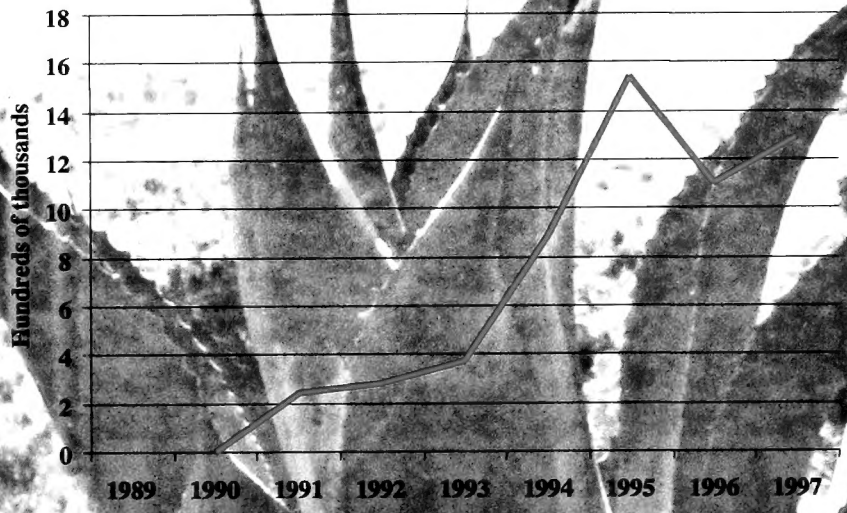
Succulent Plants in Trade from the Wild

Analysis of Conservation Status and International Trade



Prepared for the

Department of the Environment, Transport and the Regions

UK

by the

World Conservation Monitoring Centre

May 1999

Gerardo Fragoso

Harriet Gillett

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WORLD CONSERVATION MONITORING CENTRE

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Errata

With reference to:

Annex T. Non-CITES listed globally threatened succulent plants
Annex U. Non-CITES listed nationally threatened succulent plants

All succulent *Euphorbia*[1] are listed in the Appendices of CITES, therefore delete all *Euphorbia* records from the above annexes (Annex T, pages 148-150; Annex U, pages 161-163).

[1] Carter, S. & U. Eggli. 1997. *The CITES Checklist of Succulent Euphorbia Taxa (Euphorbiaceae).*

Contents

Summary

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the EU Wildlife Trade Regulations are both designed to control international trade in threatened species. Succulents form an important part of the international trade in horticultural and medicinal plants, and hence are listed under both pieces of legislation. This report on the international trade of succulent plants of wild extraction examined data on CITES and non-CITES listed succulent plants, to aid the implementation of these pieces of legislation and to identify species in need of greater levels of protection than currently exist. The analyses demonstrated that trade in CITES listed succulents of wild extraction is increasing substantially whilst at the same time the quality of reporting on the trade remains low. Furthermore, information on trade in non-CITES listed taxa is scarce. Details are given of threatened species that should be considered for inclusion or upgrading on both pieces of legislation. Recommendations are provided for action at all levels to support the long term sustainability of these species in the wild, including recommendations to Management Authorities and the countries identified as relevant.

It is evident that the existing level and quality of information available on trade in CITES listed species is insufficient to determine whether this trade is being controlled effectively. There is a pressing need for improvement in the management of relevant information, and consistent, complete reporting of imports and exports by the Parties. In addition, annual quotas should be set with reference to the threat status of the taxa concerned, to ensure that both pieces of legislation have their intended effect.

Acknowledgements

This review of conservation status and international conservation measures for succulent plants is based on input from a range of people and sources. John Caldwell (WCMC) provided outputs from the WCMC *CITES Trade Database* maintained at WCMC on behalf of the CITES Secretariat. Information on conservation status was integrated into the WCMC *World Threatened Plants Database* (*WTPD*) for this project by Rachel Bishop (WCMC). Harriet Gillett (project manager, WCMC) provided outputs from the *WTPD* with conservation status and distribution data. Gerardo Fragoso (WCMC) integrated the data from the WCMC *CITES Trade Database* and the *WTPD* and carried out the analyses. Craig Hilton-Taylor (IUCN/SSC), Teresa Mulliken (TRAFFIC International), John Caldwell, Tim Inskipp, Tim Johnson and Julie Reay (WCMC) are thanked for providing comments and advice. The report was produced by Gerardo Fragoso, Harriet Gillett and Rachel Bishop.

1. Introduction

1.1. Background

Succulents form an important part of the international trade in plants, due to their horticultural and medicinal value. This trade has a long history. In South Africa, for example, currently the leading export country for succulents, interest in collection and sale of succulent plants was already accelerating during the 1940s and 1950s (Newton & Chan, 1998). Plants from the wild still play an important component of this trade, despite efforts to encourage trade in artificially propagated specimens. This importance of succulents in international trade has led to their inclusion under international protection measures. Worldwide, the main instrument by which international trade in succulent plants is controlled is the Convention of International Trade in Endangered Species of Wild Fauna and Flora (CITES). This Convention came into force in 1976 and today includes 145 member states.

The general aim of CITES is to regulate trade in threatened species (i.e. export, re-export and import of live and dead specimens, parts or derivatives) which are listed in three appendices (see Annex A to this document). Appendix I includes species threatened with extinction and for which trade can only be authorised in exceptional circumstances for specimens of wild origin. Species listed on Appendix II are those which may be threatened by excessive levels of trade without appropriate regulations. Appendix II also contains species controlled because of their similarity in appearance to other regulated species. International trade in wild specimens of Appendix II species is allowed under the Convention but is controlled and monitored through a licensing system. Appendix III is used to protect species that are subject to regulation within the jurisdiction of a Party and for which the co-operation of other Parties is needed to prevent or restrict their exploitation.

CITES controls were initially implemented in the European Community by means of Council Regulation 3626/82, which came into force on 1 January 1984. This regulation went beyond the basic procedures of CITES by requiring, among other conditions, import, as well as export, permits for CITES Appendices II and III species brought into the Community. On 9 December 1997, the EU adopted Council Regulation (EC) No. 338/97 on the Protection of the Species of Wild Fauna and Flora by Regulating Trade Therein (Regulation (EC) 338/97), which entered into force on 1 June 1997. On 26 May of that year, the EU also adopted Commission Regulation (EC) No. 939/97, which laid down detailed rules concerning the implementation of Council Regulation (EC) No. 338/97. These two new Regulations implement the provision of CITES fully (see Annex A to this document), and include provisions to implement the recommendations of the Conference of the Parties. In addition, Regulation (EC) 338/97 allows for the inclusion of non-CITES listed species that are imported into the Community in such numbers as to warrant monitoring (see Annex B to this document). In this report these regulations are referred to as the Wildlife Trade Regulations.

Succulent plants protected by CITES may be listed at the species, genus or family level. Currently over 3,000 succulent plants are included, the majority of which are members of the family Cactaceae (1,208 taxonomically accepted names and a further 1,300 provisionally accepted names) (Hunt, 1992) which is listed at the family level, and the genera *Euphorbia* (succulent species only, c.370 spp.) and *Aloe* (365 spp.) (Mabberley, 1997). Many threatened succulents however, do not yet benefit from international trade controls imposed by CITES or the EU.

This project was designed to analyse the characteristics of the trade in CITES listed succulent plants of wild extraction, and provide information on other threatened succulents which are in need of protection by CITES and the Wildlife Trade Regulations. Member States of CITES and the EU are obliged to designate Management Authorities responsible for implementing the Convention and Regulation. The Management Authorities are responsible, amongst other things, for reporting annual trade in relevant traded species, the Wildlife Trade Regulations format being based on the format defined under CITES. These trade data are managed centrally on the WCMC *CITES Trade Database* maintained at the World Conservation Monitoring Centre (WCMC). Information on globally and

nationally threatened plants is maintained on the WCMC *World Threatened Plants Database (WTPD)*.

Trade and threat data for succulent plants were analysed in detail for this report to the Department of the Environment, Transport and the Regions (DETR). This is the first study in CITES listed succulent plants in trade to include a comprehensive analysis of the threat status of the species involved, which provides a powerful method of identifying priority action areas for their conservation.

1.2. Objectives

To analyse the conservation status and international trade of succulent plants of wild extraction to support the role of CITES and the Wildlife Trade Regulations in the conservation of these plants, through the:

- analysis on trade of succulent plants of wild origin listed by CITES according to the trade data in the WCMC *CITES Trade Database* and conservation data from the *WTPD*.

- examination of the conservation status of CITES listed species that may need more appropriate protection.

- documentation of succulent species not listed by CITES or the Wildlife Trade Regulations, but which may qualify for listing, building on conservation data in the *WTPD*.

1.3. Preliminary activities

As a first step, the existing data holdings on succulent species on the *WTPD* were developed as the basis for the analyses carried out in Sections 1-3 below. Additional information was incorporated mainly from the IUCN/SSC Cactus and Succulent specialist group Status Survey and Action Plan *Cactus and Succulent Plants* (Oldfield, 1997) and from a TRAFFIC (1998) report on trade in South African succulents. New distribution and threat status information was integrated and taxonomic issues verified.

1.4. Analyses and format of report

Comprehensive analyses of the trade and threat plant data were completed. A summary of the results is given in sections 2 - 6. Section 7 provides recommendations based on these analyses, to improve the effectiveness of CITES and the Wildlife Trade Regulations in supporting plant conservation. Full details of the underlying data are included in Annexes A - U.

2. CITES listed succulent plant species in trade from the wild

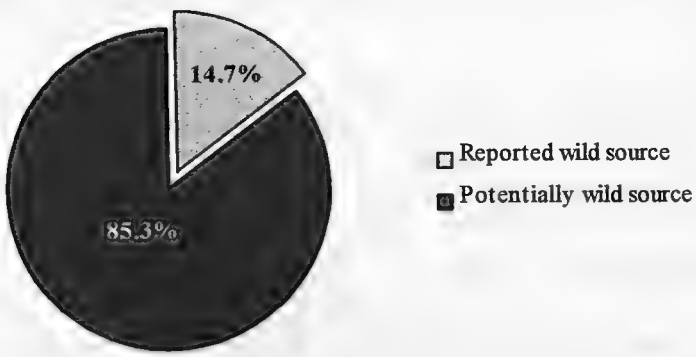
2.1 Characteristics of CITES trade data

The analyses of CITES listed succulent species in trade from the wild were based on outputs from the WCMC *CITES Trade Database* and the *WTPD* (Annex R). Initially all trade export records from the WCMC *CITES Trade Database* for the years 1989-1997 for succulent species were examined. The Wildlife Trade Regulations came into force in 1997 and trade data relating to these were therefore not available for analysis for this project. Only export data were considered, to avoid the double counting that would be involved if import data were also considered. Full details of the procedure followed to determine analysable data are given in Annex D.

2.1.1. Source of specimens in trade

CITES trade records were selected according to the source of the specimens involved (see Annex D to this document). Many of the transactions reported by the parties do not contain information regarding the source of the material in trade. While in principle those specimens could be of wild origin, it is not possible to make any assumptions. Unfortunately, this omission is a very common occurrence. Only 2,449 records (14.7%) are therefore available for analysis in this report, while 14,266 had to be discarded (figure 1).

Figure 1. Proportion of trade records where source was reported as wild, versus those for which source of specimens was not reported.



This omission has important implications for the interpretation of results presented below and their implication on future policies, as many of the figures presented in this report could be much greater in reality.

2.1.2. Terms and Units of items traded

The number of items traded in each transaction is reported to CITES using a wide range of terms and units. A full list of these terms and units used is included in Annex F. Different transactions on the same species may be reported, for instance, in terms of roots, extract, timber pieces, leaves, etc. These in turn can be expressed in units like cartons, cans, pieces, boxes, kilograms, pounds, etc. Whilst these Terms and Units reflect the nature of trade, they are of little relevance to conservation as it is not possible to interpret these numbers in terms of the live specimens affected by the trade. When reading the figures reported here, it should be kept in mind that the number of items reported does not in fact refer to individual specimens. An example of the nature of the data available for one species is presented in Table 1. A synoptic list of terms and units used for the items traded in each taxonomic family is given in Annex H.

Table 1. Terms and units of items reported for trade in *Aloe ferox*

	Trading Units								Total
Trading terms	cans	cartons	flasks	grammes	kilogrammes	pieces	pounds	<blank>	
derivatives					636				636
dried plants					3,148			102,142	105,290
extract	220	186		1,415	2,056,684		2,316	28,210	2,089,031
flowers								2,480	2,480
leaves					638			115,820	116,458
pieces								30,820	30,820
powder					4,428				4,428
stems								9	9
timber					3,643	9,642			13,285
timber pieces					12,382			154,253	166,635
unspecified			4		3,020				3,024
Total	220	186	4	1,415	2,084,579	9,642	2,316	433,734	2,532,096

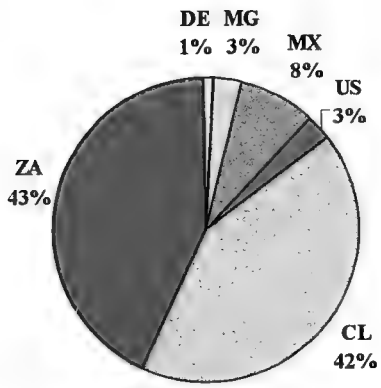
It is also worth noting that, as in the example above ('<blank>' column units in Table 1), units are frequently not specified in the transactions reported by the Parties.

Particularly in the case of trade from the wild, it is important to translate trade in number of specimens affected in order to allow a practicable system of quotas to be established.

2.2. Countries involved in trade

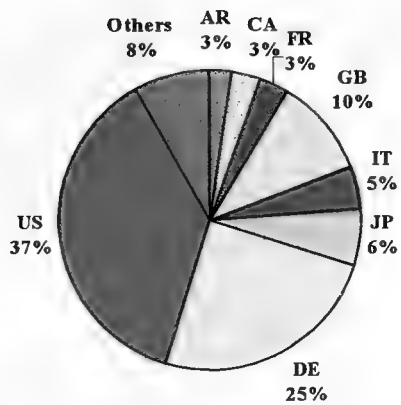
A total of 33 countries have reported exports of wild specimens between 1989 and 1997. Six of these (Chile, Germany, Madagascar, Mexico, South Africa and the USA), however, are responsible for more than 99% of all the volume exported (figure 2). Moreover, South Africa and Chile together comprise 85% of the total.

Figure 2. Proportion by country of the total volume of exports of CITES listed succulent plants from the wild[1].



Similarly, of the corresponding 64 importing countries, only eight (Argentina, Canada, France, Germany, Italy, Japan, the United Kingdom, and the USA) are responsible for 92% of the trade (figure 3). The United States, Germany and the United Kingdom together import 72% of the volume traded. A summary of the flow of trade between exporting and importing countries can be found in Annex I.

Figure 3. Proportion by country of the total volume of imports of CITES listed succulent plants from the wild.

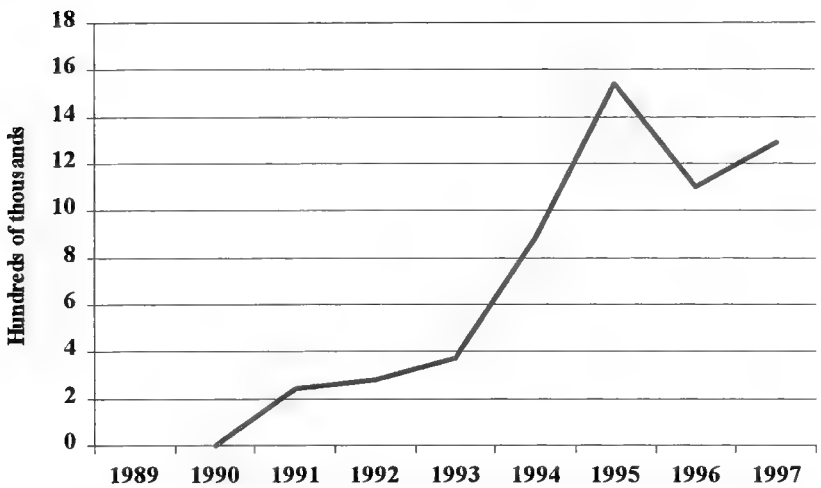


[1] A listing of ISO country codes used in this report is given in Annex G.

2.3. Trends in volume of trade

The trend through time in volume of trade reported by the six main exporting countries is summarised in figure 4. Trade in wild specimens has increased, from a relatively negligible base in 1989, to an unprecedented level in the last three years of the period under analysis.

Figure 4. Annual volume of trade in CITES listed succulents from the wild reported by exporting countries between 1989 and 1997



There is clearly an immediate need to assess the impact that current levels of trade are having on wild populations and for Parties to re-examine the policies and quotas[2] to be established on the basis of much lower levels of trade.

Details on the trade by the countries responsible for virtually all the exports are given in Annex N. Information is also provided for Peru, a country for which there has been an increasing trend in trade of CITES listed succulents of wild origin.

[2] As of 1999 plants are virtually excluded from the annual quotas set by CITES Parties and no succulent plants have been included. In 1997 no quotas were set for succulent plants either, despite the existing trade.

3. Threat status of CITES listed succulent plants in trade from the wild

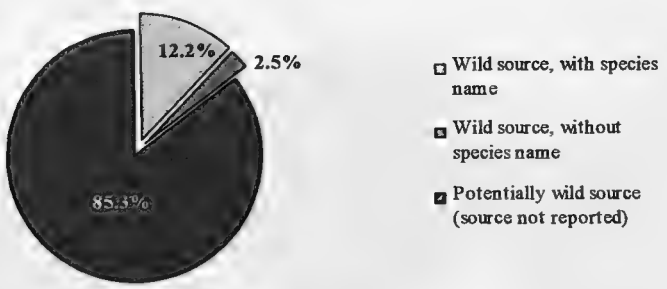
3.1. Identification of threatened plants in trade

The *WTPD* contains information for 1,495 CITES listed succulent plants. This information includes, amongst other things, the threat status of the taxon according to the original IUCN Threat Categories, that is: "E" endangered", "V" vulnerable. "R" rare, "I" indeterminate. Other categories, i.e. "K" unknown, "Q" no information, "nt" not threatened indicate that either the species is not threatened or that not enough information is available to establish confidently the level of threat for the taxon in question. Full details are given in Annex C. For this particular report species which were not identified as globally threatened but which included a sub-taxon that *is* threatened are indicated with the symbols "ssp. E", "ssp. V", "ssp. R" accordingly. Annex R provides a list of the 1,292 globally threatened succulent species which are listed by CITES.

The 2,449 records from the WCMC *CITES Trade Database* and the 1,292 records of globally threatened succulent plants from the *WTPD* were integrated to identify the threat status of succulent plants of wild origin which are being traded by the CITES Parties. However, these data could only be integrated when the trade record included the full taxon name (the term "full taxon" is used throughout this report to refer to transactions in which the species in trade is identified at the species or sub-species level, as opposed to those identified only at the genus or family level).

Of the 2,449 records of trade in specimens of wild origin, 414 were only reported to the family or genus level. However, most of these 414 reported families or genera include taxa that are threatened. This reduced the number of records for the full analyses to 12.2% (figure 5) of the total number of records that could in principle have been involved in this study, as previously discussed in section 2.1.1. Annex P lists these taxa by exporting country, with figures on the number of records reported by year. Over 30% of these records were reported by Madagascar, more than 20% by Chile and over 16% by the USA. Unfortunately the number of these records in general has not decreased in recent times, and without full species name it is not possible to determine the effect that these transactions are having.

