with spines formed from inflorescences	Not on IUCN red list	No delisting at this stage, but not to include if listing is changed to single species
<i>E. ferox</i>	14,676	A (CA)	South Africa	Small columnar and branching, with spines formed from inflorescences	Not on IUCN red list	No delisting at this stage, but not to include if listing is changed to single species
<i>E. horrida</i>	32,926	A (CA, NL)	South Africa	Small columnar and branching, with spines formed from inflorescences	Not on IUCN red list	
<i>E. ingens</i>	12,481	A (HT, NL, PE, ES)	Botswana, Malawi, Mozambique, South Africa, Zambia, Zimbabwe	Candelabriform	Not on IUCN red list	Yes, if identifiable
<i>E. lactea</i> (grafted, crested specimens exempted)	2,538,593	A (BR, CN, CR, DO, HT, TH)	Widespread as a cultivated naturalized plant in tropical Asia, incl. Madagascar, Mauritius, Réunion, India and Sri Lanka, also in the West Indies incl. Cuba, Jamaica and United States of America (Florida)	Usually in trade as grafted, crested specimens	Not of conservation concern (not on IUCN red list), a delisting of the species, without further requirements for specimens, such as grafting, would make enforcement easier	Yes
<i>E. tirucalli</i>	218,264	A (BR, CR, DO, PH, LK)	Tropical and subtropical Africa (probably originating from Malawi, Mozambique, the United Republic of Tanzania, Uganda and Zambia), widely naturalized elsewhere incl. Botswana, the Democratic Republic of the Congo, Eritrea, Ethiopia, Kenya, Somalia, South Africa, Uganda, Zimbabwe	Coralliform	Not of conservation concern (least concern on IUCN red list), quite easily identifiable, cultivated in tropical regions of the world, even invasive in some places, a delisting would save considerable resources (permitting, inspection, reporting)	Yes

4. List A includes candidate species for possible removal from Appendix II (i.e., species for which artificially propagated specimens are traded in high volumes and which are of no conservation concern). Some frequently traded species (*E. enopla*, *E. ferox* and *E. horrida*) are not included because of arguments outlined in Table 1. With the exception of *E. lactea* and *E. tirucalli*, the look-alike problem of the following species would need further consideration as part of any delisting proposal.

List A: *Euphorbia* spp. recommended for possible removal in Appendix II.

E. abyssinica
E. canariensis

E. ingens
E. lactea
E. tirucalli

List B: Includes species proposed for retention in Appendix II because they meet the criteria for inclusion in Appendix II (Resolution Conf. 9.24 (rev. CoP14).

- Decision 14.131, paragraph b) asks for the preparation of a revised list of succulent *Euphorbia* species that meet the criteria of Resolution Conf. 9.24 (Rev. CoP14) for inclusion in Appendix II. Analysis of trade data and consultation with experts lead to such a list, as outlined below.
- Consultation with experts resulted in a draft list of species from Northeast Africa that seem to require monitoring of international trade and should certainly or possibly (=?) remain in Appendix II:

Somalia

E. columnaris
E. turbiniformis
? *E. horwoodii*

Ethiopia

E. gymnocalycioides
E. piscidermis
? *E. charleswilsoniana*
? *E. cryptocaulis*
? *E. rubella*

- For species native to Southern Africa, trade data have been provided by UNEP-WCMC (John Caldwell in lit.). Export of wild-collected live plants results in a list of species that were repeatedly in trade from 2000 to 2007 (exporting country: South Africa):

Southern Africa

E. albipollinifera
E. astrophora
E. braunsii
E. bupleurifolia
E. colliculina
E. crassipes
E. crispa
E. decepta
E. fusca

E. gorgonis
E. multiceps
E. multiflora
E. schoenlandii
E. silenifolia
E. stellata
E. stellispina
E. susannae
E. trichadenia

- Information on North American species was provided by Mexico and the United States of America in their responses to Notification No. 2008/042 (see Annex 3). Subsequently, the United States of America submitted reviews of *Euphorbia misera* and *E. radiata* (see paragraph 3 of Annex 3 regarding consultation with Mexico). The two reports are included here in Annexes 4 and 5. This leads to the following preliminary list of species:

North America

E. antisiphilitica
E. radians

- Information on Malagasy species was provided by Madagascar in their response to Notification No. 2008/042 (Annexes 3 and 7). Subsequently, Madagascar submitted a proposal on Malagasy succulent *Euphorbia* spp. As this was shortly before the deadline for submission of this document to the Secretariat, it was not possible to fully incorporate this new information. The document is included however in Annex 6. Madagascar proposes to include 55 species and 5 heterotypic infraspecific taxa of Malagasy *Euphorbia* in Appendix II. This covers species, which are actually exported (twelve further taxa are added in a list that will need more explanation by Madagascar). The Plants Committee will have to decide, how to deal with this proposal.
- Information from other regions (e.g. Arabia, Asia, South America) is lacking, but may not have the same relevance.
- List B contains species and populations which meet the criteria of Resolution Conf. 9.24 (Rev. CoP14), i.e. with reported trade in wild-collected specimens (e.g. parts and derivatives in the case of *E. antisiphilitica*) and/or of conservation concern according to experts.

List B: *Euphorbia* spp. recommended for retention in Appendix II

<i>E. albipollinifera</i>	<i>E. multiceps</i>
<i>E. antisyphilitica</i>	<i>E. multiflora</i>
<i>E. astrophora</i>	<i>E. piscidermis</i>
<i>E. braunsii</i>	<i>E. radians</i>
<i>E. bupleurifolia</i>	<i>E. rubella</i>
<i>E. charleswilsoniana</i>	<i>E. schoenlandii</i>
<i>E. colliculina</i>	<i>E. silenifolia</i>
<i>E. columnaris</i>	<i>E. stellata</i>
<i>E. cryptocaulis</i>	<i>E. stellispina</i>
<i>E. crassipes</i>	<i>E. susannae</i>
<i>E. crispa</i>	<i>E. trichadenia</i>
<i>E. decepta</i>	<i>E. turbiniformis</i>
<i>E. fusca</i>	<i>Euphorbia</i> spp., the populations of Madagascar
<i>E. gorgonis</i>	(or as an alternative option, the list of 55
<i>E. gymnocalycioides</i>	species and 5 infraspecific taxa proposed by
<i>E. horwoodii</i>	Madagascar)

12. According to the review by the WG, and consistent with the mandate of Decision 14.131, paragraph c), potentially all succulent *Euphorbia* species may be considered for delisting (Carter and Egli, 2003) from Appendix II with the exception of the species and populations included in List B. This option leads to the listing in Appendix II* of 26 species of continental Africa, 2 species of North America and the Malagasy populations of all succulent species that occur in Madagascar [or, as an alternative option, 55 species and 5 infraspecific taxa of Malagasy *Euphorbia*, as proposed by Madagascar (Annex 6)].

The option to list Malagasy succulent *Euphorbia* on generic level would implicitly comprise 99 species and 37 heterotypic infraspecific taxa (Carter and Egli, 2003). It would implicitly cover newly described species; an updating of the CITES checklist would be required. The wording of this listing would be:

"*Euphorbia* spp. #XX* The populations of Madagascar (succulent species only, except the species included in Appendix I and *Euphorbia lactea*. Artificially propagated specimens of cultivars of *Euphorbia* 'Mili' when they are traded in shipments of 100 or more plants and readily recognizable as artificially propagated specimens, are not subject to the provisions of the Convention)"

*The Plants Committee would have to decide on an appropriate annotation for parts and derivatives of succulent *Euphorbia* spp. in Appendix II, taking into account that the most relevant species is *E. antisyphilitica*.

13. There might be other *Euphorbia* species that are used in the candelilla wax industry or for other parts and derivatives in international trade. Germany has contracted a study to examine international trade in parts and derivatives of succulent *Euphorbia* species (as a contribution to the task of the intersessional WG dealing with finished products). The study might be relevant for the task to amend the listing of succulent *Euphorbia* spp. in Appendix II. Information exchange between the two WGs seems appropriate.

EVALUATION OF RESPONSES TO NOTIFICATION NO. 2008/042
(REVIEW OF SUCCULENT EUPHORBIA SPP. IN APPENDIX II)

1. At its 17th meeting (Geneva, April 2008), the Plants Committee asked the Secretariat to publish a Notification to the Parties asking range States of succulent *Euphorbia* species “to indicate, as far as possible, species that are actually or potentially negatively impacted through harvest from the wild for international trade”. Parties had until 30 September 2008, i.e. six months before the 18th meeting of the Plants Committee (PC18), to report their findings.

Responses received through the Secretariat

CN	All specimens exported from CN originate from artificial propagation.
ET	No native spp. are negatively affected through harvest from W for international trade; Suggests PC to further discuss deletion of succulent <i>Euphorbia</i> spp. from App. II.
MG	List of 89 native <i>Euphorbia</i> spp. assessed, (out of 99 spp. listed in the CITES checklist), including IUCN status, distribution, comments on population, threat through harvest, author of taxon and place of first description: 56 spp. are classified as endangered through W harvest for international trade. 20 spp. are classified as not endangered through W harvest for international trade. 13 spp. are not classified.
MX	Maintain <i>E. antisyphilitica</i> in App. II; consider inclusion in App. II of the genus <i>Pedilanthus</i> for look-alike reasons. There is no information of negative impact on other native spp. through harvest for international trade.
US	Participating in the review of <i>E. antisyphilitica</i> with Mexico. Removing <i>E. misera</i> from App. II may be appropriate. <i>E. radians</i> should be maintained in App. II. Both species are also native to Mexico.