Figure 5. Percent of CITES trade exports for which full taxon is given and wild source is specified



Comprehensive analyses were made of the analysable data (see Annexes L to P). These analyses examined threat status, country of export and import, units traded, and trends by year. However, the details presented need to be interpreted very cautiously, given that threat status was only determined for 12.2% of the data. The analyses do however illustrate the potentially powerful use to which these

trade analyses can be put in identifying priority areas for action if the underlying data are sufficiently robust.

The threat status of the taxa in trade included in CITES Appendices I and II are listed in Annexes L and M (to this report) respectively. (No succulent plants are listed in CITES Appendix III). Twenty five out of the 35 taxa listed in CITES Appendix I and 112 of the 406 taxa listed in Appendix II are threatened according to the *WTPD* (Table 2). If species that comprise a threatened sub-species are taken into account (see explanation of "ssp.E", "ssp.V" and "ssp. R" in Annex C), then the number of Appendix I threatened species in trade rises to 27, and the Appendix II threatened species rises to 130.

Table 2. Number and threat status of succulent species in trade from the wild listed on CITES Appendices I and II

CITES Appendix	Threat Status [1]												
	E	V	R	I	K	Q	nt	ssp. E	ssp. R	ssp. V	ssp. Q	n/a	Total
I	9	6	8	2	0	3	5	2	0	0	0	0	**35**
II	22	25	54	11	11	97	98	6	11	1	19	51	**406**
Total	**31**	**31**	**62**	**13**	**11**	**100**	**103**	**8**	**11**	**1**	**19**	**51**	**441**

[1] Definitions of threat status are given in Annex C

More than 50% of the volume of trade was in taxa whose threat status is considered as not threatened (category 'nt') (Annex O). In addition about 42% of the volume traded refers to taxa for which threat status was not known (categories 'K' and 'Q', 'n/a', 'ssp.'). Only 3.4% of the volume traded corresponded to taxa deemed as threatened (categories 'E', 'V', 'R', 'I'). A summary of the numbers involved is presented in figure 6.

Figure 6. Volume of trade in CITES listed succulent plants according to threat status

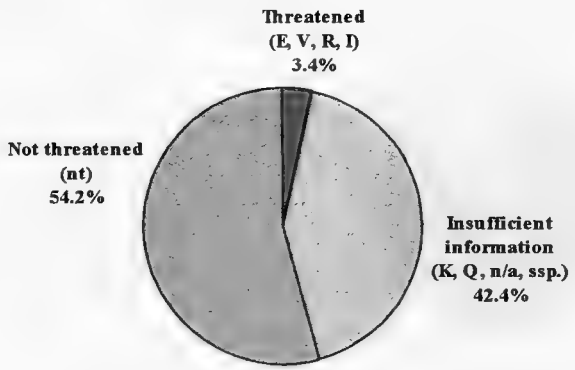


Figure 6 should be interpreted cautiously. There has been a significant increase in the level of trade in recent years. It is important to note that determination of the threat status of plant species is the result of an international effort, gathering and analysing data, for over a decade. The current levels of trade

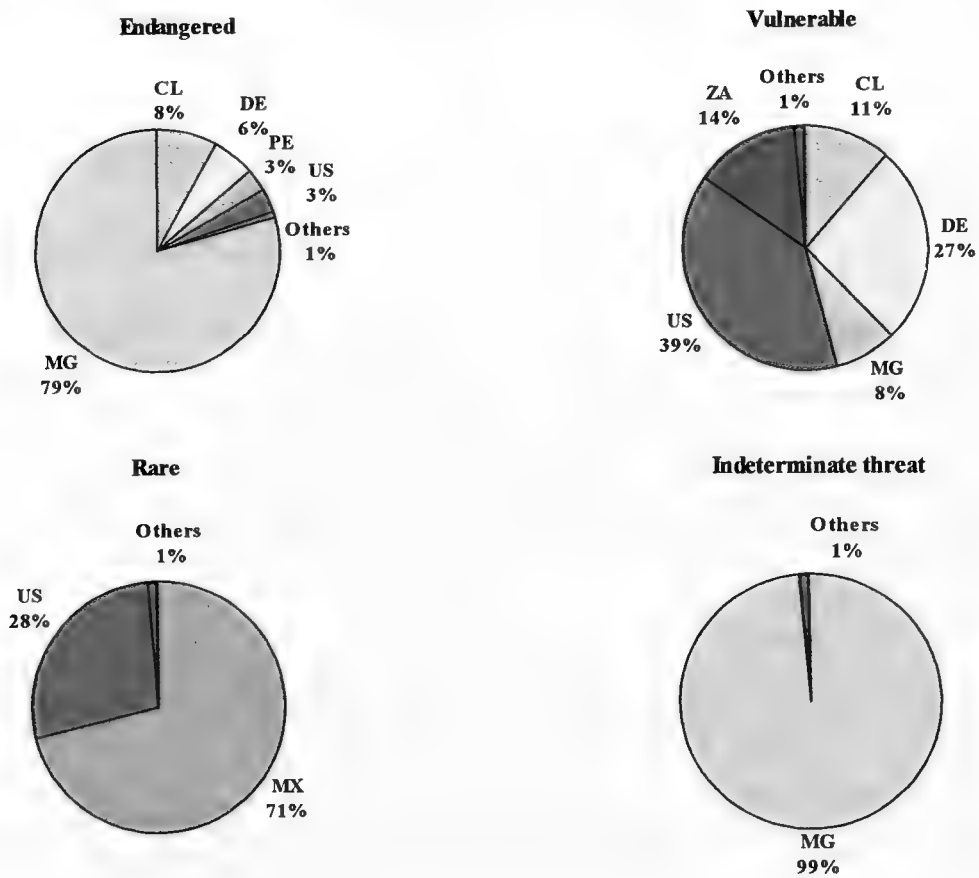
highlight the need to continually assess threat status to ensure that information reflects the impact of changes of pressures on natural populations, including pressure from trade in wild specimens.

3.2. Trade in threatened taxa by country

The impact that trade in threatened species can have on wild populations is reflected in the strict regulations imposed by CITES Appendix I and Annexes A and B of the Wildlife Trade Regulations. It is important to note, however, that some taxa listed in CITES Appendix II are threatened (see Annex M) and require consideration for listing in CITES Appendix I to give them a more adequate level of protection.

Seventy nine per cent of the trade in endangered species and 99% of the trade in species of Indeterminate threat were exported by Madagascar (figure 7). The USA, Mexico and South Africa are responsible for the majority of the exports of Vulnerable and Rare taxa. (NB Exports of Vulnerable species reported by Germany mostly correspond to the repatriation of seized specimens to Mexico - this is discussed in more detail in Section 7, Recommendations, at the end of this document).

Figure 7. Exports of endangered succulents - percentage by country



4. Non - CITES listed succulent plants in trade from the wild

According to Oldfield (1997) the international trade in non-CITES succulents involves a wide range of species which frequently appear to be threatened in the wild and/or collected in contravention of national laws. However, little information is available on the volume of this trade. There is a need for a process to be established to record trade in non-CITES listed succulents.

An exception is the recent report on trade in Southern African succulent plants produced by TRAFFIC (Newton & Chan, 1998). This report includes information on 76 species, listed here in Annex Q, of relevance for consideration for protection by international conservation measures. Of these, one is possibly already Extinct in the wild, nine are Endangered, 17 are Vulnerable, 13 are Rare and two are Indeterminate status.

The importance of this report in helping identify candidate species for listing, highlights the need for comparable reports to be produced for other regions with important succulent plant floras. Priority countries in need for reports of this nature include: Chile, Madagascar, Mexico and the USA (figure 2).

5. Potential species for inclusion in Annex D of the Trade Regulations

The criteria for listing in the Wildlife Trade Regulations Annex D (see Annex B to this report) include:

1. CITES Appendix III species subject to reservation
2. Non-CITES listed succulent species imported into the community in sufficient quantities to warrant monitoring.

Currently no plants listed in CITES Appendix III are subject to reservation and therefore there are no potential species for inclusion in Annex D under criterion 1.

Information on non-CITES listed succulent species currently being imported into the EC in sufficient quantities to warrant monitoring is generally not available and it has not been possible to identify plants for listing in Annex D according to the second criterion. Under the Integrated Tariff of the European Community (TARIC), regulations are given for the import into the EC of plant material. However, under these regulations any succulents imported are listed under a general category of "other", hence identification of any trade in succulents is not possible. Given the general absence of information on European trade in non-CITES listed succulents, all the species listed in Annex Q of this report could be considered as priorities for inclusion, as a minimum, in Annex D of the Wildlife Trade Regulations.

6. Candidate species for further examination

Candidates for listing by CITES and the Wildlife Trade Regulations were identified from distribution and threat status information available on the *WTPD*.

Globally threatened plants
Globally threatened plants are clear candidates for consideration for inclusion on both pieces of legislation. The list of 804 plants included in Annex T should be priorities for inclusion.

Nationally threatened plants

The 238 plants included in Appendix U are listed as threatened in at least one of the countries/regions in which they exist in the wild. Each species is listed as "Q" at the global level either because information is missing on the threat status in other region(s), and/or because the complete distribution range of the species is not known. This list is a priority for further research. Information is needed on the range of each species and the size of the population, to determine the global status.

Finally, Annex S includes CITES listed nationally threatened plants. Further research is needed to determine their global status.

7. Recommendations

A comprehensive list of 108 Action Proposals has been given in the IUCN/SSC Cactus and Succulents Group Action Plan, for conservation of succulents at all levels (see Oldfield, 1997). The majority (90) of these concern action at the country level. These proposals should be considered in addition to the recommendations listed below.

Whilst the recommendations given here should be applicable to all trade in protected species, they are essential where specimens of wild origin are concerned, if legislation is to have its intended effect.

A major problem limiting the usefulness of the efforts made by CITES to protect the world's flora is the poor level of reporting by the Parties. Previous reports have already commented on this problem in relation to CITES listed plants (Newton & Chan, 1998; Oldfield & Collins, 1996; Oldfield, 1997; WCMC (n.d.), and WCMC 1991). It is of fundamental importance that an administrative audit on the procedures followed by the different Parties is carried out in order to ensure that standard procedures are put in practice.

Listing priorities

1. Threatened taxa (i.e. Threat Status "Ex", "E", "V", "R" or "I") listed in Annex Q to this report should be considered for inclusion in CITES Appendix I. Other threat categories (i.e. "K", "Q") should be considered for inclusion in CITES Appendix II.

2. Threatened taxa (i.e. Threat Status "Ex", "E", "V", "R" or "I") currently listed in CITES Appendix II (see Annex M to this report) should be considered for listing in CITES Appendix I.

3. Threatened taxa (i.e. Threat Status "Ex", "E", "V", "R" or "I") in Annex T to this report should be considered for listing in CITES Appendix I. Other threat categories (i.e. "K", "Q") should be considered for inclusion to Appendix II.

4. Threatened taxa (i.e. Threat Status "Ex", "E", "V", "R" or "I") as well as other threat categories (i.e. "K" and "Q") in Annex U to this report should be considered by the Parties for listing in CITES Appendix III.

Quotas

5. Each Party issuing permits for exports of wild specimens should declare annual quotas. In 1999, 46 countries published export quotas. Only two countries, Indonesia and Turkey, issued quotas for plant species, none of which were succulents. A system of global and national recommended quotas should be developed on the basis of global and national threat status.

Permit information

6. Parties report quantities permitted instead of quantities effectively traded or *vice versa*. Export and import reports to the CITES Authorities should state *both* the number of items permitted as well as the number of items actually traded.

7. Parties frequently do not specify source, terms, units, purpose or country of origin of the specimens involved in the transaction. It is of fundamental importance that all this information is reported to the relevant Management Authority *and* included in their annual reports to the CITES Secretariat.

8. Particularly in the case of trade in specimens of wild origin, reports to the CITES Secretariat should also be expressed in terms of whole specimens affected.

9. Particularly in the case of trade in specimens of wild origin, reports to the CITES Secretariat should identify the species or sub-taxon involved.

10. Export and Import reports to the CITES Secretariat should identify, for artificially propagated specimens, the nursery of origin and invoice number.

11. Seized shipments are currently registered as Source type "I". This prevents registration of the actual source of the seized material (e.g. "W" wild, "A" artificially propagated, etc.). The procedure for recording seized specimens should be amended to allow the actual source of the material to be recorded as well as their identification as seized objects.

Country specific recommendations

12. Recommendations are given for the major exporting countries and Peru, based on details given in Annex N.

Chile. Chile is responsible for 42% of the volume of exports in CITES listed succulents. Furthermore, over 50% of the exports reported by third parties are of Chilean origin. The country experienced a rapid increase in trade from 1992 to 1995, followed by a slight decline from 1995 to 1997. In total, twenty of the species exported by Chile are globally threatened or have a globally threatened sub-taxon. Eight percent of the exports in Endangered species, and eleven percent of the exports in Vulnerable species come from Chile. Given the importance of Chile as an exporting country in terms of volume of trade, it would be appropriate for close attention to be given to the population sizes of the taxa in trade.

Madagascar. In terms of global volume, Madagascar has played a relatively minor role (3% , see figure 2). However, exports from Madagascar have involved 72 species (16 of which are listed in CITES Appendix I) which are threatened or contain at least one threatened sub-taxon. Madagascar has exported 79% of the total trade in Endangered species by CITES Parties that took place between 1989 and 1997. Similarly, 11% of the exports in Vulnerable species, and 99% of the exports in species of Indeterminate threat have been exported by Madagascar. The level of exports from the country has fluctuated considerably between 1992 and 1997, and reached a low level in 1997. If trade were to rise again, the country should re-assess whether extraction of specimens of wild origin is sustainable, and should particularly pay attention to trade in threatened taxa.

Mexico. Exports of succulent plants have been banned by Mexico for 50 years. However, exports of succulents from the wild have been reported since 1993. Exports of *Opuntia fulgida* deserve special attention, as this is a Rare species. A large volume of these exports corresponds to plant fragments, and is not expected to have severely impacted natural populations. However, over a thousand live specimens were authorised for export in 1996. Some caution is advisable, given the magnitude of the volumes in trade. These transactions in *O. fulgida* make up for 70% of all exports of Rare species by CITES Parties between 1989 and 1997, and 66% of all exports in Threatened species in that period.

Peru. The volume of Peruvian exports of wild origin is small, but has experienced a drastic increase between 1995 and 1997. At least five of the species exported are Endangered and three are Vulnerable. Special attention should be given to threatened species if export volumes were to increase in the future.

South Africa. South Africa is the major exporter of wild collected succulents, being responsible for 43% of the trade. Furthermore, over 45% of the exports reported by third parties are of South African origin. South African exports have experienced a steady increase between 1989 and 1997. Fourteen percent of the exports in Vulnerable species are directly exported by South Africa. While only eight species appear to be threatened, natural populations should be kept under close observation due to the speed and magnitude of the increase in trade experienced by the country.

United States of America. In terms of volume, the United States of America plays a minor role (3% of total trade volume) as an exporter of CITES listed succulent plants collected from the wild. However, twenty-one of the species exported by the country are threatened or have a threatened sub-taxon, and deserve special attention. Moreover, 39% of the volume of CITES exports in Vulnerable, and 28% of all the volume of CITES exports in Rare species in trade from the wild are being exported by the USA. With the exception of 1997, the country has exhibited a pronounced increase in the level of exports, with a peak in 1996.

13. Reports on the export trade in non-CITES listed succulent plants are needed. Priority countries for these are: Chile, Madagascar, Mexico and the USA.

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9. Annexes

9.1. General Information

Annex A. CITES appendices

CITES Appendix 1
Includes all species threatened with extinction which are, or may be, affected by trade.

CITES Appendix II
a) Includes all species which although not necessarily currently threatened with extinction may become so unless trade is subject to strict regulation; and
b) Other species which must be subject to regulation in order that trade in certain specimens of species referred to in sub- paragraph (a) above may be brought under effective control, i.e., species similar in appearance.

CITES Appendix III
All species which any Party identifies as being subject to regulation within its jurisdiction for the purpose of preventing or restricting exploitation. The co-operation of other Parties is therefore needed.

Regulations on Appendix I and II listing (CITES, 1999)

Article III Regulation of Trade in Specimens of Species Included in Appendix I

1. All trade in specimens of species included in Appendix I shall be in accordance with the provisions of this Article.

2. The export of any specimen of a species included in Appendix I shall require the prior grant and presentation of an export permit. An export permit shall only be granted when the following conditions have been met:

(a) a Scientific Authority of the State of export has advised that such export will not be detrimental to the survival of that species;

(b) a Management Authority of the State of export is satisfied that the specimen was not obtained in contravention of the laws of that State for the protection of fauna and flora;

(c) a Management Authority of the State of export is satisfied that any living specimen will be so prepared and shipped as to minimize the risk of injury, damage to health or cruel treatment; and

(d) a Management Authority of the State of export is satisfied that an import permit has been granted for the specimen.

3. The import of any specimen of a species included in Appendix I shall require the prior grant and presentation of an import permit and either an export permit or a re-export certificate. An import permit shall only be granted when the following conditions have been met:

(a) a Scientific Authority of the State of import has advised that the import will be for purposes which are not detrimental to the survival of the species involved;

(b) a Scientific Authority of the State of import is satisfied that the proposed recipient of a living specimen is suitably equipped to house and care for it; and

(c) a Management Authority of the State of import is satisfied that the specimen is not to be used for primarily commercial purposes.

4. The re-export of any specimen of a species included in Appendix I shall require the prior grant and presentation of a re-export certificate. A re-export certificate shall only be granted when the following conditions have been met:

(a) a Management Authority of the State of re-export is satisfied that the specimen was imported into that State in accordance with the provisions of the present Convention;

(b) a Management Authority of the State of re-export is satisfied that any living specimen will be so prepared and shipped as to minimize the risk of injury, damage to health or cruel treatment; and

(c) a Management Authority of the State of re-export is satisfied that an import permit has been granted for any living specimen.

5. The introduction from the sea of any specimen of a species included in Appendix I shall require the prior grant of a certificate from a Management Authority of the State of introduction. A certificate shall only be granted when the following conditions have been met:

(a) a Scientific Authority of the State of introduction advises that the introduction will not be detrimental to the survival of the species involved;

(b) a Management Authority of the State of introduction is satisfied that the proposed recipient of a living specimen is suitably equipped to house and care for it; and

(c) a Management Authority of the State of introduction is satisfied that the specimen is not to be used for primarily commercial purposes.

Article IV Regulation of Trade in Specimens of Species Included in Appendix II

1. All trade in specimens of species included in Appendix II shall be in accordance with the provisions of this Article.

2. The export of any specimen of a species included in Appendix II shall require the prior grant and presentation of an export permit. An export permit shall only be granted when the following conditions have been met:

(a) a Scientific Authority of the State of export has advised that such export will not be detrimental to the survival of that species;

(b) a Management Authority of the State of export is satisfied that the specimen was not obtained in contravention of the laws of that State for the protection of fauna and flora; and

(c) a Management Authority of the State of export is satisfied that any living specimen will be so prepared and shipped as to minimize the risk of injury, damage to health or cruel treatment.

3. A Scientific Authority in each Party shall monitor both the export permits granted by that State for specimens of species included in Appendix II and the actual exports of such specimens. Whenever a Scientific Authority determines that the export of specimens of any such species should be limited in order to maintain that species throughout its range at a level consistent with its role in the ecosystems in which it occurs and well above the level at which that species might become eligible for inclusion in Appendix I, the Scientific Authority shall advise the appropriate Management Authority of suitable measures to be taken to limit the grant of export permits for specimens of that species.

4. The import of any specimen of a species included in Appendix II shall require the prior presentation of either an export permit or a re-export certificate.

5. The re-export of any specimen of a species included in Appendix II shall require the prior grant and presentation of a re-export certificate. A re-export certificate shall only be granted when the following conditions have been met:

(a) a Management Authority of the State of re-export is satisfied that the specimen was imported into that State in accordance with the provisions of the present Convention; and

(b) a Management Authority of the State of re-export is satisfied that any living specimen will be so prepared and shipped as to minimize the risk of injury, damage to health or cruel treatment.

6. The introduction from the sea of any specimen of a species included in Appendix II shall require the prior grant of a certificate from a Management Authority of the State of introduction. A certificate shall only be granted when the following conditions have been met:

(a) a Scientific Authority of the State of introduction advises that the introduction will not be detrimental to the survival of the species involved; and

(b) a Management Authority of the State of introduction is satisfied that any living specimen will be so handled as to minimize the risk of injury, damage to health or cruel treatment.

7. Certificates referred to in paragraph 6 of this Article may be granted on the advice of a Scientific Authority, in consultation with other national scientific authorities or, when appropriate, international scientific authorities, in respect of periods not exceeding one year for total numbers of specimens to be introduced in such periods.

Annex B. Criteria for listing on the Wildlife Trade Regulations Annexes

A summary of the criteria for listing on Annexes A,B,C and D of the Wildlife Trade Regulations is given below.

Annex	Description
A	All CITES Appendix I species for which no member states have made a reservation.
	Any species which is or may be in demand for utilisation in the Community of for international trade and which is either threatened with extinction or so rare that any level of trade would imperil the survival of the species
B	All other CITES Appendix II species for which no member states have made a reservation.
	Appendix I listed species for which a reservation has been made
	Any other species subject to levels of international trade that might not be compatible with its survival at an appropriate level (details of "appropriate" are given in the official text).
	Any other species with similar appearance whose listing is essential in order to ensure effective control of the target species.
	Species whose introduction may adversely impact the indigenous wild fauna and flora.
C	All CITES Appendix III species for which no reservation has been made, not included in Annex A or B.
	Species listed in Appendix II for which a reservation has been entered
D	Species not listed in Annexes A to C which are imported into the Community in such numbers as to warrant monitoring;
	Species listed in Appendix III to the Convention for which a reservation has been entered.

Annex C. Threat status information

1. The original IUCN Threat Categories

The original Red Data Book categories used by the World Conservation Monitoring Centre in compiling the *1997 IUCN Red List of Threatened Plants* to indicate the degree of threat to individual taxa in their wild habitats. Below are the formal definitions of the categories. **Note: There is a degree of subjectivity to the application of these categories, a subjectivity that will be diminished by a thorough understanding of and a strict adherence to these definitions.**

Extinct (Ex)

Taxa that are no longer known to exist in the wild after *repeated* searches of the type localities *and other known or likely places*.

Endangered (E)

Taxa in danger of extinction and whose survival is unlikely if the causal factors continue operating. Included are taxa whose numbers have been reduced to a critical level or whose habitats have been so drastically reduced that they are deemed to be in immediate danger of extinction.

Vulnerable (V)

Taxa believed likely to move into the Endangered category in the near future if the causal factors continue operating. Included are taxa of which most or all the populations are decreasing because of over-exploitation, extensive destruction of habitat or other environmental disturbance; taxa with populations that have been seriously depleted and whose ultimate security is not yet assured; and taxa with populations that are still abundant but are under threat from serious adverse factors throughout their range.

Rare (R)

Taxa with small world populations that are not at present Endangered or Vulnerable but are at risk. These taxa are usually localised within restricted geographic areas or habitats or are thinly scattered over a more extensive range.

Indeterminate (I)

Taxa known to be Extinct, Endangered, Vulnerable, or Rare but where there is not enough information to say which of the four categories is appropriate.

Insufficiently Known (K)

Taxa that are *suspected* but not definitely known to belong to any of the above categories because of the lack of information.

Out of Danger (O)

Taxa formerly included in one of the above categories, but are now considered relatively secure because effective conservation measures have been taken, or because the previous threat to their survival has been removed.

Not threatened (nt)

Taxa that are not in any of the above categories.

No information (?) or (Q)

Taxa for which there is no information.

2. Additional "threat" categories referred to in the current report

In the analyses of trade data in this report species were identified which although not threatened at the species level, included a globally threatened sub-species. A possibility therefore exists that trade in the species could involve a globally threatened sub-species. To monitor this, an additional audit was made to identify the highest level of threat of any sub-species for species otherwise not recorded as threatened. The categories:

- Ssp. E
- Ssp. V
- Ssp. R
- Ssp. I
- Ssp. Q

indicate the severest level of threat of a component sub-species.

3. Global versus National Threat Status

National status

National status is assigned to a plant for a particular country/region (BRU area, see this annex above) by an appropriate authority.

These comprise plants that are listed by an appropriate authority as threatened within a country/region (BRU area, see above). Information may or may not be available on the full range of states in which the plant occurs.

Global status

Global status is assigned (according to the original IUCN system of threat status see this annex, above) by the World Conservation Monitoring Centre, based on the national status information available.

Nationally threatened plants

Plants are considered nationally threatened if the national status is Ex, E, V, R or I.

Globally threatened plants

If the plant is threatened in all the areas in which it occurs and the full distribution of the plant is known, then it is considered to be globally threatened.

"Not threatened" plants

If the plant is listed as "not threatened" in at least one area, then globally it is considered to be not threatened.

Global status "not known" or "insufficiently known"

A global status of "not known" (? or Q) or insufficiently known "K" is recorded if:

1. information on the national status of a plant is not known in at least one area (and nowhere is it listed as "not threatened")

2. the plant is recorded as threatened in all areas in which it is recorded, but if it is not known whether this comprises the full distribution

Annex D. Process for selection of records for analysis

A 'record' from the *WCMC CITES Trade Database* is a unit of information containing the details of a reported transaction. As transactions are reported independently by the importing and exporting parties, each report is registerd in a separate record in the database. In a few cases (for instance when both reports arrive simultaneously for registration), a single record can contain the information reported by both parties. Some examples of these cases are illustrated in table D1. As it can be seen, the quantities reported by the importing and the exporting parties (I/Quant and E/Quant, respectively) do not always agree. There are various reasons for this, including, for instance, that

a) some parties report amounts in different formats (e.g. while one party may report the number of specimens, the other party may report the number of shipments).
b) some parties report permits issued (amount authorised for trade), while other parties report permits used (amount effectively traded; see table D2).

Table D1. Example of variability involved in quantity of items reported

No.	Year	Taxon	Imp.	Exp.	Origin	I/Quant	I/Unit	E/Quant	E/Unit
1	1991	Aloe ferox	IT	ZA				18,215	KG
2	1994	Aloe ferox	JP	ZA				75	G
3	1995	Aloe ferox	JP	ZA		500	G	1,340	G
4	1996	Aloe ferox	KR	IT	ZA	4,641	KG	1,191	KG
5	1996	Aloe ferox	DE	ZA		67,482	KG	145,510	KG
6	1996	Aloe ferox	KR	IT	ZA	4,641	KG	1,191	KG
7	1996	Aloe ferox	KR	DE	ZA	4,290	KG	1,480	KG
8	1997	Aloe ferox	US	DE	ZA	1,492	KG	16,884	KG
9	1997	Aloe ferox	KR	DE	ZA	6,260	KG	4,815	KG
10	1997	Aloe ferox	IT	ZA		18,000	KG	78,601	KG
11	1997	Aloe ferox	NI	DE	ZA			200	KG

Column titles:
Imp.= importing country; Exp.= exporting country;
I/Unit = Units of items reported by importer; E/Unit = Unit of item reported by exporter
I/Quant = Quantity reported by importing country; E/Quant = Quantity reported by exporting country;

In addition, some transactions are reported only by one of the parties involved. Thus, for instance, even when summing up the total number of items reported in *all* records (i.e. all trade in succulents reported between 1977 and 1997) the difference between total number of items in trade reported by the importing parties (58,653,313 items) is substantially different from the number reported by the exporting parties (74,015,564 items). That is a total of 15,362,251 items difference. Given the diversity of reasons for this difference, it is not possible to know the number of items effectively traded. The same situation applies therefore when, as in this case, a given subset of the data is investigated. However, as the quantity of items involved in a transaction is in principle reported by both parties, in order to prevent duplication of figures, the records analysed in this document are those reported by the exporting parties only.

A further problem in selecting the records to be analysed for the present report refers to the high number of records in which the source of the items in trade is not reported by the parties. It is pertinent to note here that there is a Source category 'U' - i.e. "unknown", please see Annex E for other Source codes - which can be used when the source is not known. It is therefore not possible to assume anything about the source of the material in trade when nothing is specified by the parties, and in principle the items traded could be of wild origin. The Source of a total of 14,266 out of a total of 39,408 records have been left blank by both the exporting and importing parties. Therefore, only those records in which the exporting party reported a wild source were included in this report, giving a total of 2,449 records or 5,719,339 items in trade.

Table D2. Most common reporting practices of quantities traded by CITES Parties

Country	AT	AT and PI	AT(?)	imp=AT exp=PI	NS	NS(PI?)	PI	PI (?)
AE					*			
AN					*			
AR							*	
AT					*			
AU					*			
BB					*			
BD	*							
BE	*							
BF					*			
BG					*			
BI							*	
BJ					*			
BM					*			
BN					*			
BO					*			
BR								*
BS							*	
BW					*			
BY	*							
BZ					*			
CA								*
CF					*			
CG					*			
CH				*				
CL					*			
CM					*			
CN							*	
CO							*	
CR					*			
CS					*			
CU							*	
CY					*			
CZ		*						
DE	*							
DK	*							
DO					*			
DZ					*			
EC					*			
EE			*					
EG					*			
ES	*							
ET					*			
FI	*							
FK	*							
FR					*			
GA			*					
GB	*							
GH					*			

Country	AT	AT and PI	AT(?)	imp=AT exp=PI	NS	NS(PI?)	PI	PI (?)
GI	*							
GL	*							
GM					*			
GN					*			
GQ					*			
GR	*							
GT					*			
GY	*							
HK							*	
HN					*			
HU	*							
ID							*	
IE	*							
IL					*			
IN					*			
IR					*			
IT					*			
JO							*	
JP						*		
KE	*							
KN					*			
KR							*	
KY					*			
LC							*	
LI				*				
LK					*			
LU							*	
MA							*	
MC					*			
MG							*	
ML								*
MN	*							
MT					*			
MU							*	
MW							*	
MX	*							
MY					*			
MZ					*			
NA							*	
NC					*			
NE					*			
NG					*			
NI					*			
NL	*							
NO	*							
NP					*			
NZ							*	
PA					*			
PE					*			
PF							*	
PG					*			

Country	AT	AT and PI	AT(?)	imp=AT exp=PI	NS	NS(PI?)	PI	PI (?)
PH					*		*	
PK							*	
PL					*			
PN	*							
PT							*	
PY					*			
RU								*
SC					*			
SD	*							
SE							*	
SG							*	
SK							*	
SL							*	
SN					*			
SR	*							
SU								*
SV							*	
TC			*					
TD					*			
TG					*			
TH				*				
TN					*			
TT					*			
TZ					*			
UG					*			
US	*							
UY					*			
VE					*			
VN					*			
VU					*			
ZA							*	
ZM					*			
ZR					*			
ZW					*			
Total	24	1	3	3	69	1	28	5
% of Total	18%	1%	2%	2%	51%	1%	21%	4%

Key to symbols used: AT = actual trade; NS = not stated; PI = permits issued

Annex E. Purpose and source code

The preferred purpose and source codes to be used in annual reports, as specified in CITES Notification to the Parties No.788, are as follows (WCMC, 1996).

The reported **purpose** of the transaction is shown as a one-letter code:

T Commercial Trade
M Bio-medical research
Q Circuses and travelling exhibitions
N Reintroduction or introduction into the wild
B Breeding in captivity or artificial propagation
L Enforcement (e.g. evidence in court, specimen for training)
P Personal
Z Zoos
S Scientific
H Hunting trophies
G Botanical Gardens
E Educational

The reported **source** of the transaction relates to the original source of the species being traded and again is shown by a one-letter code:

W Specimens taken from the wild
R Specimens originating from a ranching operation
D Appendix I animals bred in captivity for commercial purposes, or Appendix I plants artificially propagated for commercial purposes as well as parts and products thereof, exported under the provisions of Article VII, paragraph 4, of CITES.
A Plants that are artificially propagated in accordance with Resolution Conf. 9.18, paragraph a), as well as parts and products thereof, exported under the provisions of Article VII, paragraph 5 of the Convention (specimens of species included in Appendix I that have been propagated artificially for non-commercial purposes and specimens of species included in Appendix II and III)
C Animals bred captivity in accordance with Resolution Conf. 9.12 (Rev.), as well as parts and products thereof, exported under the provisions of Article VII, paragraph 5, of the Convention (specimens of species included in Appendix I that have been bred in captivity for non-commercial purposes and specimens included in Appendices II and III)
F First generation (F1) animals born in captivity, but which do not fulfil the definition of "bred in captivity" in Resolution Conf. 2.12 (Rev.), as well as parts and products thereof.
U Source unknown **(must be justified)**
I Confiscated or seized specimens
O Pre-Convention specimens

Annex F. Terms and units used

The preferred term codes to be used by CITES Parties are described in CITES Notification to the Parties. No.788. Below is a list of those terms. Additional terms used in the WCMC *CITES Trade Database* are highlighted in bold (WCMC, 1996).

TERMS

BEL	**belts**	FIB	fibres	LIV	live	**SKO**	**skin/leather items**
BOC	**bone carvings**	FLO	flowers	LPL	leather product (large)	SKP	skin pieces
BOD	bodies	FOO	feet	LPS	leather product	**SKS**	**skin scraps**
BON	bones	FPT	flower pots	(small)		SKU	skulls
BOP	piece - bone	**FRN**	**items of furniture**	LVS	leaves	SOU	soup
BPR	**bone products**	FRU	fruit	MEA	meat	SPE	scientific specimens
BUL	**bulbs**	GAB	gall bladders	MED	medicine	STE	stems
CAL	calipee	GAL	gall	MUS	musk	TAI	tail
CAP	carapace	GAR	garments	OIL	oil	TEE	tooth
CAR	carvings	GRS	graft rootstock	**PIE**	**pieces**	**TIC**	**timber carvings**
CLA	claws	HAI	hair	**PKY**	**piano keys (sets of)**	TIM	timber
CLO	cloth	**HAN**	**handbags**	PLA	plates	**TIP**	**timber (pieces)**
COR	raw corals	HOC	horn carvings	ROO	roots	**TIS**	**tissue cultures**
CST	**chess sets**	HOP	piece - horn	SAL	saw-logs	TRO	trophies
CUL	cultures	HOR	horns	SAW	sawn wood	TUS	tusks
DER	**derivatives**	**HOS**	**horn scraps**	SCA	scales	**UNS**	**unspecified**
DPL	dried plants	**HPR**	**horn products**	**SCR**	**scraps**	VEN	veneer
EAR	ears	**IVC**	**ivory carvings**	SEE	seeds	**WAL**	**wallets**
EGG	eggs	IVP	ivory pieces	SHE	shells	**WAT**	**watchstraps**
EGL	egg (live)	**IVS**	**ivory scraps**	**SHO**	**pairs of shoes**	WAX	wax
EXT	extract	**LEA**	**leather**	SKE	skeletons	**WOO**	**wood products**
FEA	feathers	LEG	legs	SKI	skins		

UNITS

BAG = bags	LTR = litres
BOT = bottles	MLT = millilitres
BOX = boxes	MTR = metres
CAN = cans	OUN = o unces
CAR = cartons	PAI = pairs
CAS = cases	PIE = pieces
CCM = cubic centimetres	PND = pounds
CTM = centimetres	SET = sets
CUF = cubic feet	SHP = shipments
CUM = cubic metres	SID = sides
FEE = feet	SQC = square centimetres
FLA = flasks	SQD = square decimeters
G = grammes	SQF = square feet
INC = inches	SQM = square metres
KG = kilogrammes	TON = metric tons

Annex G. ISO Country codes

Code	Name	Code	Name	Code	Name
AD	Andorra	CG	Congo	GL	Greenland
AE	United Arab Emirates	CH	Switzerland	GM	Gambia
AF	Afghanistan	CI	Côte d'Ivoire	GN	Guinea
AG	Antigua & Barbuda	CK	Cook Islands	GP	Guadeloupe
AI	Anguilla	CL	Chile	GQ	Equatorial Guinea
AL	Albania	CM	Cameroon	GR	Greece
AM	Armenia	CN	China	GS	S. Georgia & S. Sandwich Is.
AN	Netherlands Antilles	CO	Colombia	GT	Guatemala
AO	Angola	CR	Costa Rica	GU	Guam
AQ	Antarctica	CU	Cuba	GW	Guinea-Bissau
AR	Argentina	CV	Cape Verde	GY	Guyana
AS	American Samoa	CX	Christmas Is.	HK	Hong Kong
AT	Austria	CY	Cyprus	HM	Heard Is.
AU	Australia	CZ	Czech Republic	HN	Honduras
AW	Aruba	DE	Germany	HR	Croatia
AZ	Azerbaijan	DJ	Djibouti	HT	Haiti
BA	Bosnia & Herzegovina	DK	Denmark	HU	Hungary
BB	Barbados	DM	Dominica	ID	Indonesia
BD	Bangladesh	DO	Dominican Republic	IE	Ireland
BE	Belgium	DZ	Algeria	IL	Israel
BF	Burkina Faso	EC	Ecuador	IN	India
BG	Bulgaria	EE	Estonia	IO	British Indian Ocean Territory
BH	Bahrain	EG	Egypt	IQ	Iraq
BI	Burundi	EH	Western Sahara	IR	Iran
BJ	Benin	ER	Eritrea	IS	Iceland
BM	Bermuda	ES	Spain	IT	Italy
BN	Brunei Darussalam	ET	Ethiopia	JM	Jamaica
BO	Bolivia	FI	Finland	JO	Jordan
BQ	South Orkney Is.	FJ	Fiji	JP	Japan
BR	Brazil	FK	Falkland Is.	KE	Kenya
BS	Bahamas	FM	Micronesia	KG	Kyrgyzstan
BT	Bhutan	FO	Faroe Islands	KH	Cambodia
BV	Bouvet Is.	FR	France	KI	Kiribati
BW	Botswana	GA	Gabon	KM	Comoros
BY	Belarus	GB	United Kingdom	KN	St Kitts and Nevis
BZ	Belize	GD	Grenada	KP	North Korea
CA	Canada	GE	Georgia	KR	South Korea
CC	Cocos (Keeling) Is.	GF	French Guiana	KW	Kuwait
CD	Congo, Democratic Republic	GH	Ghana	KY	Cayman Is.
CF	Central African Republic	GI	Gibraltar	KZ	Kazakhstan