Draft conclusions from responses

1. *E. antisyphilitica* shall remain in Appendix II.
2. A majority of succulent *Euphorbia* spp. native to Madagascar are considered to be endangered by harvest from the wild for international trade, including *E. milii*. However, *E. lactea*, which is among the species that are candidates for removing from Appendix II, is not classified as such. If the listing of succulent *Euphorbia* spp. in Appendix II should be changed from a listing at generic level to a listing of species, at least the listing of Madagascan species should be maintained as follows:

“*Euphorbia* spp. #1 The populations of Madagascar (succulent species only, except the species included in Appendix I and *Euphorbia lactea*. Artificially propagated specimens of cultivars of *Euphorbia* ‘Milii’ when they are traded in shipments of 100 or more plants and readily recognizable as artificially propagated specimens, are not subject to the provisions of the Convention)”

3. Three species of succulent *Euphorbia* are native to the United States, *E. antisyphilitica*, *E. misera*, and *E. radians*. All three also range into Mexico. Of these three species, the U.S. determined that *E. misera* may be a candidate for removal from CITES Appendix II. However, they indicated that consultation with Mexico would be required prior to moving forward with a delisting proposal, and also consultation with field experts and the public to determine whether removal from the CITES Appendices is likely to encourage wild-collection of specimens within the United States for ornamental trade.

REVIEW OF *EUPHORBIA RADIANS* (SUN SPURGE)

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NOTE: This species ranges in the United States and Mexico. Although this document briefly mentions the Mexican populations, Mexico was not consulted in the drafting of this document and it is anticipated that they would be able to provide the best information on the status of the species within their territory.

Proposed Action: Maintain this species in CITES Appendix II

Summary: This species continues to qualify for CITES Appendix II listing according to the Criteria for amendment of Appendices I and II (Resolution Conf. 9.24 (Rev. CoP13), Annex 2a, criterion B (It is known, or can be inferred or projected, that regulation of trade in the species is required to ensure that the harvest of specimens from the wild is not reducing the wild population to a level at which its survival might be threatened by continued harvesting or other influences). There has been no recent CITES-recorded international trade in this species. However, seeds (which are exempt from CITES controls) are sold internationally and whole specimens are traded in domestic specialty markets. The species is vulnerable to intrinsic factors that may affect its extinction risk associated with decline, including a limited distribution and extreme rarity within its U.S. distribution. Extrinsic factors contributing to the vulnerability of this species include domestic ornamental trade and possible threats from exotic species. There have been no reports of illegal wild collection but are unaware of the commercial availability of cultivated stock. However, the species is poorly monitored in the field and populations may not be adequately protected. There are no apparent “look-alike” issues with any other U.S.-native succulent Euphorbia. We believe that delisting this species from the CITES Appendices may encourage international trade in whole specimens of this species.

Synonyms: *Poinsettia radians*

Status: This perennial shrub, with many semi-erect branches and showy white flowers, is native to the United States (Arizona, New Mexico, and Texas) and México (from northern Mexico to Oaxaca). This species inhabits open scrub land, grassland, and eroded areas. In the United States, the species prefers grasslands dominated by native grasses, including *Bouteloua* (grama grasses) and *Muhlenbergia* (muhly grasses). The species is cryptic, flowering in the spring before leaf emergence and leafing out in the summer with no flowers to aid in identification. This makes it difficult for field identification, even by experienced botanists.

In Arizona, there are approximately 5 extant populations and 5 historical populations. Most of the populations are in Santa Cruz County, where at least three populations last observed in the 1980s and 2000s were recently confirmed. The species is extant in San Rafael State Park (Santa Cruz County), where it is considered common, and may also be extant in the Coronado National Forest (Pima County), where it was last recorded in 1951.

In Texas, the species is known only from historical accounts (reported more than fifty years ago) in disjunct populations in two counties. The species is not monitored or tracked in Texas. According to NatureServe, the species' status in Texas has yet to be evaluated. The Texas Parks and Wildlife Department indicates that the state rank should probably be “Critically imperiled” because of its extreme rarity (5 or fewer population occurrences) and other factors causing steep population declines, rendering the species vulnerable to extirpation in Texas.

In Mexico, *E. radians* is considered common in the Sierra Madre Occidental (Chihuahua and Durango), and is also found in Zacatecas, San Luis Potosi, southeastern Coahuila, and Jalisco south to Oaxaca. The largest proportion of the population is found in Mexico.

Principal Threats or Pressures on Wild Populations: The species is sold in specialty markets as an ornamental. Conversion of native grasslands with intentional planting or spread of exotic species may be a threat to *E. radians*.

Collection and Trade: In Arizona, this species has been collected for scientific purposes by a few researchers. In Texas, this species is in the succulent specialist trade. Seeds are offered for sale in international markets. In Mexico, immature specimens are eaten.

The species is not known to be commercially cultivated in Arizona or Texas. According to the Native Seed Network, seed for this species is not currently available in the marketplace. There have been no reports of wild collection but wild populations are not being monitored, so this is difficult to confirm. We are unaware of any domestic sources of cultivated seeds for this species.

Euphorbia radians was listed in CITES Appendix-II in 1975, along with the entire family. A review of U.S. trade data from 2003-2007 indicates that there was no trade in wild-collected specimens of this species during that period; trade in seeds of this species is exempt from CITES controls and is, therefore, unquantifiable.

Protections: The cryptic nature of this species (i.e., spring flowering plants have no leaves and summer vegetative plants have no flowers) can be an aid in avoiding detection. Although the species may be more conspicuous in the spring, the leaves and stems are small, making it harder to find hidden amongst the grassland habitat in the summer.