Code	Name	Code	Name	Code	Name
LA	Laos	NP	Nepal	SY	Syria
LB	Lebanon	NR	Nauru	SZ	Swaziland
LC	St Lucia	NU	Niue	TC	Turks & Caicos Is.
LI	Liechtenstein	NZ	New Zealand	TD	Chad
LK	Sri Lanka	OM	Oman	TF	French Southern Terr.
LR	Liberia	PA	Panama	TG	Togo
LS	Lesotho	PE	Peru	TH	Thailand
LT	Lithuania	PF	French Polynesia	TJ	Tajikistan
LU	Luxembourg	PG	Papua New Guinea	TK	Tokelau
LV	Latvia	PH	Philippines	TM	Turkmenistan
LY	Libya	PK	Pakistan	TN	Tunisia
MA	Morocco	PL	Poland	TO	Tonga
MC	Monaco	PM	St Pierre & Miquelon	TP	East Timor
MD	Moldova	PN	Pitcairn	TR	Turkey
MG	Madagascar	PR	Puerto Rico	TT	Trinidad & Tobago
MH	Marshall Is.	PT	Portugal	TV	Tuvalu
MK	Macedonia	PW	Palau	TW	Taiwan
ML	Mali	PY	Paraguay	TZ	Tanzania
MM	Myanmar	QA	Qatar	UA	Ukraine
MN	Mongolia	RE	Réunion	UG	Uganda
MO	Macau	RO	Romania	UM	US Minor Outlying Is.
MP	Northern Mariana Is.	RU	Russian Federation	US	USA
MQ	Martinique	RW	Rwanda	UY	Uruguay
MR	Mauritania	SA	Saudi Arabia	UZ	Uzbekistan
MS	Montserrat	SB	Solomon Is.	VA	Holy See
MT	Malta	SC	Seychelles	VC	St Vincent & Grenadines
MU	Mauritius	SD	Sudan	VE	Venezuela
MV	Maldives	SE	Sweden	VG	British Virgin Is.
MW	Malawi	SG	Singapore	VI	US Virgin Is.
MX	Mexico	SH	St Helena	VN	Viet Nam
MY	Malaysia	SI	Slovenia	VU	Vanuatu
MZ	Mozambique	SJ	Svalbard & Jan Mayen Is.	WF	Wallis & Fortuna Is.
NA	Namibia	SK	Slovakia	WS	Samoa
NC	New Caledonia	SL	Sierra Leone	YE	Yemen
NE	Niger	SM	San Marino	YT	Mayotte
NF	Norfolk Is.	SN	Senegal	YU	Yugoslavia
NG	Nigeria	SO	Somalia	ZA	South Africa
NI	Nicaragua	SR	Suriname	ZM	Zambia
NL	Netherlands	ST	Sao Tomé & Principe	ZW	Zimbabwe
NO	Norway	SV	El Salvador		

9.2. CITES listed succulent plants in trade from the wild

General trade analyses

Annex II. Terms and Units (number of items)

Term	Unit	Family									Total
		Agavaceae	Apocynaceae	Asclepiadaceae	Cactaceae	Didiereaceae	Euphorbiaceae	Fouquieriaceae	Liliaceae	Portulacaceae	
Carvings	(blank)				2,291,441						2,291,441
Derivatives	kilogrammes						300		636		936
Dried Plants	kilogrammes								3,148		3,148
	(blank)	5	40	9	124	12	176		102,158		102,524
Extract	cans								220		220
	cartons								186		186
	grammes								1,415		1,415
	kilogrammes								2,063,913		2,063,913
	pounds								2,316		2,316
	(blank)								28,210		28,210
Flowers	(blank)								2,480		2,480
Fruit	grammes								60		60
	(blank)				4				1		5
Live	flasks				1,290						1,290
	(blank)	2	3,361	48	11,055	2,863	153,717		2,235	27	173,308
Leaves	cartons								3		3
	grammes								30		30
	kilogrammes								5,638		5,638
	(blank)				2				115,824		115,826
Pieces	(blank)				102,700				30,820		133,520
Powder	kilogrammes								4,428		4,428
Roots	(blank)						30				30
Seeds	(blank)						10				10
Scientific	pounds				1						1
specimens	(blank)	36									36
Stems	(blank)				1,201		1		9		1,211
Timber carvings	(blank)				1,400						1,400
Timber	cubic metres				230			77			307
	kilogrammes				1,408				3,643		5,051
	pieces								9,642		9,642
	(blank)				149,809						149,809
Timber pieces	kilogrammes								12,382		12,382
	(blank)				451,259				154,253		605,512
Unspecified	flasks								4		4
	kilogrammes								3,020		3,020
	(blank)				27						27
Total		**43**	**3,401**	**57**	**3,011,951**	**2,875**	**154,234**	**77**	**2,546,674**	**27**	**5,719,339**

Annex I. Flow of Trade between Parties (number of items).

Importer's code	Exporter's code (countries AR to IT)																
	AR	BE	BO	BR	BS	CH	CL	CN	CR	CU	DE	DO	EC	ES	GB	GT	IT
AN																	
AR							1,804				3,043						
AT							10,992										
AU							34,489				750						
BE							12,297										
BM																	
BO							1,486										
BR							30				3,111						
CA							75,644				1,115						
CH							11,013				1,720						
CL							5				960						
CN							514										
CO							501										
CR											25						
CU																	
CY															51		
CZ																	
DE	113		161				344,643						36			10	
DK							5,595										
EC							199										
ES							20,666										
FI																	
FR						38	102,927										
GB	6			732			202,761			2							
GR							10,625										
HK							17,504	5,000									
HN											25						
HU																	
IE							25										
IL							372				1,792						
IT							11,174										
JP							20,851	3			56		5		2,050		
KE																	
KR		286				2,517		301			9,805						9,291
KY																	

Importer's code	Exporter's code (countries AR to IT)																
	AR	BE	BO	BR	BS	CH	CL	CN	CR	CU	DE	DO	EC	ES	GB	GT	IT
LB																	
LC																	
LI											15						
LK																	
LU																	
MC	53																
MX							3				3,840						
MY							3										
NA																	
NE																	
NI											200						
NL							23,360										
NO							708				32						
NZ							3,146										
PE							270										
PH																	
PL											7,534						
PR							705					54					
PT							486										
PY											500						
QA																	
RE																	
SA																	
SE							6,286										
SG							710										
SL																	
SZ													2				
TH																	
TR											1,519						
TW							230										
US	240				7		1,460,341		20		27,454	52	170	2,500	2	20	
UY							430										
VE							84										
VG												34					
XX																	
ZA							15				5,043						
ZW																	
Totals	**412**	**286**	**161**	**732**	**7**	**2,555**	**2,382,894**	**5,304**	**20**	**2**	**68,539**	**140**	**213**	**2,500**	**2,103**	**30**	**9,291**
%	0	0	0	0	0	0	42	0	0	0	1	0	0	0	0	0	0

Importer's code	Exporter's code (countries KE to ZA)																	
	KE	KR	KY	MA	MG	MX	MZ	NA	NI	NL	PE	PY	SN	SR	US	ZA	Totals	%
AN															168		168	0
AR											25	34				141,300	146,206	3
AT					77											14,307	25,376	0
AU					29										16,762	550	52,580	1
BE					110										39	2,211	14,657	0
BM															129		129	0
BO																	1,486	0
BR															202	500	3,843	0
CA					4										34,328	68,801	179,892	3
CH					1,828							4	4		5,045	2,500	22,114	0
CL												8					973	0
CN																500	1,014	0
CO																2,076	2,577	0
CR																	25	0
CU			3														3	0
CY															3		54	0
CZ					572				6								578	0
DE	30	350			98,785				9						44,702	939,955	1,428,794	25
DK															2,362	2,384	10,341	0
EC																	199	0
ES															1,095	31,429	53,190	1
FI															1,170		1,170	0
FR					53,687	5					1,050				353	7,896	165,956	3
GB					213										5,774	391,205	600,693	11
GR															710	16,144	27,479	0
HK					6										832		23,342	0
HN																	25	0
HU																1,769	1,769	0
IE															200		225	0
IL															227	1,323	3,714	0
IT				1,000	131										1,078	256,644	270,027	5
JP		122			2,790	150									31,068	307,151	364,246	6
KE					35											5,933	5,968	0
KR																	22,200	0
KY															292		292	0

Importer's code	Exporter's code (countries KE to ZA)																	
	KE	KR	KY	MA	MG	MX	MZ	NA	NI	NL	PE	PY	SN	SR	US	ZA	Totals	%
LB																800	800	0
LC															72		72	0
LI																	15	0
LK																13,100	13,100	0
LU					14												14	0
MC																	53	0
MX															981		4,824	0
MY															36		39	0
NA																100	100	0
NE															3		3	0
NI																	200	0
NL					912						150			5	2,979	44,896	72,302	1
NO																62	802	0
NZ															2,409		5,555	0
PE																	270	0
PH															2		2	0
PL																	7,534	0
PR																	759	0
PT					100		2								778	700	2,066	0
PY																	500	0
QA										2					80		82	0
RE					794												794	0
SA															108	16,059	16,167	0
SE																12,498	18,784	0
SG					4										448	9	1,171	0
SL																2,500	2,500	0
SZ																	2	0
TH					110										7		117	0
TR																5,950	7,469	0
TW					32										221	1,855	2,338	0
US	30				945	464,332					190	177				163,027	2,119,507	37
UY																	430	0
VE															120		204	0
VG																	34	0
XX					9										1,185	3,000	4,194	0
ZA					110			25							3		5,196	0
ZW					35												35	0
Totals	60	472	3	1,000	161,332	464,487	2	25	15	2	1,415	223	4	5	155,971	2,459,134	5,719,339	100%
%	0	0	0	0	3	8	0	0	0	0	0	0	0	0	3	43	100%	

Annex J. Third Party Exports (number of items)

Country of origin code	Exporter code										Total
	BE	CH	DE	DO	ES	GB	IT	KR	NL	US	
CL			1,354			2,101				88,859	92,314
CO								122			122
IE										200	200
MG		38									38
MX			1,242							980	2,222
TH				4							4
US									2		2
XX	286					2				2	290
ZA		2,517	65,943		2,500		9,291	350			80,601
Total	**286**	**2,555**	**68,539**	**4**	**2,500**	**2,103**	**9,291**	**472**	**2**	**90,041**	**175,793**

Annex K. Purpose of trade (number of items)

Purpose	Family									Total
	Agavaceae	Apocynaceae	Asclepiadaceae	Cactaceae	Didiereaceae	Euphorbiaceae	Fouquieriaceae	Liliaceae	Portulacaceae	
Breeding				801						801
Educational				4	1	1				6
Botanic Gardens		3		10		20		4		37
Introduction into the wild				1,242						1,242
Personal		842	20	15	1,248	1,604		786		4,515
Exhibition		25						25		50
Scientific	5	63	9	3,575	81	311		168	9	4,221
Commercial Trade		2,468	28	3,001,706	1,545	152,176	77	2,545,656	18	5,703,674
(blank)	38			4,598		122		35		4,793
Total	**43**	**3,401**	**57**	**3,011,951**	**2,875**	**154,234**	**77**	**2,546,674**	**27**	**5,719,339**

9.3. CITES listed succulent plants in trade from the wild

Trade analyses according to threat status

Annex L. Threat status of CITES Appendix I listed plants in trade

Family	Taxon	Threat Status										
		E	V	R	I	K	Q	nt	ssp. E	ssp. R	ssp. V	ssp. Q
Agavaceae	Agave parviflora			*								
Agavaceae Total				1								
Apocynaceae	Pachypodium baronii								*			
	Pachypodium decaryi	*										
Apocynaceae Total		1							1			
Cactaceae	Ariocarpus trigonus		*									
	Discocactus bahiensis			*								
	Discocactus placentiformis				*							
	Mammillaria solisioides	*										
	Melocactus paucispinus		*									
	Pachycereus militaris							*				
	Strombocactus disciformis							*				
	Turbinicarpus gautii		*									
	Turbinicarpus knuthianus			*								
	Turbinicarpus lophophoroides		*									
	Turbinicarpus pseudomacrochele		*									
	Turbinicarpus pseudopectinatus							*				
	Turbinicarpus schwarzii		*									
	Turbinicarpus subterraneus						*					
	Turbinicarpus valdezianus							*				
Cactaceae Total		1	6	2	1		1	4				
Euphorbiaceae	Euphorbia cremersii						*					
	Euphorbia decaryi				*							
	Euphorbia francoisii							*				
	Euphorbia quartziticola			*								
	Euphorbia tulearensis						*					
Euphorbiaceae Total				1	1		2	1				
Liliaceae	Aloe bakeri			*								
	Aloe bellatula	*										
	Aloe calcairophila	*										
	Aloe compressa								*			
	Aloe delphinensis			*								
	Aloe descoingsii	*										
Liliaceae	Aloe fragilis	*										
	Aloe helenae	*										
	Aloe parallelifolia	*										
	Aloe parvula	*										
	Aloe rauhii			*								
	Aloe versicolor			*								
Liliaceae Total		7		4					1			
Appendix I Total		9	6	8	2	0	3	5	2	0	0	0

Annex M. Threat status of CITES Appendix II listed plants in trade

Family	Taxon	Threat Status											
		E	V	R	I	K	Q	nt	ssp. E	ssp. R	ssp. V	ssp. Q	n/a
Apocynaceae	Pachypodium ambongense	*											
	Pachypodium bispinosum						*						
	Pachypodium brevicaule							*					
	Pachypodium densiflorum									*			
	Pachypodium geayi							*					
	Pachypodium horomboense									*			
	Pachypodium lamerei									*			
	Pachypodium lealii						*						
	Pachypodium namaquanum		*										
	Pachypodium rosulatum									*			
	Pachypodium rutenbergianum							*					
	Pachypodium rutenbergianum var. meridionale							*					
	Pachypodium sofiense							*					
	Pachypodium succulentum						*						
Apocynaceae Total		1	1				3	5		4			
Asclepiadaceae	Ceropegia armandii	*											
	Ceropegia dimorpha			*									
	Ceropegia razafindratsirana	*											
Asclepiadaceae Total		2		1									
Cactaceae	Armatocereus balsasensis						*						
	Armatocereus mataranus						*						
	Armatocereus matucanensis						*						
	Armatocereus oligogonus						*						
	Armatocereus procerus						*						
	Armatocereus rauhii						*						
	Astrophytum capricorne								*				
	Astrophytum myriostigma		*										
	Astrophytum ornatum				*								
	Austrocactus bertinii						*						

Family	Taxon	Threat Status											
		E	V	R	I	K	Q	nt	ssp. E	ssp. R	ssp. V	ssp. Q	n/a
Cactaceae	Bergerocactus emoryi			*									
	Blossfeldia liliputana						*						
	Browningia candelaris		*										
	Browningia chlorocarpa						*						
	Browningia pilleifera						*						
	Calymmanthium substerile						*						
	Carnegiea gigantea						*						
	Cereus aethiops						*						
	Cereus fernambucensis							*					
	Cleistocactus baumannii						*						
	Cleistocactus fieldianus						*						
	Coleocephalocereus fluminensis							*					
	Coleocephalocereus pluricostatus			*									
	Copiapoa bridgesii			*									
	Copiapoa calderana			*									
	Copiapoa chaniaralensis			*									
	Copiapoa cinerascens							*					
	Copiapoa cinerea							*					
	Copiapoa cinerea cinerea												*
	Copiapoa cinerea columna-alba												*
	Copiapoa cinerea gigantea												*
	Copiapoa cinerea haseltoniana												*
	Copiapoa coquimbana			*									
	Copiapoa desertorum	*											
	Copiapoa echinoides							*					
	Copiapoa fiedleriana			*									
	Copiapoa humilis		*										
	Copiapoa hypogaea			*									
	Copiapoa krainziana		*										
	Copiapoa longistaminea			*									
	Copiapoa malletiana			*									
	Copiapoa marginata			*									

Family	Taxon	Threat Status												
		E	V	R	I	K	Q	nt	ssp. E	ssp. R	ssp. V	ssp. Q	n/a
Cactaceae	Copiapoa megarhiza								*				
	Copiapoa montana							*					
	Copiapoa montana montana												*
	Copiapoa rupestris	*											
	Copiapoa serpentisulcata							*					
	Copiapoa solaris		*										
	Copiapoa tocopillana	*											
	Copiapoa varispinata			*									
	Corryocactus chachapoyensis						*						
	Corryocactus tarijensis						*						
	Coryphantha pallida							*					
	Disocactus flagelliformis												*
	Disocactus martianus												*
	Disocactus schrankii												*
	Echinocactus horizonthalonius						*						
	Echinocactus polycephalus						*						
	Echinocereus engelmannii								*				
	Echinocereus fendleri								*				
	Echinocereus knippelianus		*										
	Echinocereus nicholii		*										
	Echinocereus palmeri	*											
	Echinocereus pamanesiorum				*								
	Echinocereus pectinatus							*					
	Echinocereus pulchellus		*										
	Echinocereus rigidissimus											*	
	Echinocereus scheeri											*	
	Echinocereus stoloniferus tayopensis							*					
	Echinocereus stramineus											*	
	Echinocereus triglochidiatus									*			
	Echinopsis chiloensis						*						
	Echinopsis cuzcoensis						*						
	Echinopsis ferox						*						

Family	Taxon	Threat Status											
		E	V	R	I	K	Q	nt	ssp. E	ssp. R	ssp. V	ssp. Q	n/a
Cactaceae	Echinopsis formosa						*						
	Echinopsis lateritia						*						
	Echinopsis maximiliana						*						
	Echinopsis pachanoi						*						
	Echinopsis puquiensis						*						
	Echinopsis santaensis						*						
	Echinopsis thionantha						*						
	Epiphyllum phyllanthus											*	
	Epithelantha micromeris								*				
	Eriosyce aurata												*
	Eriosyce confinis												*
	Eriosyce crispa												*
	Eriosyce curvispina												*
	Eriosyce esmeraldana												*
	Eriosyce heinrichiana												*
	Eriosyce heinrichiana intermedia												*
	Eriosyce krausii												*
	Eriosyce kunzei												*
	Eriosyce napina												*
	Eriosyce napina napina												*
	Eriosyce odieri												*
	Eriosyce odieri glabrescens												*
	Eriosyce odieri odieri												*
	Eriosyce rodentiophila		*										
	Eriosyce senilis												*
	Eriosyce subgibbosa												*
	Eriosyce subgibbosa clavata												*
	Eriosyce taltalensis												*
	Eriosyce taltalensis echinus												*
	Eriosyce taltalensis pauciostata												*
	Eriosyce taltalensis pilispina												*
	Eriosyce taltalensis taltalensis												*

Family	Taxon	Threat Status												
		E	V	R	I	K	Q	nt	ssp. E	ssp. R	ssp. V	ssp. Q	n/a
Cactaceae	Eriosyce villosa												*
	Escobaria vivipara						*						
	Espostoa blossfeldiorum						*						
	Espostoa melanostele						*						
	Espostoa mirabilis						*						
	Eulychnia acida							*					
	Eulychnia breviflora							*					
	Eulychnia castanea							*					
	Eulychnia iquiquensis			*									
	Ferocactus cylindraceus			*									
	Ferocactus emoryi		*										
	Ferocactus latispinus							*					
	Ferocactus townsendianus		*										
	Ferocactus wislizeni						*						
	Frailea cataphracta						*						
	Frailea schilinzkyana						*						
	Gymnocalycium baldianum						*						
	Gymnocalycium marsoneri						*						
	Gymnocalycium mihanovichii						*						
	Gymnocalycium pflanzii						*						
	Gymnocalycium schroederianum						*						
	Gymnocalycium schroederianum paucicostatum												*
	Haageocereus limensis	*											
	Haageocereus multangularis	*											
	Haageocereus pacalaensis						*						
	Haageocereus tenuis						*						
	Haageocereus versicolor						*						
	Haageocereus zangalensis						*						
	Harrisia divaricata						*						
	Harrisia gracilis						*						
	Harrisia nashii						*						
	Harrisia tetracantha						*						