In Arizona, is found the San Rafael State Park and may be extant in the Coronado National Forest, although it has not been confirmed in the latter location since 1951.

In Texas, one population (if extant) is on land belonging to the University of Texas observatory; another population may exist on land owned by or under easement to The Nature Conservancy.

The species is federally protected under CITES Appendix-II.

In Mexico, this species is not included on Mexico's list of species at risk (PROY-NOM-059-ECOL-2000).

Look-alike issues: It is unlikely that a layperson would confuse this species with any of the other U.S.-native succulent *Euphorbia* (including *E. antisiphilitica* and *E. misera*).

Experts contacted in the preparation of this document:

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References used for this review:

Alipi, A.M.H., J.M. Pichardo, and H. Vibrans. 2005. Euphorbiaceae *Euphorbia radians* Benth., Colecitas. CONABIO (Comisión nacional para el conocimiento y uso de la biodiversidad): Distrito Federal, México. <http://www.conabio.gob.mx/malezasdemexico/euphorbiaceae/euphorbia-radians/fichas/ficha.htm#6.%20Impacto%20e%20importancia>

McLaughlin, S.P. 2006. Vascular Floras of Sonoita Creek State Natural Area and San Rafael State Park: Arizona's First Natural-Area Parks. *Journal of the Botanical Research Institute of Texas/Sida* 22(1): 661-704. [http://www.andestoamazon.com/Sida/PDF/PDF22\(1\)/40_McLaughlin_SonoitaCrk_661-704.pdf](http://www.andestoamazon.com/Sida/PDF/PDF22(1)/40_McLaughlin_SonoitaCrk_661-704.pdf)

Native Seed Network, Institute for Applied Ecology. 2008. *Euphorbia radicans*. Institute for Applied Ecology: Corvallis, Oregon. http://www.nativeseednetwork.org/viewtaxon?taxon_code=PORA11

NatureServe. 2008. National and Subnational Conservation Status Definitions for NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.0. NatureServe, Arlington, Virginia. <http://www.natureserve.org/explorer/nsranks.htm>

SEMARNAT (Secretaria de Medio Ambiente, Recursos Naturales y Pesca). 2000.

Project of Official Norm Mexican PROY-NOM-059-ECOL-2000, environmental-Species Protection of flora and fauna wild of Mexico-Category of risk and specifications for its inclusion, exclusion or change-List of species in risk (Proyecto de Norma Oficial Mexicana PROY-NOM-059-ECOL-2000, Protección ambiental-Especies de flora y fauna silvestres de México-Categorías de riesgo y especificaciones para su inclusión, exclusión o cambio-Lista de especies en riesgo). SEMARNAT: Distrito Federal, México. <http://www.economia.gob.mx/work/normas/noms/kpronoman/p059ecol.pdf>

van Veldhuisen, R. 2006. Some notes on *Euphorbia punicea* SWARTZ and related species. *Euphorbia World* 1 (3): 5-8. <http://www.euphorbia-international.org/PDFfiles/EW3-sample.pdf>

REVIEW OF *EUPHORBIA MISERA* (CLIFF SPURGE)

Patricia S. De Angelis, Ph.D.
Botanist - Division of Scientific Authority
US Fish & Wildlife Service

NOTE: This species ranges in the United States and Mexico. Although this document briefly mentions the Mexican populations, Mexico was not consulted in the drafting of this document and it is anticipated that they would be able to provide the best information on the status of the species within their territory.

Proposed Action: Consider removing from CITES Appendix II

Summary: This species may not qualify for listing according to the criteria outlined in Res. Conf. 9.24 (Rec. CoP14). There has been no recent CITES-recorded international trade in this species, nor does there appear to be international trade in seeds of this species. However, whole specimens are traded in domestic specialty markets and we are unaware of the commercial availability of cultivated stock. There have been no reports of illegal wild collection, populations of this species are found in protected areas, and state laws do not permit collection of desert plants for resale. However, wild populations are not closely monitored. There are no apparent "look-alike" issues with any other U.S.-native succulent Euphorbia. However, the species is vulnerable to intrinsic factors that may affect its extinction risk associated with decline, including a limited distribution, a small number of occurrences, and low reproductive output. Extrinsic factors contributing to the vulnerability of this species include domestic ornamental trade and habitat destruction. Consultation with Mexico would be required prior to moving forward with a delisting proposal in order to fully understand current global status and trade in this species. Further consideration of a delisting proposal would also require additional consultation with field experts and the public to determine whether removal from the CITES Appendices is likely to encourage wild-collection of specimens within the United States for ornamental trade.

Status: This compact, perennial shrub is native to the United States (California) and Mexico (Baja California); the majority of the population ranges in Mexico. This species is found only in coastal sage scrub habitat.

In California, the Department of Fish and Game reports 26 occurrences in five counties. Monitoring is infrequent, with most of the recent observations made in 1980s, a few more recent observations and several historical observations (from the 1930s and 1960s). Of these reported occurrences, the population ranges from no estimate, to as few as 20 plants, to more than 1,000 plants. The California Department of Fish and Game suspects that the populations are decreasing in their area of distribution, habitat, subpopulations, individuals, quality of habitat, and recruitment. In some populations, such as the only population of this species known to occur on Catalina Island, Los Angeles County, reproduction is considered low to nonexistent, although the reasons for this are unknown.