Family	Taxon	Threat Status											
		E	V	R	I	K	Q	nt	ssp. E	ssp. R	ssp. V	ssp. Q	n/a
Cactaceae	Hatiora salicornioides							*					
	Hylocereus costaricensis						*						
	Hylocereus lemairei						*						
	Hylocereus undatus												*
	Lasiocereus rupicola						*						
	Lepismium cruciforme							*					
	Leptocereus paniculatus						*						
	Leptocereus weingartianus						*						
	Maihuenia patagonica						*						
	Maihuenia poeppigii							*					
	Mammillaria elongata												*
	Mammillaria grahamii							*					
	Mammillaria haageana elegans												*
	Mammillaria humboldtii		*										
	Mammillaria lasiacantha						*						
	Mammillaria longiflora		*										
	Mammillaria moelleriana			*									
	Mammillaria pottsii						*						
	Mammillaria prolifera											*	
	Mammillaria rekoi							*					
	Mammillaria rhodantha							*					
	Mammillaria saboae		*										
	Mammillaria senilis		*										
	Mammillaria wrightii wilcoxii												*
	Matucana aurantiaca		*										
	Matucana formosa		*										
	Matucana haynei						*						
	Matucana haynei herzogiana						*						
	Melocactus azureus		*										
	Melocactus bahiensis							*					
	Melocactus bellavistensis						*						
	Melocactus ernestii							*					

Family	Taxon	Threat Status											
		E	V	R	I	K	Q	nt	ssp. E	ssp. R	ssp. V	ssp. Q	n/a
Cactaceae	Melocactus intortus							*					
	Melocactus lemairei						*						
	Melocactus levitestatus							*					
	Melocactus pachyacanthus		*										
	Melocactus peruvianus						*						
	Micranthocereus purpureus							*					
	Mila caespitosa	*											
	Mila caespitosa nealeana	*											
	Neobuxbaumia polylopha			*									
	Neoraimondia arequipensis						*						
	Neoraimondia herzogiana						*						
	Neowerdermannia chilensis						*						
	Neowerdermannia vorwerkii						*						
	Opuntia acanthocarpa						*						
	Opuntia acaulis						*						
	Opuntia antillana						*						
	Opuntia arbuscula							*					
	Opuntia articulata						*						
	Opuntia bigelovii			*									
	Opuntia brasiliensis						*						
	Opuntia caribaea						*						
	Opuntia chlorotica						*						
	Opuntia cholla							*					
	Opuntia clavarioides			*									
	Opuntia domeykoensis												*
	Opuntia echinocarpa				*								
	Opuntia ekmanii						*						
	Opuntia falcata						*						
	Opuntia ficus-indica						*						
	Opuntia floccosa						*						
	Opuntia fulgida			*									
	Opuntia ignescens							*					

Family	Taxon	Threat Status												
		E	V	R	I	K	Q	nt	ssp. E	ssp. R	ssp. V	ssp. Q	n/a	
Cactaceae	Opuntia leptocaulis						*							
	Opuntia millspaughii						*							
	Opuntia miquelii							*						
	Opuntia moniliformis						*							
	Opuntia ovata							*						
	Opuntia pachypus	*												
	Opuntia punta-caillan						*							
	Opuntia quitensis						*							
	Opuntia santa-rita		*											
	Opuntia sphaerica							*						
	Opuntia spinosissima			*										
	Opuntia subulata						*							
	Opuntia taylori						*							
	Opuntia versicolor							*						
	Oreocereus celsianus						*							
	Oreocereus hempelianus			*										
	Oreocereus trollii						*							
	Pachycereus marginatus							*						
	Pachycereus pringlei							*						
	Pachycereus schottii							*						
	Parodia maassii						*							
	Parodia submammulosa												*	
	Pereskia portulacifolia			*										
	Pereskia quisqueyana	*												
	Pilosocereus magnificus							*						
	Pilosocereus polygonus						*							
	Pilosocereus royenii						*							
	Praecereus euchlorus amazonicus												*	
	Praecereus euchlorus diffusus												*	
	Pseudorhipsalis ramulosa						*							
	Pterocactus kuntzei						*							
	Rauhocereus riosaniensis												*	

Family	Taxon	Threat Status											
		E	V	R	I	K	Q	nt	ssp. E	ssp. R	ssp. V	ssp. Q	n/a
Cactaceae	Rhipsalis baccifera							*					
	Rhipsalis baccifera horrida												*
	Rhipsalis cereuscula							*					
	Rhipsalis floccosa tucumanensis												*
	Rhipsalis puniceodiscus												*
	Sclerocactus johnsonii						*						
	Sclerocactus uncinatus						*						
	Sclerocactus unguispinus			*									
	Selenicereus grandiflorus							*					
	Selenicereus wercklei						*						
	Stenocereus fimbriatus							*					
	Stenocereus gummosus							*					
	Stenocereus queretaroensis							*					
	Thelocactus hexaedrophorus							*					
	Weberbauerocereus johnsonii						*						
	Weberbauerocereus spp.												
	Weberocereus biolleyi						*						
	Weberocereus bradei			*									
Cactaceae Total		10	20	24	3		47	44	5	1		5	47
Didiereaceae	Alluaudia ascendens							*					
	Alluaudia comosa							*					
	Alluaudia dumosa							*					
	Alluaudia humbertii							*					
	Alluaudia montagnacii			*									
	Alluaudia procera							*					
	Alluaudiopsis fiherenensis			*									
	Alluaudiopsis marnieriana			*									
	Decarya madagascariensis							*					
	Didierea madagascariensis							*					
	Didierea trollii							*					
Didiereaceae Total				3				8					

Family	Taxon	Threat Status												
		E	V	R	I	K	Q	nt	ssp. E	ssp. R	ssp. V	ssp. Q	n/a
Euphorbiaceae	Euphorbia alfredii						*						
	Euphorbia ankarensis				*								
	Euphorbia antso												*
	Euphorbia aphylla							*					
	Euphorbia arahaka					*							
	Euphorbia aureoviridiflora				*								
	Euphorbia beharensis					*							
	Euphorbia berorohae						*						
	Euphorbia biaculeata						*						
	Euphorbia boinensis					*							
	Euphorbia boiteaui					*							
	Euphorbia bongolavensis			*									
	Euphorbia bosseri					*							
	Euphorbia bulbispina			*									
	Euphorbia bupleurifolia							*					
	Euphorbia capmanambatoensis						*						
	Euphorbia capuronii							*					
	Euphorbia caput-aureum					*							
	Euphorbia chersina							*					
	Euphorbia cremersii						*						
	Euphorbia croizatii						*						
	Euphorbia damarana						*						
	Euphorbia delphinensis						*						
	Euphorbia didiereoides				*								
	Euphorbia dregeana							*					
	Euphorbia duranii											*	
	Euphorbia duranii duranii							*					
	Euphorbia enterophora											*	
	Euphorbia ephedroides							*					
	Euphorbia famatamboay											*	
	Euphorbia fianarantsoae						*						
	Euphorbia fiherenensis						*						

Family	Taxon	Threat Status											
		E	V	R	I	K	Q	nt	ssp. E	ssp. R	ssp. V	ssp. Q	n/a
Euphorbiaceae	Euphorbia gariepina											*	
	Euphorbia genoudiana						*						
	Euphorbia geroldii						*						
	Euphorbia giessii						*						
	Euphorbia gillettii										*		
	Euphorbia gottlebei						*						
	Euphorbia gregaria							*					
	Euphorbia griseola zambiensis						*						
	Euphorbia guillauminiana						*						
	Euphorbia guillemetii							*					
	Euphorbia gummifera						*						
	Euphorbia hamata							*					
	Euphorbia hedyotoides						*						
	Euphorbia herman-schwartzii						*						
	Euphorbia hofstaetteri						*						
	Euphorbia horombensis							*					
	Euphorbia horrida											*	
	Euphorbia intisy							*					
	Euphorbia jansenvillensis	*											
	Euphorbia kondoi						*						
	Euphorbia lactea							*					
	Euphorbia leandriana						*						
	Euphorbia leucodendron							*					
	Euphorbia leuconeura						*						
	Euphorbia lignosa							*					
	Euphorbia lophogona						*						
	Euphorbia mahabobokensis						*						
	Euphorbia mahafalensis											*	
	Euphorbia meloformis				*								
	Euphorbia milii											*	
	Euphorbia milii splendens						*						
	Euphorbia milii tenuispina						*						

Family	Taxon	Threat Status											
		E	V	R	I	K	Q	nt	ssp. E	ssp. R	ssp. V	ssp. Q	n/a
Euphorbiaceae	Euphorbia millotii				*								
	Euphorbia neohumbertii							*					
	Euphorbia oncoclada						*						
	Euphorbia pachypodioides				*								
	Euphorbia paulianii			*									
	Euphorbia pedilanthoides			*									
	Euphorbia perrieri									*			
	Euphorbia perrieri elongata				*								
	Euphorbia plagiantha							*					
	Euphorbia primulifolia				*								
	Euphorbia primulifolia begardii						*						
	Euphorbia primulifolia primulifolia						*						
	Euphorbia pteroclada			*									
	Euphorbia robivelonae						*						
	Euphorbia rossii		*										
	Euphorbia sakarahaensis						*						
	Euphorbia spinea						*						
	Euphorbia stenoclada											*	
	Euphorbia subsalsa											*	
	Euphorbia tardieuana						*						
	Euphorbia tenuispinosa			*									
	Euphorbia thouarsiana						*						
	Euphorbia tirucalli							*					
	Euphorbia trigona						*						
	Euphorbia tuberculata												*
	Euphorbia viguieri											*	
	Euphorbia viguieri ankarafantsiensis						*						
	Euphorbia viguieri capuroniana							*					
	Euphorbia viguieri tsimbazazae						*						
	Euphorbia xylophylloides							*					
Euphorbiaceae Total		1	1	6	8	6	38	20		1	1	10	2

Family	Taxon	Threat Status											
		E	V	R	I	K	Q	nt	ssp. E	ssp. R	ssp. V	ssp. Q	n/a
Fouquieriaceae	Fouquieria columnaris						*						
Fouquieriaceae Total							1						
Liliaceae	Aloe acutissima									*			
	Aloe africana							*					
	Aloe andringitrensis			*									
	Aloe angelica							*					
	Aloe antandroi							*					
	Aloe arborescens							*					
	Aloe asperifolia			*									
	Aloe bakeri			*									
	Aloe ballyi			*									
	Aloe bellatula	*											
	Aloe betsilensis									*			
	Aloe brachystachys						*						
	Aloe brevifolia							*					
	Aloe buchlohii			*									
	Aloe buhrii			*									
	Aloe bulbillifera						*						
	Aloe calcairophila	*											
	Aloe capitata									*			
	Aloe capitata capitata							*					
	Aloe capitata cipolinicola			*									
	Aloe capitata gneissicola							*					
	Aloe capitata quartziticola							*					
	Aloe compressa								*				
	Aloe conifera			*									
	Aloe cremersii	*											
	Aloe cryptoflora			*									
	Aloe decaryi					*							
	Aloe decorsei					*							
	Aloe deltoideodonta											*	
	Aloe descoingsii	*											

Family	Taxon	Threat Status											
		E	V	R	I	K	Q	nt	ssp. E	ssp. R	ssp. V	ssp. Q	n/a
Liliaceae	Aloe dichotoma							*					
	Aloe dinteri			*									
	Aloe divaricata											*	
	Aloe dominella							*					
	Aloe erinacea						*						
	Aloe erythrophylla			*									
	Aloe falcata						*						
	Aloe ferox							*					
	Aloe fievetii			*									
	Aloe fragilis	*											
	Aloe globuligemma							*					*
	Aloe guillaumetii					*							
	Aloe haemanthifolia			*									
	Aloe haworthioides									*			
	Aloe ibitiensis			*									
	Aloe imalotensis							*					
	Aloe immaculata							*					
	Aloe isaloensis							*					
	Aloe itremensis			*									
	Aloe krapohliana		*										
	Aloe laeta									*			
	Aloe littoralis							*					
	Aloe macroclada					*							
	Aloe madecassa						*						
	Aloe marlothii												*
	Aloe parallelifolia	*											
	Aloe parvula	*											
	Aloe pictifolia			*									
	Aloe plicatilis							*					
	Aloe pluridens							*					
	Aloe ramosissima		*										
	Aloe rauhii			*									

Family	Taxon	Threat Status											
		E	V	R	I	K	Q	nt	ssp. E	ssp. R	ssp. V	ssp. Q	n/a
Liliaceae	Aloe schomeri					*							
	Aloe speciosa							*					
	Aloe spp.												
	Aloe suarezensis							*					
	Aloe succotrina							*					
	Aloe suzannae	*											
	Aloe trachyticola			*									
	Aloe vacillans		*										
	Aloe vaombe											*	
	Aloe vera						*						
	Aloe viguieri			*									
Liliaceae Total		8	3	19		5	6	21	1	5		3	2
Portulacaceae	Anacampseros albidiflora						*						
	Anacampseros arachnoides						*						
	Anacampseros comptonii			*									
	Avonia papyracea											*	
Portulacaceae Total				1			2					1	
Appendix II Total		22	25	54	11	11	97	98	6	11	1	19	51

N.1. Chile

Chile is responsible for 42% of the volume of exports in CITES listed succulents (figure 2). Furthermore, over 50% of the exports reported by third parties are of Chilean origin (see Annex J). The country experienced a rapid increase in trade from 1992 to 1995, followed by a slight decline from 1995 to 1997 (figure N.1.1). In total, twenty of the species exported by Chile are globally threatened or have a globally threatened sub-taxon (table N.1.1). Eight percent of the exports in Endangered species, and eleven percent of the exports in Vulnerable species come from Chile (figure 7). Given the importance of Chile as an exporting country in terms of volume of trade, it would be appropriate for close attention to be given to the population sizes of the taxa in trade.

Figure N.1.1. Volume of exports in CITES listed succulent plants reported by Chile

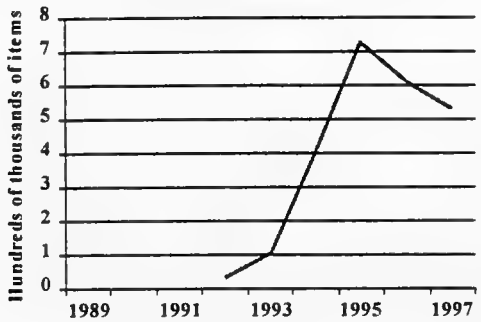


Table N.1.1. Chilean exports of particular interest given the threat status of the taxa involved.

Family	Taxon	CITES Appendix	Threat Status	Term	Purpose	Year 1991	1995	1996	1997
Cactaceae	Copiapoa bridgesii	II	R	LIV	S			5	
	Copiapoa calderana	II	R	LIV	B	22			
					S			9	
	Copiapoa chaniaralensis	II	R	LIV	B	9			
	Copiapoa coquimbana	II	R	LIV	B	29			
					S			12	
	Copiapoa desertorum	II	E	LIV	S			4	2
	Copiapoa fiedleriana	II	R	LIV	B	27			
					S			18	
	Copiapoa humilis	II	V	LIV	B	31			
					S			25	
	Copiapoa hypogaea	II	R	LIV	B	10			
	Copiapoa krainziana	II	V	LIV	B	10			
					S			4	
	Copiapoa longistaminea	II	R	LIV	S			4	
	Copiapoa malletiana	II	R	LIV	B	21			
					S			6	
	Copiapoa marginata	II	R	LIV	B	6			
					S			7	
	Copiapoa megarhiza	II	ssp. E	LIV	S			5	
	Copiapoa rupestris	II	E	LIV	B	2	60		
					S			5	
	Copiapoa solaris	II	V	LIV	B	18			
					S			5	
	Copiapoa tocopillana	II	E	LIV	S				3
	Copiapoa varispinata	II	R	LIV	B	9			
	Eriosyce rodentiophila	II	V	LIV	B	2			
					S			1	
	Eulychnia iquiquensis	II	R	LIV	S			6	
	Oreocereus hempelianus	II	R	LIV	S				2
Total						196	66	116	7

N.2. Madagascar

In terms of global volume, Madagascar has played a relatively minor role (3%, see figure 2). However, exports from Madagascar have involved 72 species (16 of which are listed on CITES Appendix I) which are threatened or contain at least one threatened sub-taxon (table N.2.1). Madagascar has exported 79% of the total trade in Endangered species by CITES Parties that took place between 1989 and 1997. Similarly, 11% of the exports in Vulnerable species, and 99% of the exports in species of Indeterminate threat have been exported by Madagascar (figure 7). The level of exports from the country has fluctuated considerably between 1992 and 1997, and reached a low level in 1997 (figure N.2.1). If trade were to rise again, the country should re-assess whether extraction of specimens of wild origin is sustainable, and should particularly pay attention to trade in threatened taxa.

Figure N.2.1. Volume of exports in CITES listed succulent plants reported by Madagascar

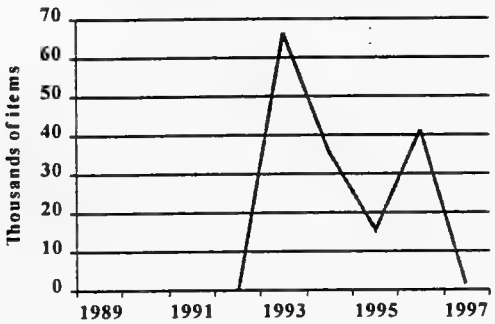


Table N.2.1. Madagascarean exports of particular interest given the threat status of the taxa involved.