This species became part of the California Native Plant Society's (CNPS) rare plant program in 1974 and is currently on CNPS List 2, "Plants rare in California and more common elsewhere." The State Natural Heritage Program (NatureServe) considers this species to be "Vulnerable" to extinction because there are less than 80 population occurrences combined with recent and widespread declines, rendering the species vulnerable to extinction.

In Mexico, the species ranges as far as south as central Baja and also inhabits Guadalupe Island.

Principal Threats or Pressures on Wild Populations: This species is sold in specialty markets as an ornamental. Much of the habitat, especially in San Diego County, California, is under high development pressure. A "formerly rich" area (near the Mexican border) is overrun with illegal activity and may be destroyed with the construction of a border fence. Coastal sage scrub habitat is under pressure from habitat alteration caused by infrastructure development and resultant erosion caused by road construction and trail-building, ongoing or previous sand and gravel mining, roads, heavy off-road vehicle use, and trash dumping.

In Mexico, the populations may experience threats from coastal development, especially in northern Baja California.

Collection and Trade: In the United States, the species is encountered as an ornamental in specialty markets and is also used medicinally. We are unaware of international trade in seeds of this species.

The species is uncommon in cultivation. According to the Native Seed Network, seed for this species is not currently available in the marketplace. There have been no reports of wild collection but wild populations are not being monitored, so this is difficult to confirm. We are unaware of any domestic sources of cultivated seeds for this species.

Euphorbia misera was listed in CITES Appendix-II in 1975, along with the entire family. A review of U.S. trade data from 2003-2007 indicates that there was no trade in wild-collected specimens of this species during that period.

Protections: Because it is a succulent, *Euphorbia misera* is protected under the California Desert Plant Act, which states that it is illegal to dig up desert plants for resale.

Because of the plant's status as a CNPS List 2 species, it is protected under the California Environmental Quality Act (CEQA), which requires disclosure of occurrences of this species during pre-project reviews and surveys, as well as mitigation for any significant impacts resulting from anticipated land use changes.

The species is federally protected under CITES Appendix-II.

In Mexico, this species is not included on Mexico's list of species at risk (PROY-NOM-059-ECOL-2000).

Look-alike issues: It is unlikely that a layperson would confuse this species with any of the other U.S.-native succulent *Euphorbia* (including *E. antisyphilitica* and *E. radicans*).

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References used for this review:

California Native Plant Society. 2008. Inventory of Rare and Endangered Plants (online edition, v7-08d):
Euphorbia misera. California Native Plant Society: Sacramento, California.
http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi/Go?_id=euphorbia_misera&sort=DEFAULT&search=Euphorbia%20misera

Catalina Island Conservancy. 2005. *Euphorbia misera* outplantings. Catalina Island Conservancy: Catalina, California. http://www.catalinaconservancy.org/ecology/actions/mon_euphorbia.cfm

Duke, J.A. 1998. Dr. Duke's phytochemical and ethnobotanical databases.

Agricultural Research Service A(RS)- Germplasm Resources Information Network (GRIN): Fulton, Maryland.
<<http://www.ars-grin.gov/duke/>>.

NatureServe. 2008. National and Subnational Conservation Status Definitions for NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.0. NatureServe, Arlington, Virginia.
<http://www.natureserve.org/explorer/nsranks.htm>

Reiser, C.H. 1994. Cliff spurge [*Euphorbia misera* Benth.]. Page 96, In: Rare Plants of San Diego County
Aquafir Press: Imperial Beach, California. <http://sandiego.sierraclub.org/rareplants/096.html>

Schwartz, H. and R. LaFon. 1983. Volume I. *Euphorbia misera*. P. 93, In: The Euphorbia Journal. Strawberry
Press: Mill Valley, California.

SEMARNAT (Secretaria de Medio Ambiente, Recursos Naturales y Pesca). 2000.

Project of Official Norm Mexican PROY-NOM-059-ECOL-2000, environmental-Species Protection of flora and
fauna wild of Mexico-Category of risk and specifications for its inclusion, exclusion or change-List of
species in risk (Proyecto de Norma Oficial Mexicana PROY-NOM-059-ECOL-2000, Protección ambiental-
Especies de flora y fauna silvestres de México-Categorías de riesgo y especificaciones para su inclusión,
exclusión o cambio-Lista de especies en riesgo). SEMARNAT: Distrito Federal, México.
<http://www.economia.gob.mx/work/normas/noms/kpronoman/p059ecol.pdf>

DRAFT LIST OF MALAGASY *EUPHORBIA*
TO RETAIN IN CITES APPENDIX II

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Faculty of Science
Plant Ecology and Biology Department
BP 906
Telephone : 020 24 575 91
MADAGASCAR

Antananarivo, 9 January 2009

CITES SCIENTIFIC AUTHORITY FOR FLORA
Plant Ecology and Biology Department
Faculty of Science
Antananarivo University

to

Director of Natural Resources Development
CITES Management Authority
Nanisana Antananarivo

N°: 004-09/UNIV/DBEV/SPFI/CITES

Subject: Suggestion regarding draft document PC18 Doc. 16.2

Dear Madam,

After updating our database, we have a suggestion regarding the malagasy *Euphorbia* included in CITES Appendix II. Indeed, all Malagasy *Euphorbia* that are not included in Appendix I are listed in Appendix II. However, some of these species are not exported. **We therefore propose to keep in CITES Appendix II only those species that are not included in Appendix I and that are exported.** Attached is the list of *Euphorbia* species that have been exported between 2000 and 2008.

We retain the right to modify this list as the synonymic names and IUCN status of these species remain to be checked.

We thank you for your cooperation.

Enc.: Draft list of Malagasy *Euphorbia* to include in CITES Appendix II

DRAFT LIST OF MALAGASY *EUPHORBIA*
TO RETAIN IN CITES APPENDIX II

<i>Euphorbia alfredii</i>	<i>Euphorbia iharanae</i>
<i>Euphorbia alluaudii</i> subsp. <i>alluaudii</i> (= <i>E. leucodendron</i>)	<i>Euphorbia itremensis</i>
<i>Euphorbia alluaudii</i> subsp. <i>onoclada</i>	<i>Euphorbia kondoi</i>
<i>Euphorbia ankarensis</i>	<i>Euphorbia labatii</i>
<i>Euphorbia ankazobensis</i>	<i>Euphorbia leandriana</i>
<i>Euphorbia antso</i>	<i>Euphorbia leuconeura</i>
<i>Euphorbia aprica</i>	<i>Euphorbia leuconeura</i>
<i>Euphorbia aureoviridiflora</i>	<i>Euphorbia mahabobokensis</i>
<i>Euphorbia banae</i>	<i>Euphorbia mangokyensis</i>
<i>Euphorbia beharensis</i>	<i>Euphorbia millii</i> var. <i>hislopilii</i>
<i>Euphorbia beharensis</i> var. <i>guillemetii</i>	<i>Euphorbia millii</i>
<i>Euphorbia berorohae</i>	<i>Euphorbia millii</i> var. <i>bevilanensis</i>
<i>Euphorbia biaculeata</i>	<i>Euphorbia neobosseri</i>
<i>Euphorbia bongolavensis</i>	<i>Euphorbia neobosseri itampoloensis</i>
<i>Euphorbia bulbispina</i>	<i>Euphorbia neohumbertii</i>
<i>Euphorbia capmanambatoensis</i>	<i>Euphorbia pachypodioides</i>
<i>Euphorbia croizatii</i>	<i>Euphorbia pauliana</i>
<i>Euphorbia denisiana</i>	<i>Euphorbia pedilanthoides</i>
<i>Euphorbia denisii</i>	<i>Euphorbia perrieri</i>
<i>Euphorbia didiereoïdes</i>	<i>Euphorbia primulifolia</i>
<i>Euphorbia duranii</i>	<i>Euphorbia primulifolia</i> var. <i>begardii</i>
<i>Euphorbia elliotii</i>	<i>Euphorbia razafindratsirae</i>
<i>Euphorbia fianarantsoae</i>	<i>Euphorbia razafinjohanii</i>
<i>Euphorbia genoudiana</i>	<i>Euphorbia robivelonae</i>
<i>Euphorbia geraldii</i>	<i>Euphorbia rossii</i>
<i>Euphorbia guillauminiana</i>	<i>Euphorbia sakarahensis</i>
<i>Euphorbia hedyotoïdes</i>	<i>Euphorbia subpeltatophylla</i>
<i>Euphorbia herman-schwartzii</i>	<i>Euphorbia suzannae-marnieriae</i>
<i>Euphorbia hofstaetteri</i>	<i>Euphorbia tirucalli</i>
<i>Euphorbia horombensis</i>	<i>Euphorbia viguieri</i>
	<i>Euphorbia waringiae</i>

The following species are not included in the review of the taxon *Euphorbia* from Madagascar conducted by Thomas HAEVERMANS, 2003

Euphorbia ambongense
Euphorbia begardi
Euphorbia hofstaetteri rubristreliea
Euphorbia hofstaetteri typic
Euphorbia itampoloensis
Euphorbia labatii type
Euphorbia millii var. *siegfriedi*
Euphorbia millii mandota
Euphorbia rosulatum var. *gracilius*
Euphorbia silikily
Euphorbia spinucapsula
Euphorbia umbraculiformis

REVIEW OF SUCCULENT SPECIES OF *EUPHORBIA* FROM MADAGASCAR



REPOBLIKAN'I MADAGASIKARA
Tanindrazana – Fahafahana – Fandrosoana

MINISTRE DE L'ENVIRONNEMENT,
DES FORETS ET DU TOURISME

SECRETARIAT GENERAL

DIRECTION GENERALE DE L'ENVIRONNEMENT
ET DES FORETS

DIRECTION DE LA VALORISATION DES
RESSOURCES NATURELLES

Antananarivo, le 30 SEP 2008,

Le Directeur de la Valorisation
des Ressources Naturelles *p.a.*

à

Monsieur le Secrétaire Général de la CITES
15 Chemin des Anémones
Case Postale 456
CH-1219 Châtelaine – Genève
Mail : willem.wijnstekers@cites.org

N° 314 /MEFT/SG/DGEF/DVRN/SGE

OBJET : Examen des espèces d'*Euphorbia* succulentes

Monsieur le Secrétaire Général,

Faisant suite à la notification aux Parties n°2008/042 du 3 Juillet 2008,
J'ai l'honneur de vous transmettre les informations émanant de notre Autorité
scientifique.