Family	Taxon	CITES Appendix	Threat Status	Term	Purpose	Year 1993	1994	1995	1996	1997	Total
Apocynaceae	Pachypodium ambongense	II	E	LIV	P	3					3
					T	58	104				162
	Pachypodium baronii	I	ssp. E	DPL	S	1					1
				LIV	S	1					1
	Pachypodium decaryi	I	E	LIV	S	1					1
	Pachypodium densiflorum	II	ssp. R	DPL	S			4			4
				LIV	P	5	46	77	9	53	190
					T	70	232	20		9	331
	Pachypodium horombense	II	ssp. R	DPL	S			8			8
				LIV	P	3	6	54	5	14	82
					T	41	10	30		4	85
	Pachypodium lamerei	II	ssp. R	DPL	S			8			8
				LIV	P		4	17		35	56
					T	8	11	6	50		75
	Pachypodium rosulatum	II	ssp. R	DPL	S	1		8			9
				LIV	P	21	26	129	10	61	247
					Q				25		25
					S	11					11
					T	139	272	35	2	76	524
Asclepiadaceae	Ceropegia armandii	II	E	LIV	T					1	1
	Ceropegia dimorpha	II	R	LIV	P			9			9
	Ceropegia razafindratsirana	II	E	LIV	T					5	5
Didiereaceae	Alluaudia montagnacii	II	R	DPL	S			1			1
				LIV	P			8			8
	Alluaudiopsis fiherenensis	II	R	DPL	S			2			2
				LIV	P	1		4			5
					T	3					3
	Alluaudiopsis marnieriana	II	R	LIV	P	1					1
					T	85					85
Euphorbiaceae	Euphorbia ankarensis	II	I	DPL	S	1					1
				LIV	P	16	11	11	10	21	69
					S					2	2
					T	1	20	20		12	53
	Euphorbia aureoviridiflora	II	I	LIV	P					1	1
	Euphorbia bongolavensis	II	R	LIV	T				1		1
	Euphorbia bulbispina	II	R	DPL	S	1					1
				LIV	P	1	6	5	3		15
					S	1					1

Family	Taxon	CITES Appendix	Threat Status	Term	Purpose	Year 1993	1994	1995	1996	1997	Total
Liliaceae					T	2	4			5	11
	Euphorbia decaryi	I	I	LIV	S			1			1
	Euphorbia didiereoides	II	I	LIV	P	9	12	9		15	45
					S			1		2	3
					T	52			2	2	56
	Euphorbia gillettii	II	ssp. V	LIV	P			4			4
	Euphorbia jansenvillensis	II	E	LIV	P			5			5
	Euphorbia millotii	II	I	LIV	P	1	6	33	3		43
					T	5,700	3,000	45	2,502		11,247
	Euphorbia pachypodioides	II	I	DPL	S	1					1
				LIV	P	1	3	29		11	44
					T		4	20		31	55
	Euphorbia pauliani	II	R	DPL	S	1					1
				LIV	P	14	4	5	3		26
					S	1					1
					T	110					110
	Euphorbia pedilanthoides	II	R	LIV	P	2	8	15	3	5	33
					S	3					3
					T	47	25		2	2	76
	Euphorbia perrieri	II	ssp. R	DPL	S	1					1
				LIV	P	3	1	4		2	10
					S	1					1
	Euphorbia perrieri elongata	II	I	LIV	T				2		2
	Euphorbia primulifolia	II	I	LIV	P			128	3	23	154
					T			25	2	174	201
	Euphorbia pteroclada	II	R	LIV	P			1			1
	Euphorbia quartzitticola	I	R	LIV	P			3			3
	Euphorbia rossii	II	V	LIV	P	16	6	7		1	30
					T	42				2	44
	Euphorbia tenuispinosa	II	R	LIV	S	3					3
	Aloe acutissima	II	ssp. R	LIV	P	1	2	9			12
					T	6					6
	Aloe andringitrensis	II	R	LIV	T				2		2
	Aloe bakeri	I	R	LIV	P			1			1
		II	R	LIV	P	3					3
					S	5					5
					T		7				7
	Aloe ballyi	II	R	LIV	P		1				1
	Aloe bellatula	I	E	LIV	P			1			1
		II	E	LIV	P	3	1				4
	Aloe betsilensis	II	ssp. R	LIV	P			29			29
					T				1	5	6
	Aloe buchlohii	II	R	LIV	P	1					1
					T	8					8
	Aloe calcairophila	I	E	LIV	P			1			1
		II	E	LIV	P	4	15				19
					T	102					102
	Aloe capitata	II	ssp. R	LIV	P	5	13	68	13	15	114
					Q				25		25
					S			1		2	3
					T	68	14	10	2	13	107
				LVS	P			4			4
	Aloe capitata cipolinicola	II	R	LIV	P		6			10	16
					T				2		2
	Aloe compressa	I	ssp. E	LIV	P			1			1
		II	ssp. E	LIV	P	11	8				19
					T	15					15
	Aloe conifera	II	R	LIV	P	8	1	21	5	20	55
					T				2	3	5
	Aloe cremersii	II	E	LIV	T		15				15
	Aloe cryptoflora	II	R	LIV	P	1					1
	Aloe delphinensis	I	R	LIV	P			1			1
	Aloe descoingsii	I	E	LIV	P			4			4
		II	E	LIV	P	5	2				7
					T	200					200
	Aloe erythrophylla	II	R	LIV	P			3			3
					T				2	2	4

Family	Taxon	CITES Appendix	Threat Status	Term	Purpose	Year					Total
						1993	1994	1995	1996	1997	
	Aloe fievetii	II	R	LIV	P			1			1
	Aloe fragilis	I	E	LIV	P					10	10
		II	E	LIV	P		1				1
	Aloe haworthioides	II	ssp. R	LIV	P	4					4
					T		1				1
	Aloe helenae	I	E	LIV	P			2			2
					S					2	2
	Aloe ibitiensis	II	R	LIV	P	2	4	1			7
					T	3			2		5
	Aloe itremensis	II	R	LIV	P	1		2		10	13
					T					10	10
	Aloe laeta	II	ssp. R	LIV	P	5	6				11
					T	34					34
	Aloe parallelifolia	I	E	LIV	P			1			1
		II	E	LIV	P	3	4	2			9
					T				2		2
	Aloe parvula	I	E	LIV	P			1			1
		II	E	LIV	P		3				3
					T	2					2
	Aloe rauhii	I	R	LIV	P			2			2
		II	R	LIV	P	4	6				10
					S	5					5
					T	2					2
					(blank)	9					9
	Aloe suzannae	II	E	LIV	T	175					175
	Aloe trachyticola	II	R	LIV	P	1		15		10	26
					T				2		2
	Aloe versicolor	I	R	LIV	T					2	2
	Aloe viguieri	II	R	LIV	P			16	2		18
					T		6			2	8
Total						7,180	3,937	988	2,699	685	15,489

N.3. Mexico

Exports of succulent plants had been banned by Mexico for 50 years (Oldfield 1997). However, exports of succulents from the wild have been reported since 1993. Exports of *Opuntia fulgida* deserve special attention, as this is a Rare species (table N.3.1). A large volume of these exports corresponds to plant fragments, and is not expected to have severely impacted natural populations. However, over a thousand live specimens were authorised for export in 1996. Some caution is advisable, given the magnitude of the volumes in trade. These transactions in *O. fulgida* make up for 70% of all exports of Rare species by CITES Parties between 1989 and 1997 (figure 7), and 66% of all exports in Threatened species in that period.

Figure N.3.1. Volume of exports in CITES listed succulent plants reported by Mexico

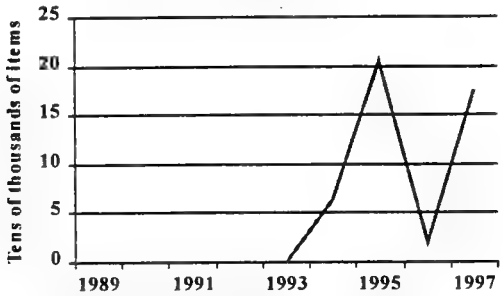


Table N.3.1. Mexican exports of particular interest given the threat status of the taxa involved.

Family	Taxon	CITES Appendix	Threat status	Term	Purpose	Year 1995	1996	1997
Cactaceae	Opuntia fulgida	II	**R**	CAR	T		14,150	
				LIV	T		1,100	
				PIE	T	100,000	2,700	
				TIP	T	2,700	1,100	6,550
Total						**102,700**	**19,050**	**6,550**

N.4. Peru

The volume of Peruvian exports of wild origin is small, but has experienced a drastic increase between 1995 and 1997 (figure N.4.1). At least five of the species exported are Endangered and three are Vulnerable (table N.4.1). Special attention should be given to threatened species if export volumes were to increase in the future.

Figure N.4.1. Volume of exports in CITES listed succulent plants reported by Peru

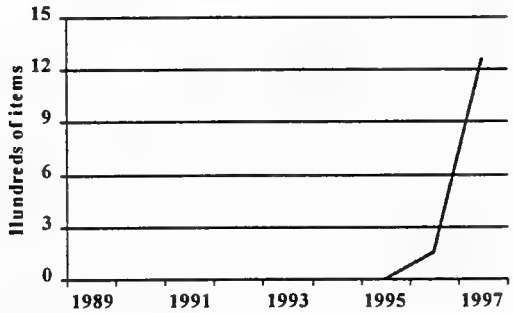


Table N.4.1. Peruvian exports of interest given the threat status of the taxa involved.

Family	Taxon	CITES Appendix	Threat status	Term	Purpose	Year 1996	Year 1997
Cactaceae	Browningia candelaris	II	V	LIV	S	1	
	Haageocereus limensis	II	E	LIV	S	7	
	Haageocereus multangularis	II	E	LIV	S	10	
	Matucana aurantiaca	II	V	LIV	S		2
	Matucana formosa	II	V	LIV	S		2
	Mila caespitosa	II	E	LIV	S	8	
	Mila caespitosa nealeana	II	E	LIV	S	2	
	Opuntia pachypus	II	E	LIV	S	3	
Grand Total						**31**	**4**

N.5. South Africa

South Africa is the major exporter of wild collected succulents, being responsible for 43% of the trade (figure 2). Furthermore, over 45% of the exports reported by third parties are of South African origin (see Annex J). South African exports have experienced a steady increase between 1989 and 1997 (figure N.5.1). Fourteen percent of the exports in Vulnerable species are directly exported by South Africa (figure 7). While only eight species appear to be threatened (table N.5.1), natural populations should be kept under close observation due to the speed and magnitude of the increase in trade experienced by the country.

Figure N.5.1. Volume of exports in CITES listed succulent plants reported by South Africa

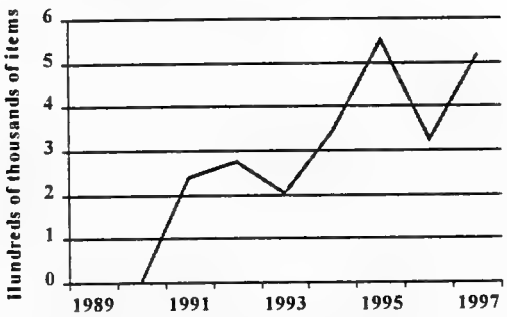


Table N.5.1. South African exports of interest given the threat status of the taxa involved

Family	Taxon	CITES Appendix	Threat status	Term	Purpose	Year 1992	Year 1997	Total
Euphorbiaceae	Euphorbia meloformis	II	I	LIV	T		1	1
Liliaceae	Aloe asperifolia	II	R	LIV	T		6	6
	Aloe buhrii	II	R	LIV	T		11	11
	Aloe haemanthifolia	II	R	LIV	T		8	8
	Aloe krapohliana	II	V	LIV	T		15	15
	Aloe pictifolia	II	R	LIV	T		4	4
	Aloe ramosissima	II	V	FRU	T	1		1
				LIV	T		111	111
Portulacaceae	Anacampseros comptonii	II	R	LIV	T		1	1
Total						**1**	**157**	**158**

N.6. United States of America

In terms of volume, the United States of America plays a minor role (3%, see figure 2) as an exporter of CITES listed succulent plants collected from the wild. However, twenty-one of the species exported by the country (table N.6.1) are threatened or have a threatened sub-taxon, and deserve special attention. Moreover, 39% of the volume of CITES exports in Vulnerable species, and 28% of all the volume of CITES exports in Rare species in trade from the wild are being exported by the USA (figure 7). With the exception of 1997, the country has exhibited a pronounced increase in the level of exports, with a peak in 1996 (figure N.6.1).

Figure N.6.1. Volume of exports in CITES listed succulent plants reported by the USA

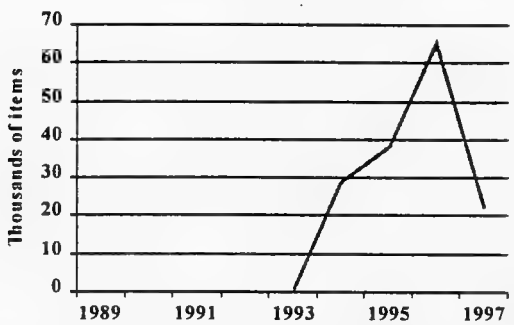


Table N.6.1. USAmerican exports of particular interest given the threat status of the taxa involved.

Family	Taxon	CITES Appendix	Threat Status	Term	Purpose	Year 1991	1992	1993	1994	1995	1996	1997	Total
Agavaceae	Agave parviflora	I	R	LIV	(blank)				2				2
				SPE	(blank)				36				36
Apocynaceae	Pachypodium namaquanum	II	V	LIV	T				200		30		230
Cactaceae	Bergerocactus emoryi	II	R	LIV	T	10							10
	Echinocereus engelmannii	II	ssp. E	LIV	T		11	35	10	1	50		107
	Echinocereus fendleri	II	ssp. E	LIV	T							12	12
	Echinocereus nicholii	II	V	LIV	T						20	8	28
	Echinocereus pamanesiorum	II	I	LIV	T	21							21
	Echinocereus triglochidiatus	II	ssp. R	LIV	T		1	75					76
	Ferocactus cylindraceus	II	R	LIV	T	110	3	72	90	56	147	1	479
	Ferocactus emoryi	II	V	LIV	T	29	38						67
	Ferocactus townsendianus	II	V	LIV	T			10					10
	Haageocereus limensis	II	E	LIV	T							20	20
	Haageocereus multangularis	II	E	LIV	T	10							10
	Opuntia bigelovii	II	R	LIV	T		5			3			8
				TIM	T			9	10.000				10.009
	Opuntia echinocarpa	II	I	LIV	T		1				50		51
	Opuntia fulgida	II	R	LIV	T						100		100
					(blank)				23				23
				TIM	T		15	9		17.467	23.170		40.661
	Opuntia santa-rita	II	V	LIV	T		5						5
Euphorbiaceae	Euphorbia paulianii	II	R	LIV	T					31			31
Liliaceae	Aloe buhrii	II	R	LIV	T							8	8
	Aloe conifera	II	R	LIV	T							7	7
	Aloe vacillans	II	V	LIV	T				9				9
Total						180	79	210	10.370	17.558	23.567	56	52.020

Annex O. Taxon and Threat Status of Exports by Country (number of items).

Exporter Code	Family	Taxon	Threat Status												Total
			E	V	R	I	K	Q	nt	ssp. E	ssp. V	ssp. R	ssp. Q	n/a	
AR	Cactaceae	Austrocactus bertinii						9							9
		Cereus aethiops						2							2
		Cereus spp												4	4
		Echinopsis spp												32	32
		Echinopsis thionantha						12							12
		Frailea cataphracta						18							18
		Frailea schilinzkyana						12							12
		Frailea spp												26	26
		Gymnocalycium baldianum						18							18
		Gymnocalycium marsoneri						10							10
		Gymnocalycium pflanzii						18							18
		Gymnocalycium schroederianum						8							8
		Gymnocalycium spp												62	62
		Maihuenia patagonica						21							21
		Neowerdermannia vorwerkii						11							11
		Opuntia articulata						19							19
		Opuntia clavarioides			14										14
		Opuntia spp												6	6
		Parodia submammulosa												14	14
		Pterocactus kuntzei						29							29
		Pterocactus spp.												57	57
		Rhipsalis floccosa tucumanensis												7	7
		Rhipsalis spp												3	3
	Cactaceae Total				14			187						211	412
AR Total					14			187						211	412
BE	Liliaceae	Aloe ferox							286						286
	Liliaceae Total								286						286
BE Total									286						286
BO	Cactaceae	Blossfeldia liliputana						10							10
		Corryocactus tarijensis						3							3
		Echinopsis spp												43	43
		Gymnocalycium spp												33	33
		Neoraimondia herzogiana						2							2
		Oreocereus trollii						1							1
		Parodia maassii						12							12
		Rebutia spp												51	51
	Cactaceae Total							28						127	155
	Portulacaceae	Anacampseros spp												6	6
	Portulacaceae Total													6	6
BO Total								28						133	161

Exporter Code	Family	Taxon	Threat Status												Total
			E	V	R	I	K	Q	nt	ssp. E	ssp. V	ssp. R	ssp. Q	n/a	
BR	Cactaceae	Arrojadoa spp												24	24
		Arthrocereus spp												2	2
		Cactaceae spp												536	536
		Cereus spp												18	18
		Coleocephalocereus fluminensis							6						6
		Coleocephalocereus pluricostatus			2										2
		Coleocephalocereus spp												12	12
		Discocactus bahiensis			2										2
		Discocactus placentiformis				4									4
		Facheiroa spp												8	8
		Hatiora salicornioides							2						2
		Hylocereus undatus												2	2
		Melocactus azureus		2											2
		Melocactus bahiensis							4						4
		Melocactus ernestii							10						10
		Melocactus levitestatus							2						2
		Melocactus pachyacanthus		2											2
		Melocactus paucispinus		2											2
		Melocactus spp												32	32
		Micranthocereus spp												8	8
		Opuntia spp.												36	36
		Oreocereus celsianus						2							2
		Parodia spp.												8	8
		Pilosocereus magnificus							4						4
		Pilosocereus spp.												2	2
	Cactaceae Total			6	4	4		2	28					688	731
BR Total				6	4	4		2	28					688	732
BS	Cactaceae	Opuntia millspaughii						7							7
	Cactaceae Total							7							7
BS Total								7							7
CH	Asclepiadaceae	Ceropegia spp.												2	2
	Asclepiadaceae Total													2	2
	Euphorbiaceae	Euphorbia beharensis					1								1
		Euphorbia croizatii						2							2
		Euphorbia duranii											1		1
		Euphorbia hedyotoides						2							2
		Euphorbia horombensis							4						4
		Euphorbia kondoi						6							6
		Euphorbia spp												7	7
		Euphorbia tardieuana						2							2
	Euphorbiaceae Total						1	12	4				1	7	25
	Liliaceae	Aloe acutissima									5				5
		Aloe ferox							2,517						2,517
		Aloe spp												6	6
	Liliaceae Total								2,517		5			6	2,528
CH Total							1	12	2,521		5		1	15	2,555

Exporter Code	Family	Taxon	Threat Status												Total
			E	V	R	I	K	Q	nt	ssp. E	ssp. V	ssp. R	ssp. Q	n/a	
CL	Cactaceae	Cactaceae spp												102,954	102,954
		Copiapoa bridgesii			5										5
		Copiapoa calderana			31										31
		Copiapoa chaniaralensis			9										9
		Copiapoa cinerascens							23						23
		Copiapoa cinerea							22						22
		Copiapoa cinerea cinerea												5	5
		Copiapoa cinerea columna-alba												15	15
		Copiapoa cinerea gigantea												5	5
		Copiapoa cinerea haseltoniana												5	5
		Copiapoa coquimbana			41										41
		Copiapoa desertorum	6												6
		Copiapoa echinoides							16						16
		Copiapoa fiedleriana			45										45
		Copiapoa humilis		62											62
		Copiapoa hypogaea			10										10
		Copiapoa krainziana		14											14
		Copiapoa longistaminea			4										4
		Copiapoa malletiana			27										27
		Copiapoa marginata			13										13
		Copiapoa megarhiza								5					5
		Copiapoa montana							5						5
		Copiapoa montana montana												5	5
		Copiapoa rupestris	67												67
		Copiapoa serpentisulcata							10						10
		Copiapoa solaris		23											23
		Copiapoa tocopillana	3												3
		Copiapoa varispinata			9										9
		Echinopsis chiloensis						29,641							29,641
		Echinopsis/eulychnia spp												1,758,984	1,758,984
		Eriosyce aurata												18	18
		Eriosyce confinis												4	4
		Eriosyce crispa												24	24
		Eriosyce curvispina												44	44
		Eriosyce esmeraldana												17	17
		Eriosyce heinrichiana												18	18
		Eriosyce heinrichiana intermedia												2	2
		Eriosyce krausii												4	4
		Eriosyce kunzei												41	41
		Eriosyce napina												112	112
		Eriosyce napina napina												3	3
		Eriosyce odieri												113	113
		Eriosyce odieri glabrescens												30	30
		Eriosyce odieri odieri												5	5
		Eriosyce rodentiophila		3											3
		Eriosyce senilis												3	3
		Eriosyce spp												77	77
CL	Cactaceae	Eriosyce subgibbosa												37	37
		Eriosyce subgibbosa clavata												15	15

Exporter Code	Family	Taxon	Threat Status												Total
			E	V	R	I	K	Q	nt	ssp. E	ssp. V	ssp. R	ssp. Q	n/a	
		Eriosyce taltalensis												11	11
		Eriosyce taltalensis echinus												2	2
		Eriosyce taltalensis pauciostata												13	13
		Eriosyce taltalensis pilispina												2	2
		Eriosyce taltalensis taltalensis												4	4
		Eriosyce villosa												10	10
		Eulychnia acida							477,714						477,714
		Eulychnia breviflora							12,451						12,451
		Eulychnia castanea							2						2
		Eulychnia iquiquensis			6										6
		Eulychnia spp.												13	13
		Mailluenia poeppigii							6						6
		Neowerdermannia chilensis						5							5
		Opuntia domeykoensis												4	4
		Opuntia ignescens							1						1
		Opuntia miquelii							3						3
		Opuntia ovata							2						2
		Opuntia sphaerica							8						8
		Opuntia spp.												1	1
		Oreocereus hempelianus			2										2
	Cactaceae Total		76	102	202			29,646	490,263	5				1,862,600	2,382,894
CL Total			76	102	202			29,646	490,263	5				1,862,600	2,382,894
CN	Euphorbiaceae	Euphorbia lactea							1						1
		Euphorbia spp												300	300
	Euphorbiaceae Total								1					300	301
	Liliaceae	Aloe vera						5,003							5,003
	Liliaceae Total							5,003							5,003
CN Total								5,003	1					300	5,304
CR	Cactaceae	Cereus spp												2	2
		Epiphyllum spp.												2	2
		Hylocereus costaricensis						2							2
		Hylocereus spp.												4	4
		Opuntia spp.												2	2
		Selenicereus wercklei						2							2
		Weberocereus biolleyi						2							2
		Weberocereus bradei			2										2
		Weberocereus spp.												2	2
	Cactaceae Total				2			6						12	20
CR Total					2			6						12	20
CU	Cactaceae	Rhipsalis baccifera							1						1
	Cactaceae Total								1						1
	Euphorbiaceae	Euphorbia spp												1	1
	Euphorbiaceae Total													1	1
CU Total									1					1	2