Vous en souhaitant bonne réception, veuillez recevoir, Monsieur le Secrétaire Général,
nos sincères salutations.

COPIE A :

- Mme Margarita Clemente
Présidente du Comité pour les Plantes
Mail : cr1elmmum@uc-es
- M. le Directeur Général de l'Environnement et des Forêts
« Pour compte-rendu »



BP : 610, Rue Fernand Kasanga - Tsimbazaza Antananarivo -101-
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Scientific names	IUCN status	Range	Threatened by harvest and international trade
<i>Euphorbia alcornis</i>	CR	Ampotaka (NW Imerina)	no
<i>Euphorbia ambovombensis</i>	VU	Ambovombe (Région Androy)	yes
<i>Euphorbia analalavensis</i>	VU	Analalava, Ambondro-Ampasy	no
<i>Euphorbia analavelonensis</i>	VU		
<i>Euphorbia andrefandrovana</i>	–		
<i>Euphorbia ankarensis</i>	EN	Ankarana (Nord de Mscar)	yes
<i>Euphorbia antso</i>	LC	Plateau de Mahafaly (Région d'Atsimo Andrefana, Androy)	no
<i>Euphorbia aspericaulis</i>	–		
<i>Euphorbia astrophora</i>	–		
<i>Euphorbia banae</i>	VU	Ampanihy et Androka (Région Androy)	yes
<i>Euphorbia beharensis</i>	VU	Behara (Région Anosy)	yes
<i>Euphorbia beharensis guillemetii</i>	VU	Ranomainty (Région Androy)	yes
<i>Euphorbia beharensis squarrosa</i>	VU	Tolagnaro (Région Anosy)	yes
<i>Euphorbia beharensis truncata</i>	VU	Behara (Région Anosy)	yes
<i>Euphorbia berorohae</i>	CR	Beroroha (Région Anosy)	yes
<i>Euphorbia boinensis</i>	CR	Mont Tsitondroina (Région Amoron'i Mania)	no
<i>Euphorbia boissieri</i>	VU	Sainte Marie (Région Androy)	yes
<i>Euphorbia bongolavensis</i>	VU	Bongolova (Région Bongolava)	yes
<i>Euphorbia bosseri</i>	VU	Betroka (Région Anosy)	no
<i>Euphorbia brachyphylla</i>	EN	Bassin de Mangoky (Région Atsimo Andrefana)	yes
<i>Euphorbia capmanambatoensis</i>	CR	Cap Manambato	yes
<i>Euphorbia capsaintemariensis var tulearensis</i>	CR	Cap Sainte Marie (Région Androy)	yes
<i>Euphorbia capuronii</i>	VU	Plateau Mahafaly	yes
<i>Euphorbia caput-aureum</i>	DD	Manonkalala (Région Sava)	no
<i>Euphorbia cedrorum</i>	VU		no
<i>Euphorbia cremersii</i>	VU	Maevatanana, Antanimbary (Région Betsiboka)	yes
<i>Euphorbia cremersii cremersii</i>	VU	Mahajanga, Maevatanana (Région Boeny)	yes
<i>Euphorbia cremersii viridifolia</i>		Entre Maevatanana et Mahajanga	
<i>Euphorbia croizatii</i>	EN	Ampilira (nord-est de l'Androy) ; Ampasimpolaka, à l'est d'Ambovombe	yes
<i>Euphorbia cylindrifolia</i>	EN	Entre Manamboro et Taolagnaro	yes
<i>Euphorbia decaryi</i>	EN	Vinanibe près de Taolagnaro	yes
<i>Euphorbia decaryi robinsonii</i>	CR	Toliary	yes
<i>Euphorbia decaryi spirosticha</i>	VU	Près d'Ampotaka (sud d'Ampanihy)	yes
<i>Euphorbia delphinensis</i>	VU	Taolagnaro (Vinanibe).	yes
<i>Euphorbia duranii</i>	EN	Montagne d'Ankaratra ; Fianarantsoa	yes
<i>Euphorbia duranii ankaratrae</i>	VU	Montagne d'Ankaratra	yes
<i>Euphorbia elliotii</i>	EN	Taolagnaro	no
<i>Euphorbia enterophora</i>	LC	Fiheranana	yes
<i>Euphorbia enterophora crassa</i>	VU	Zazafotsy, Nord d'Ihosy	yes
<i>Euphorbia famantamboay</i>	VU	Environs de Beloha	no
<i>Euphorbia famantamboay famantanamboay</i>	VU	Taolagnaro à Ampanihy	no
<i>Euphorbia francoisii</i>	CR	Environs de Taolagnaro, entre le pic St Louis et la mer	yes
<i>Euphorbia francoisii crassicaulis</i>	VU	Andrahomana	yes
<i>Euphorbia francoisii francoisii</i>	CR	Taolagnaro	yes
<i>Euphorbia genoudiana</i>	VU	Mahafaly	
<i>Euphorbia hofstaetteri</i>	VU	plateau de la Table, près de Toliary et Tongobory	yes
<i>Euphorbia horombensis</i>	EN	Plateau Horombe	yes
<i>Euphorbia imerina</i>	EN	Antananarivo à Analavory	no
<i>Euphorbia intisy</i>	LC	Toliary, Itampolo, Taolagnaro	no
<i>Euphorbia kamponii</i>	EN	Toliary, Ifaty	no
<i>Euphorbia kondoi</i>	CR	Toliary	yes
<i>Euphorbia labatii</i>	CR	Andrafiabe (Camp des Américains) et Andavenoko	yes
<i>Euphorbia lacteal</i>	–		
<i>Euphorbia leandriana</i>	–		
<i>Euphorbia leucodendron</i>			
<i>Euphorbia lophogona</i>	VU	Taolagnaro à Sainte Marie (île).	yes
<i>Euphorbia mahabobokensis</i>	VU	Mahaboboka, Amanda	yes
<i>Euphorbia mainty</i>	LC	Sud, environs de Taolagnaro	no
<i>Euphorbia mangelsdorffii</i>	VU	entre Andapa et Sambava	no
<i>Euphorbia millii</i>	DD	Taolagnaro; sud de Betroka; près d' Ihosy, probablement entre Antsirabe et Fianarantsoa; probablement au nord d'Antananarivo, près de Maevatanana;	yes