Exporter Code	Family	Taxon	Threat Status												Total
			E	V	R	I	K	Q	nt	ssp. E	ssp. V	ssp. R	ssp. Q	n/a	
DE	Cactaceae	Ariocarpus trigonus		5											5
		Astrophytum capricorne								9					9
		Astrophytum myriostigma		2											2
		Astrophytum ornatum				2									2
		Cactaceae spp												93	93
		Coryphantha spp												64	64
		Echinocactus horizonthalonius						8							8
		Echinocereus engelmannii								1					1
		Echinocereus knippelianus		8											8
		Echinocereus palmeri	39												39
		Echinocereus pectinatus							6						6
		Echinocereus pulchellus		6											6
		Echinocereus spp.												49	49
		Echinocereus stoloniferus tayopensis							2						2
		Echinopsis chiloensis						479							479
		Epithelantha micromeris								9					9
		Escobaria spp.												14	14
		Eulychnia acida							722						722
		Eulychnia spp												60	60
		Ferocactus latispinus							4						4
		Ferocactus spp.												6	6
		Mammillaria elongata												1	1
		Mammillaria haageana elegans												6	6
		Mammillaria humboldtii		7											7
		Mammillaria lasiacantha						29							29
		Mammillaria longiflora		20											20
		Mammillaria moelleriana			51										51
		Mammillaria pottsii						3							3
		Mammillaria saboae		114											114
		Mammillaria senilis		23											23
		Mammillaria solisioides	15												15
		Mammillaria spp.												450	450
		Mammillaria wrightii wilcoxii												21	21
		Neolloydia spp.												9	9
		Sclerocactus spp.												4	4
		Sclerocactus uncinatus						5							5
		Sclerocactus unguispinus			4										4
		Stenocactus spp.												9	9
		Strombocactus disciformis							13						13
		Thelocactus hexaedrophorus							5						5
		Thelocactus spp.												17	17
		Turbinicarpus gautii		4											4
		Turbinicarpus knuthianus			5										5
		Turbinicarpus lophophoroides		43											43
		Turbinicarpus pseudomacrochele		5											5
		Turbinicarpus pseudopectinatus							37						37
		Turbinicarpus schwarzii		4											4
DE	Cactaceae	Turbinicarpus spp												34	34
		Turbinicarpus subterraneus						41							41

Exporter Code	Family	Taxon	Threat Status												Total
			E	V	R	I	K	Q	nt	ssp. E	ssp. V	ssp. R	ssp. Q	n/a	
		Turbinicarpus valdezianus							29						29
	Cactaceae Total		54	241	60	2		565	818	19				837	2,596
	Liliaceae	Aloe ferox							58,714						58,714
		Aloe spp.												7,229	7,229
	Liliaceae Total								58,714					7,229	65,943
DE Total			54	241	60	2		565	59,532	19				8,066	68,539
DO	Cactaceae	Harrisia divaricata						11							11
		Harrisia nashii						3							3
		Harrisia spp.												4	4
		Hylocereus spp.												3	3
		Leptocereus paniculatus						9							9
		Leptocereus spp												2	2
		Leptocereus weingartianus						18							18
		Mammillaria prolifera											6		6
		Melocactus intortus							2						2
		Melocactus lemairei						8							8
		Melocactus spp												1	1
		Neobuxbaumia polylopha			3										3
		Opuntia acaulis						2							2
		Opuntia antillana						4							4
		Opuntia caribaea						4							4
		Opuntia ekmanii						2							2
		Opuntia falcata						5							5
		Opuntia moniliformis						6							6
		Opuntia spp.												2	2
		Opuntia taylori						5							5
		Pereskia portulacifolia			13										13
		Pereskia quisqueyana	10												10
		Pereskia spp												2	2
		Pilosocereus polygonus						2							2
		Pilosocereus spp.												3	3
		Pseudorhipsalis ramulosa						2							2
		Selenicereus spp.												2	2
		Stenocereus fimbriatus							6						6
	Cactaceae Total		10		16			81	8				6	19	140
DO Total			10		16			81	8				6	19	140
EC	Cactaceae	Browningia spp.												2	2
		Cactaceae spp.												4	4
		Cereus spp												2	2
		Echinopsis spp.												10	10
		Epiphyllum spp												4	4
		Espostoa spp												1	1
		Hylocereus spp												18	18
		Opuntia spp												39	39

Exporter Code	Family	Taxon	Threat Status												Total
			E	V	R	I	K	Q	nt	ssp. E	ssp. V	ssp. R	ssp. Q	n/a	
EC	Cactaceae	Rhipsalis spp												18	18
	Cactaceae Total													**98**	**98**
	Euphorbiaceae	Euphorbia spp												115	115
	Euphorbiaceae Total													**115**	**115**
EC Total														**213**	**213**
ES	Liliaceae	Aloe ferox							2,500						2,500
	Liliaceae Total								**2,500**						**2,500**
ES Total									**2,500**						**2,500**
GB	Cactaceae	Carnegiea gigantea						2							2
		Echinopsis chiloensis						12							12
		Eulychnia acida							2,089						2,089
	Cactaceae Total							**14**	**2,089**						**2,103**
GB Total								**14**	**2,089**						**2,103**
GT	Agavaceae	Agave spp												5	5
	Agavaceae Total													**5**	**5**
	Euphorbiaceae	Euphorbia spp.												25	25
	Euphorbiaceae Total													**25**	**25**
GT Total														**30**	**30**
IT	Liliaceae	Aloe ferox							9,291						9,291
	Liliaceae Total								**9,291**						**9,291**
IT Total									**9,291**						**9,291**
KE	Euphorbiaceae	Euphorbia spp												30	30
	Euphorbiaceae Total													**30**	**30**
	Liliaceae	Aloe spp												30	30
	Liliaceae Total													**30**	**30**
KE Total														**60**	**60**
KR	Cactaceae	Gymnocalycium mihanovichii						122							122
	Cactaceae Total							**122**							**122**
	Liliaceae	Aloe ferox							350						350
	Liliaceae Total								**350**						**350**
KR Total								**122**	**350**						**472**
KY	Cactaceae	Harrisia gracilis						1							1
		Opuntia spinosissima			1										1
		Pilosocereus royenii						1							1
	Cactaceae Total				**1**			**2**							**3**
KY Total					**1**			**2**							**3**
MA	Cactaceae	Opuntia ficus-indica						1,000							1,000
	Cactaceae Total							**1,000**							**1,000**
MA Total								**1,000**							**1,000**
MG	Apocynaceae	Pachypodium ambongense	165												165
		Pachypodium baronii								2					2
		Pachypodium brevicaule							350						350
		Pachypodium decaryi	1												1
		Pachypodium densiflorum									525				525
		Pachypodium geayi							58						58
		Pachypodium horomboense									175				175
		Pachypodium lamerei									139				139
MG	Apocynaceae	Pachypodium rosulatum									816				816
		Pachypodium rutenbergianum							171						171

Exporter Code	Family	Taxon	Threat Status												Total
			E	V	R	I	K	Q	nt	ssp. E	ssp. V	ssp. R	ssp. Q	n/a	
		Pachypodium rutenbergianum var. meridionale							10						10
		Pachypodium sofiense							70						70
		Pachypodium spp.												326	326
	Apocynaceae Total		166						659	2	1,655			326	2,808
	Asclepiadaceae	Ceropegia armandii	1												1
		Ceropegia dimorpha			9										9
		Ceropegia razafindratsirana	5												5
		Ceropegia spp.												40	40
	Asclepiadaceae Total		6		9									40	55
	Cactaceae	Cactaceae spp.												1	1
		Opuntia spp												85	85
		Rhipsalis baccifera horrida												2	2
	Cactaceae Total													88	88
	Didiereaceae	Alluaudia ascendens							55						55
		Alluaudia comosa							56						56
		Alluaudia dumosa							42						42
		Alluaudia humbertii							30						30
		Alluaudia montagnacii			9										9
		Alluaudia procera							1,147						1,147
		Alluaudia spp.												118	118
		Alluaudiopsis fiherenensis			10										10
		Alluaudiopsis marnieriana			86										86
		Decarya madagascariensis							4						4
		Decaryia spp.												8	8
		Didierea madagascariensis							1,148						1,148
		Didierea spp.												110	110
		Didierea trollii							52						52
	Didiereaceae Total				105				2,534					236	2,875
	Euphorbiaceae	Euphorbia alfredii						62							62
		Euphorbia ankarensis				125									125
		Euphorbia antso												2	2
		Euphorbia aphylla							9						9
		Euphorbia arahaka					10								10
		Euphorbia aureoviridiflora				1									1
		Euphorbia beharensis					34								34
		Euphorbia berorohae						4							4
		Euphorbia biaculeata						14							14
		Euphorbia boinensis					50								50
		Euphorbia boiteaui					5								5
		Euphorbia bongolavensis			1										1
		Euphorbia bosseri					22								22
		Euphorbia bulbispina			28										28
		Euphorbia capmanambatoensis						2,015							2,015
		Euphorbia capuronii							37						37
		Euphorbia caput-aureum					2								2
MG	**Euphorbiaceae**	Euphorbia cremersii						292							292
		Euphorbia croizatii						50							50
		Euphorbia decaryi				1									1
		Euphorbia delphinensis						52							52

Exporter Code	Family	Taxon	Threat Status													Total
			E	V	R	I	K	Q	nt	ssp. E	ssp. V	ssp. R	ssp. Q	n/a		
		Euphorbia didiereoides				104										104
		Euphorbia duranii											137			137
		Euphorbia duranii duranii							2							2
		Euphorbia enterophora											11			11
		Euphorbia famatamboay											2			2
		Euphorbia fianarantsoae						55								55
		Euphorbia fiherenensis						10								10
		Euphorbia francoisii							1							1
		Euphorbia genoudiana						12								12
		Euphorbia geroldii						3,007								3,007
		Euphorbia gillettii										4				4
		Euphorbia gottlebei						3,002								3,002
		Euphorbia griseola zambiensis						2								2
		Euphorbia guillauminiana						49								49
		Euphorbia guillemetii							14							14
		Euphorbia hedyotoides						3,635								3,635
		Euphorbia herman-schwartzii						3								3
		Euphorbia hofstaetteri						10								10
		Euphorbia horombensis							2,923							2,923
		Euphorbia intisy							20							20
		Euphorbia jansenvillensis	5													5
		Euphorbia kondoi						367								367
		Euphorbia leandriana						5								5
		Euphorbia leucodendron							51							51
		Euphorbia leuconeura						41								41
		Euphorbia lophogona						69,038								69,038
		Euphorbia mahabobokensis						1								1
		Euphorbia mahafalensis											26			26
		Euphorbia milii											5,488			5,488
		Euphorbia milii splendens						72								72
		Euphorbia milii tenuispina						5								5
		Euphorbia millotii				11,290										11,290
		Euphorbia neohumbertii							97							97
		Euphorbia oncoclada						23								23
		Euphorbia pachypodioides				100										100
		Euphorbia paulianii			138											138
		Euphorbia pedilanthoides			112											112
		Euphorbia perrieri									12					12
		Euphorbia perrieri elongata				2										2
		Euphorbia plagiantha							26							26
		Euphorbia primulifolia				355										355
		Euphorbia primulifolia begardii						16								16
		Euphorbia primulifolia primulifolia						1								1
MG	Euphorbiaceae	Euphorbia pteroclada			1											1
		Euphorbia quartziticola			3											3
		Euphorbia robivelonae						3								3
		Euphorbia rossii		74												74
		Euphorbia sakarahaensis						57								57
		Euphorbia spp												41,577		41,577

Exporter Code	Family	Taxon	Threat Status												Total
			E	V	R	I	K	Q	nt	ssp. E	ssp. V	ssp. R	ssp. Q	n/a	
MG	Euphorbiaceae	Euphorbia stenoclada											33		33
		Euphorbia tardieuana						16							16
		Euphorbia tenuispinosa			3										3
		Euphorbia thouarsiana						10							10
		Euphorbia tirucalli							13						13
		Euphorbia trigona						1							1
		Euphorbia tulearensis						6							6
		Euphorbia viguieri											8,704		8,704
		Euphorbia viguieri capuroniana							2						2
		Euphorbia viguieri tsimbazazae						2							2
		Euphorbia xylophylloides							5						5
	Euphorbiaceae Total		5	74	286	11,978	123	81,938	3,200		12	4	14,401	41,579	153,600
	Liliaceae	Aloe acutissima									18				18
		Aloe andringitrensis			2										2
		Aloe antandroi							2						2
		Aloe bakeri			16										16
		Aloe ballyi			1										1
		Aloe bellatula	5												5
		Aloe betsilensis									35				35
		Aloe brachystachys						1							1
		Aloe brevifolia							1						1
		Aloe buchlohii			9										9
		Aloe bulbillifera						1							1
		Aloe calcairophila	122												122
		Aloe capitata									253				253
		Aloe capitata capitata							10						10
		Aloe capitata cipolinicola			18										18
		Aloe capitata gneissicola							27						27
		Aloe capitata quartziticola							17						17
		Aloe compressa								35					35
		Aloe conifera			60										60
		Aloe cremersii	15												15
		Aloe cryptoflora			1										1
		Aloe decaryi					6								6
		Aloe decorsei					2								2
		Aloe delphinensis			1										1
		Aloe deltoideodonta											67		67
		Aloe descoingsii	211												211
		Aloe divaricata											42		42
		Aloe erythrophylla			7										7
		Aloe fievetii			1										1

Exporter Code	Family	Taxon	Threat Status													Total
			E	V	R	I	K	Q	nt	ssp. E	ssp. V	ssp. R	ssp. Q	n/a		
MG	Liliaceae	Aloe fragilis	11													11
		Aloe guillaumetii					14									14
		Aloe haworthioides									5					5
		Aloe helenae	4													4
		Aloe ibitiensis			12											12
		Aloe imalotensis							14							14
		Aloe immaculata							4							4
		Aloe isaloensis							93							93
		Aloe itremensis			23											23
		Aloe laeta									45					45
		Aloe macroclada					79									79
		Aloe madecassa						47								47
		Aloe parallelifolia	12													12
		Aloe parvula	6													6
		Aloe rauhii			28											28
		Aloe schomeri					29									29
		Aloe spp												174		174
		Aloe suarezensis							7							7
		Aloe suzannae	175													175
		Aloe trachyticola			28											28
		Aloe vaombe											82			82
		Aloe versicolor			2											2
		Aloe viguieri			26											26
	Liliaceae Total		561		235		130	49	175	35	356		191	174		1,906
MG Total			738	74	635	11,978	253	81,987	6,568	37	2,023	4	18,592	42,443		161,332
MX	Cactaceae	Carnegiea gigantea						335,921								335,921
		Disocactus flagelliformis												4		4
		Disocactus martianus												1		1
		Disocactus schrankii												1		1
		Epiphyllum spp												5		5
		Mammillaria haageana elegans												2		2
		Mammillaria rekoi							1							1
		Mammillaria rhodantha							5							5
		Opuntia cholla							150							150
		Opuntia fulgida			128,300											128,300
		Pachycereus militaris							5							5
		Pilosocereus spp												1		1
		Selenicereus grandiflorus							2							2
		Stenocereus queretaroensis							12							12
	Cactaceae Total				128,300			335,921	175					14		464,410
	Fouquieriaceae	Fouquieria columnaris						77								77
	Fouquieriaceae Total							77								77
MX Total					128,300			335,998	175					14		464,487
MZ	Apocynaceae	Pachypodium namaquanum		1												1
	Apocynaceae Total			1												1
	Liliaceae	Aloe spp.												1		1
	Liliaceae Total													1		1
MZ Total				1										1		2

Exporter Code	Family	Taxon	Threat Status												Total
			E	V	R	I	K	Q	nt	ssp. E	ssp. V	ssp. R	ssp. Q	n/a	
NA	Apocynaceae	Pachypodium lealii						2							2
	Apocynaceae Total							2							2
	Euphorbiaceae	Euphorbia damarana						10							10
		Euphorbia lignosa							4						4
		Euphorbia spp												3	3
		Euphorbia subsalsa											3		3
	Euphorbiaceae Total							10	4				3	3	20
	Liliaceae	Aloe dinteri			3										3
	Liliaceae Total				3										3
NA Total					3			12	4				3	3	25
NI	Cactaceae	Cactaceae spp.												15	15
	Cactaceae Total													15	15
NI Total														15	15
NL	Cactaceae	Carnegiea gigantea						2							2
	Cactaceae Total							2							2
NL Total								2							2
PF	Cactaceae	Armatocereus balsasensis						2							2
		Armatocereus mataranus						4							4
		Armatocereus matucanensis						2							2
		Armatocereus oligogonus						5							5
		Armatocereus procerus						3							3
		Armatocereus rauhii						3							3
		Armatocereus spp.												3	3
		Browningia candelaris		1											1
		Browningia chlorocarpa						3							3
		Browningia pilleifera						2							2
		Cactaceae spp.												2	2
		Calymmanthium substerile						3							3
		Cleistocactus fieldianus						6							6
		Cleistocactus spp												9	9
		Corryocactus chachapoyensis						2							2
		Echinopsis cuzcoensis						1,050							1,050
		Echinopsis pachanoi						3							3
		Echinopsis puquiensis						150							150
		Epiphyllum spp												5	5
		Espostoa blossfeldiorum						2							2
		Espostoa melanostele						2							2
		Espostoa mirabilis						2							2
		Espostoa spp.												8	8
		Haageocereus limensis	7												7
		Haageocereus multangularis	10												10
		Haageocereus pacalaensis						9							9
		Haageocereus spp.												2	2
		Haageocereus tenuis						5							5
		Haageocereus versicolor						8							8
		Haageocereus zangalensis						2							2
		Hylocereus lemairei						4							4
		Hylocereus spp												1	1