Scientific names	IUCN status	Range	Threatened by harvest and international trade
		Large plateau près de l'Imerina; Forêt de Sakaraha (Zombitse) et Le Table de montagnes près de Toliary	
<i>Euphorbia millii bevilaniensis</i>	EN	Baie d'Antsiranana	yes
<i>Euphorbia moratii</i>	VU	Antsingy	yes
<i>Euphorbia moratii bemarahensis</i>	VU	Tsingy de Bemaraha.	yes
<i>Euphorbia moratii moratii</i>	VU	Tsingy de Bemaraha	yes
<i>Euphorbia neobosseri</i>	DD	Forêt de Sakaraha, Est de Toliary	yes
<i>Euphorbia neobosseri itampoloensis</i>	DD	Itampolo	yes
<i>Euphorbia neobosseri neobosseri</i>	DD	Sud Ouest de Madagascar, Sakaraha	yes
<i>Euphorbia pachypodioides</i>	CR	Ankarana	yes
<i>Euphorbia pachysantha</i>	LC	Est de Madagascar, Ambatondrazaka, Lac Alaotra, etc.	no
<i>Euphorbia parvicyathophora</i>	CR	près d'Anjamala	yes
<i>Euphorbia pauliana</i>	VU	Tsingy de Bemaraha	yes
<i>Euphorbia perrieri</i>	VU	Firingalava	yes
<i>Euphorbia perrieri perrieri</i>	EN	Tsingy de Namoroka, Ankarafantsika	yes
<i>Euphorbia platyclada</i>	VU	entre Amboasary et Taolagnaro	yes
<i>Euphorbia platyclada platyclada</i>	VU	Sud Ouest de madagascar, Taolagnaro à Ampanihy	no
<i>Euphorbia quartzitcola</i>	EN	Ambatofinandrahana	yes
<i>Euphorbia razafinjohanii</i>	DD		
<i>Euphorbia razafindratsirae</i>	CR	Tongobory	yes
<i>Euphorbia retrospina</i>	VU	environ d'Antanimora, en direction du Massif d'Angavo	no
<i>Euphorbia rossii</i>	VU	Mangoky, près de Nosy-Ambositra (Befandriana-Sud)	yes
<i>Euphorbia sakarahensis</i>	VU	Forêt de Sakaraha (Zombitse)	yes
<i>Euphorbia soaneranensis</i>			
<i>Euphorbia stenoclada</i>	LC	Ambatofinandrahana, Toliary à Taolagnaro, Ivohibe	no
<i>Euphorbia tardieuana</i>	DD	Anosivola	yes
<i>Euphorbia tirucalli</i>	LC		no
<i>Euphorbia tsimbazazae</i>			
<i>Euphorbia tulearensis</i>	CR	sud Ouest de Madagascar, Toliary et Saint Augustin	yes
<i>Euphorbia viquieri</i>	NT	Belombo, près Maevatanana	
<i>Euphorbia waringiae</i>	VU	Sud Ouest de Madagascar, Est d'Esomony	yes

Bibliographical references

HAEVERMANS, T. 2003. - Le genre *Euphorbia* L. (Euphorbiaceae) à Madagascar: phylogénie moléculaire et systématique. Muséum National d'Histoire Naturelle : Paris : Thèse de Doctorat : 240p.

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