Exporter Code	Family	Taxon	Threat Status												Total
			E	V	R	I	K	Q	nt	ssp. E	ssp. V	ssp. R	ssp. Q	n/a	
PE	Cactaceae	Lasiocereus rupicola						2							2
		Matucana aurantiaca		2											2
		Matucana formosa		2											2
		Matucana haynei						2							2
		Matucana haynei herzogiana						2							2
		Matucana spp												5	5
		Melocactus bellavistensis						3							3
		Melocactus peruvianus						2							2
		Melocactus spp.												4	4
		Mila caespitosa	8												8
		Mila caespitosa nealeana	2												2
		Neoraimondia arequipensis						6							6
		Neoraimondia spp.												2	2
		Opuntia brasiliensis						6							6
		Opuntia floccosa						3							3
		Opuntia pachypus	3												3
		Opuntia punta-caillan						3							3
		Opuntia quitensis						2							2
		Opuntia spp												7	7
		Opuntia subulata						3							3
		Praecereus euchlorus amazonicus												9	9
		Praecereus euchlorus diffusus												6	6
		Rauhocereus riosaniensis												2	2
		Rhipsalis spp.												6	6
		Weberbauerocereus johnsonii						2							2
		Weberbauerocereus spp												1	1
	Cactaceae Total		30	5				1,308						72	1,415
PE Total			30	5				1,308						72	1,415
PY	Cactaceae	Browningia spp.												2	2
		Cactaceae spp												181	181
		Cereus spp												6	6
		Cleistocactus baumannii						2							2
		Epiphyllum phyllanthus											2		2
		Frailea spp												4	4
		Gymnocalycium mihanovichii						2							2
		Lepismium cruciforme							2						2
		Opuntia spp												4	4
		Rhipsalis cereuscula							2						2
	Cactaceae Total							4	4				2	197	207
	Euphorbiaceae	Euphorbia spp												16	16
	Euphorbiaceae Total													16	16
PY Total								4	4				2	213	223
SN	Cactaceae	Opuntia spp												4	4
	Cactaceae Total													4	4
SN Total														4	4
SR	Cactaceae	Rhipsalis puniceodiscus												5	5
	Cactaceae Total													5	5
SR Total														5	5

Exporter Code	Family	Taxon	Threat Status												Total
			E	V	R	I	K	Q	nt	ssp. E	ssp. V	ssp. R	ssp. Q	n/a	
US	Agavaceae	Agave parviflora			38										38
	Agavaceae Total				38										38
	Apocynaceae	Pachypodium namaquanum		230											230
	Apocynaceae Total			230											230
	Cactaceae	Bergerocactus emoryi			10										10
		Cactaceae spp.												7,192	7,192
		Carnegiea gigantea						527							527
		Cephalocereus spp												6	6
		Cereus fernambucensis							22						22
		Cereus spp.												26	26
		Cleistocactus spp												2	2
		Coryphantha pallida							20						20
		Echinocactus polycephalus						105							105
		Echinocereus engelmannii								107					107
		Echinocereus fendleri								12					12
		Echinocereus nicholii		28											28
		Echinocereus pamanesiorum				21									21
		Echinocereus pectinatus							53						53
		Echinocereus rigidissimus											149		149
		Echinocereus scheeri											24		24
		Echinocereus spp												23	23
		Echinocereus stramineus											10		10
		Echinocereus triglochidiatus									76				76
		Echinopsis chiloensis						14,996							14,996
		Echinopsis ferox						18							18
		Echinopsis formosa						9							9
		Echinopsis lateritia						16							16
		Echinopsis maximiliana						6							6
		Echinopsis santisensis						16							16
		Echinopsis spp.												13	13
		Echinopsis thionantha						1							1
		Eriosyce subgibbosa clavata												35	35
		Escobaria vivipara						50							50
		Eulychnia acida							63,779						63,779
		Eulychnia breviflora							2,608						2,608
		Eulychnia spp.												1,878	1,878
		Ferocactus cylindraceus			479										479
		Ferocactus emoryi		67											67
		Ferocactus spp.												27	27
		Ferocactus townsendianus		10											10
		Ferocactus wislizeni						246							246
		Gymnocalycium schroederianum paucicostatum												22	22
		Haageocereus limensis	20												20
		Haageocereus multangularis	10												10
		Harrisia spp.												30	30
		Harrisia tetracantha						4							4
		Mammillaria grahamii							22						22
		Mammillaria spp.												93	93
		Micranthocereus purpureus							8						8

Exporter Code	Family	Taxon	Threat Status												Total
			E	V	R	I	K	Q	nt	ssp. E	ssp. V	ssp. R	ssp. Q	n/a	
US	Cactaceae	Opuntia acanthocarpa						10,059							10,059
		Opuntia arbuscula							50						50
		Opuntia bigelovii			10,017										10,017
		Opuntia chlorotica						1							1
		Opuntia echinocarpa				51									51
		Opuntia fulgida			40,784										40,784
		Opuntia leptocaulis						2							2
		Opuntia santa-rita		5											5
		Opuntia spp												1,475	1,475
		Opuntia versicolor							50						50
		Pachycereus marginatus							7						7
		Pachycereus pringlei							1						1
		Pachycereus schottii							29						29
		Peniocereus spp												1	1
		Pseudorhipsalis ramulosa						10							10
		Sclerocactus johnsonii						50							50
		Sclerocactus spp												3	3
		Stenocereus gummosus							9						9
		Stenocereus spp												42	42
	Cactaceae Total		**30**	**110**	**51,290**	**72**		**26,116**	**66,658**	**119**	**76**		**183**	**10,868**	**155,522**
	Euphorbiaceae	Euphorbia lactea							5						5
		Euphorbia paulianii			31										31
		Euphorbia spp												2	2
		Euphorbia viguieri ankarafantsiensis						30							30
	Euphorbiaceae Total				**31**			**30**	**5**					**2**	**68**
	Liliaceae	Aloe angelica							3						3
		Aloe buhrii			8										8
		Aloe conifera			7										7
		Aloe erinacea						5							5
		Aloe globuligemma							8						8
		Aloe littoralis							7						7
		Aloe marlothii												3	3
		Aloe spp.												19	19
		Aloe vacillans		9											9
		Aloe vaombe											18		18
		Aloe vera						26							26
	Liliaceae Total			**9**	**15**			**31**	**18**				**18**	**22**	**113**
US Total			**30**	**349**	**51,374**	**72**		**26,177**	**66,681**	**119**	**76**		**201**	**10,892**	**155,971**
ZA	Apocynaceae	Pachypodium bispinosum						300							300
		Pachypodium succulentum						60							60
	Apocynaceae Total							**360**							**360**
	Euphorbiaceae	Euphorbia bupleurifolia							2						2
		Euphorbia chersina							2						2
		Euphorbia damarana						10							10
		Euphorbia dregeana							1						1
		Euphorbia ephedroides							2						2
		Euphorbia gariepina											1		1
		Euphorbia giessii						2							2
		Euphorbia gregaria							1						1

Exporter Code	Family	Taxon	Threat Status												Total
			E	V	R	I	K	Q	nt	ssp. E	ssp. V	ssp. R	ssp. Q	n/a	
ZA	Euphorbiaceae	Euphorbia gummifera						1							1
		Euphorbia hamata							3						3
		Euphorbia horrida											2		2
		Euphorbia meloformis				1									1
		Euphorbia spinea						2							2
		Euphorbia spp												1	1
		Euphorbia tuberculata												2	2
	Euphorbiaceae Total					1		15	11				3	3	33
	Liliaceae	Aloe africana							2						2
		Aloe arborescens							5						5
		Aloe asperifolia			6										6
		Aloe buhrii			11										11
		Aloe dichotoma							6						6
		Aloe dominella							1						1
		Aloe falcata						4							4
		Aloe ferox							2,458,438						2,458,438
		Aloe haemanthifolia			8										8
		Aloe krapohliana		15											15
		Aloe littoralis							2						2
		Aloe pictifolia			4										4
		Aloe plicatilis							3						3
		Aloe pluridens							2						2
		Aloe ramosissima		112											112
		Aloe speciosa							100						100
		Aloe succotrina							1						1
	Liliaceae Total			127	29			4	2,458,560						2,458,720
	Portulacaceae	Anacampseros albidiflora						1							1
		Anacampseros arachnoides						1							1
		Anacampseros comptonii			1										1
		Anacampseros spp.												2	2
		Avonia papyracea											16		16
	Portulacaceae Total				1			2					16	2	21
ZA Total				127	30	1		381	2,458,571				19	5	2,459,134
Grand Total			938	905	180,641	12,057	254	482,544	3,098,873	180	2,104	4	14,824	1,926,015	5,719,339
Percent			0.0	0.0	3.2	0.2	0.0	8.4	54.2	0.0	0.0	0.0	0.3	33.7	100%

Annex P. Non species-specific trade by year (number of records)

Exporter Code	Family	Taxon	Possible Threat status	Year 1989	1990	1991	1992	1993	1994	1995	1996	1997	Total
AG	Cactaceae	Cereus spp.	V							1			1
		Echinopsis spp.	E							1	1		2
		Frailea spp.	Ex/E							1			1
		Gymnocalycium spp.	Q				2			3			5
		Opuntia spp.	E							1			1
		Pterocactus spp.	Q				2						2
		Rhipsalis spp	I							1			1
AG Total							**4**			**8**	**1**		**13**
BO	Cactaceae	Echinopsis spp.	E						1				1
		Gymnocalycium spp	Q						1				1
		Rebutia spp.	E						1				1
	Portulacaceae	Anacampseros spp.	R						1				1
BO Total									**4**				**4**
BZ	Cactaceae	Arrojadoa spp.	I			1							1
		Arthrocereus spp.	R			1							1
		Cactaceae spp.	Q			1							1
		Cereus spp.	V			1							1
		Coleocephalocereus spp.	R			1							1
		Facheiroa spp.	R			1							1
		Melocactus spp.	E			1							1
		Micranthocereus spp	R			1							1
		Opuntia spp.	E			1							1
		Parodia spp.	Q			1							1
		Pilosocereus spp.	E			1							1
BZ Total						**11**							**11**
CH	Asclepiadaceae	Ceropegia spp.	E							1			1
	Euphorbiaceae	Euphorbia spp.	E							1			1
	Liliaceae	Aloe spp.	E							1			1
CH Total										**3**			**3**
CL	Cactaceae	Cactaceae spp.	Q				1	9					10
		Echinopsis/eulychnia spp.	Q						18	24	16	18	76
		Eriosyce spp.	V			1	1				1		3
		Eulychnia spp.	R								2		2
		Opuntia spp.	E								1		1
CL Total						**1**	**2**	**9**	**18**	**24**	**20**	**18**	**92**
CN	Euphorbiaceae	Euphorbia spp	E								1		1
CN Total											**1**		**1**
CR	Cactaceae	Cereus spp	V									1	1
		Epiphyllum spp	E									1	1
		Hylocereus spp	E									1	1
		Opuntia spp	E									1	1
		Weberocereus spp	E									1	1
CR Total												**5**	**5**
CU	Euphorbiaceae	Euphorbia spp	E									1	1
CU Total												**1**	**1**
DE	Cactaceae	Cactaceae spp	Q								1		1
		Coryphantha spp	E								1		1
		Echinocereus spp	E								1		1
		Escobaria spp.	E								1		1
		Eulychnia spp	R								1		1
		Ferocactus spp	E								1		1
		Mammillaria spp	E								1		1
		Neollovdia spp	Q								1		1
		Sclerocactus spp	E								1		1
		Stenocactus spp.	R								1		1
		Thelocactus spp	R								1		1
DE	Cactaceae	Turbinicarpus spp	E								1		1
	Liliaceae	Aloe spp.	E								5	2	7
DE Total											**17**	**2**	**19**

Exporter Code	Family	Taxon	Possible Threat status	Year 1989	1990	1991	1992	1993	1994	1995	1996	1997	Total
DO	Cactaceae	Harrisia spp	E							1			1
		Hylocereus spp.	E							1			1
		Leptocereus spp	E							1			1
		Melocactus spp.	E								1		1
		Opuntia spp	E							1			1
		Pereskia spp.	E							1			1
		Pilosocereus spp.	E							1			1
		Selenicereus spp	R							1			1
DO Total										7	1		8
EC	Cactaceae	Browningia spp	Q	1									1
		Cactaceae spp	Q	1	1								2
		Cereus spp.	V	1									1
		Epiphyllum spp.	E	1									1
		Espostoa spp	Q	1									1
		Hylocereus spp.	E	3	1								4
		Opuntia spp	E	1		1							2
		Rhipsalis spp.	I	1									1
	Euphorbiaceae	Euphorbia spp	E	1		1							2
EC Total				**11**	**2**	**2**							**15**
GT	Agavaceae	Agave spp	E					1					1
	Euphorbiaceae	Euphorbia spp	E					2					2
GT Total								**3**					**3**
KE	Euphorbiaceae	Euphorbia spp	E					1					1
	Liliaceae	Aloe spp	E							1			1
KE Total								**1**		**1**			**2**
MG	Apocynaceae	Pachypodium spp	E					4	5	5	2	4	20
	Asclepiadaceae	Ceropegia spp.	E							4		2	6
	Cactaceae	Cactaceae spp	Q							1			1
		Opuntia spp	E						3		3	1	7
	Didiereaceae	Alluaudia spp	Q					1	2	2		1	6
		Decaryia spp	Q						2				2
		Didierea spp	Q					4		1			5
	Euphorbiaceae	Euphorbia spp.	E					18	12	14	4	6	54
	Liliaceae	Aloe spp	E					10	6	7		3	26
MG Total								**37**	**30**	**34**	**9**	**17**	**127**
MX	Cactaceae	Epiphyllum spp	E					1					1
		Pilosocereus spp	E					1					1
MX Total								**2**					**2**
MZ	Liliaceae	Aloe spp	E								1		1
MZ Total											**1**		**1**
NA	Euphorbiaceae	Euphorbia spp	E									1	1
NA Total												**1**	**1**
NI	Cactaceae	Cactaceae spp	Q									2	2
NI Total												**2**	**2**
PE	Cactaceae	Armatocereus spp	Q									1	1
		Cactaceae spp	Q							1			1
		Cleistocactus spp	V								1	2	3
		Epiphyllum spp	E								1		1
		Espostoa spp	Q									1	1
		Haageocereus spp	E									1	1
		Hylocereus spp	E									1	1
		Matucana spp	E								1		1
		Melocactus spp	E									1	1
		Neoraimondia spp	Q									1	1
		Opuntia spp.	E								1	1	2
		Rhipsalis spp.	I								1		1
PE	Cactaceae	Weberbauerocereus spp	E									1	1
PE Total										**1**	**5**	**10**	**16**
PY	Cactaceae	Browningia spp	Q				1						1
		Cactaceae spp	Q			2	1	1	1	1		1	7
		Cereus spp.	V				1	1					2
		Frailea spp.	Ex/E				1	1					2
		Opuntia spp	E					1					1
	Euphorbiaceae	Euphorbia spp	E					3					3
PY Total						**2**	**4**	**7**	**1**	**1**		**1**	**16**

Exporter Code	Family	Taxon	Possible Threat status	Year 1989	1990	1991	1992	1993	1994	1995	1996	1997	Total
SN	Cactaceae	Opuntia spp	E					1					1
SN Total								**1**					**1**
US	Cactaceae	Cactaceae spp	Q			2	1	4	11	1	1	10	30
		Cephalocereus spp	R			1		1					2
		Cereus spp	V			1		1					2
		Cleistocactus spp	V							1			1
		Echinocereus spp	E				1	1					2
		Echinopsis spp	E					1					1
		Eulychnia spp	R								2		2
		Ferocactus spp.	E			1	1	1					3
		Harrisia spp	E				4	3					7
		Mammillaria spp.	E			1	1	1	1				4
		Opuntia spp	E				1	1	1			2	5
		Peniocereus spp	R						1				1
		Sclerocactus spp	E			1							1
		Stenocereus spp	R			1		1					2
	Euphorbiaceae	Euphorbia spp.	E					1					1
	Liliaceae	Aloe spp	E			5							5
US Total						**13**	**9**	**16**	**14**	**2**	**3**	**12**	**69**
ZA	Euphorbiaceae	Euphorbia spp.	E							1			1
	Portulacaceae	Anacampseros spp	R							1			1
ZA Total										**2**			**2**
Grand Total				**11**	**2**	**29**	**19**	**76**	**67**	**83**	**58**	**69**	**414**

9.4. Non-CITES listed succulent plants in trade from the wild

Annex Q. List of Taxa, Threat Status and Recommendations

Data taken from: Newton, D.J.; Chan, J.; (1998) TRAFFIC: South Africa's Southern African succulent plants

Family	Taxon	Threat status	Recommendation
Apocynaceae	Pterodiscus speciosus	Q	Conduct further research into status of wild population to assess impact of trade before considering CITES listing.
Asclepiadaceae	Adenium multiflorum	nt/Q	Review status of wild populations. Conduct ongoing market review. CITES listing not a priority.
	Brachystelma australe	R	Urgent review of wild population status required. Explore listing on Appendix II or III.
	Brachystelma bruceae	R	Urgent review of wild population status and levels of wild collection required. Explore listing on Appendix II or III.
	Brachystelma caffrum	R	Urgent review of wild population status required. Explore listing on Appendix II or III.
	Brachystelma cathcartense	E	Urgent review of wild population status required. Explore listing on Appendix II or III.
	Brachystelma discoideum	R	No urgent action required but a review of wild population status is essential.
	Brachystelma minor	R	Urgent review of wild population status required. Explore listing on Appendix II or III.
	Brachystelma modestum	R	Urgent review of wild population status required. Explore listing on Appendix II or III.
	Brachystelma ngomense	E	Urgent review of wild population status required. Explore listing on Appendix II or III.
	Brachystelma peritum	R	Urgent review of wild population status required. Explore listing on Appendix II or III.
	Brachystelma petraeum	R	Urgent review of wild population status required. Explore listing on Appendix II or III.
	Brachystelma plchellum	Q	Urgent review of wild population status required. Explore listing on Appendix II or III.
	Brachystelma remotum	Q	Urgent review of wild population status required. Explore listing on Appendix II or III.
	Brachystelma stellatum	Q	Urgent review of wild population status required. Explore listing on Appendix II or III.
	Brachystelma tenellum	V	Urgent review of wild population status required. Explore listing on Appendix II or III.
	Brachystelma tenue	I	Urgent review of wild population status required.
	Brachystelma vahrmeijeri	R	Urgent review of wild population status required. Explore listing on Appendix II or III.
Asphodelaceae	Gasteria nitida	K	Conduct further research into status of wild population before exploring Appendix II or III listing or stricter domestic protection.
	Haworthia unicolor	Q	Conduct further research into status of populations to assess levels of collection from the wild.
	Haworthia mirabilis	E	Conduct further research into status of wild population before considering CITES Appendix I or II listing.
	Haworthia bruynsii	V	Conduct further research into status of wild population before considering CITES Appendix I or II listing.

Family	Taxon	Threat status	Recommendation
Asphodelaceae	Haworthia emelyae var. comptoniana	Q	Conduct further research into status of wild population before considering CITES Appendix I or II listing.
	Haworthia cooperi	Q	Conduct further research into status of wild population to assess levels of collection from the wild.
	Haworthia emelyae	V	Conduct further research into status of wild population before considering CITES Appendix II or III listing.
	Haworthia floribunda	V	Conduct further research into status of wild population before considering CITES Appendix II or III listing.
	Haworthia graminifolia	R	Conduct further research into status of wild population before considering CITES Appendix I or II listing.
	Haworthia heidelbergensis	V	Conduct further research into status of wild population before considering CITES Appendix I or II listing.
	Haworthia kingiana	V	Conduct further research into status of wild population before considering CITES Appendix I or II listing.
	Haworthia koelmaniorum	V	Conduct further research into status of wild population before considering CITES Appendix I or II listing.
	Haworthial imifolia	Q	Conduct further research into status of wild population before considering CITES Appendix II or III listing or stricter domestic protection.
	Haworthia magnifica var. atrofusca	Q	Conduct further research into status of wild population before considering CITES Appendix II or III listing.
	Haworthia magnifica var. major	E	Conduct further research into status of wild population before considering CITES Appendix II or III listing.
	Haworthia maraisii	Q	Conduct further research into status of wild population before considering CITES Appendix I or II listing.
	Haworthia marginata	E	Conduct further research into status of wild population before considering CITES Appendix I or II listing.
	Haworthia maughanii	V	Conduct further research into status of wild population before considering CITES Appendix I or II listing.
	Haworthia mutica	V	Conduct further research into status of wild population before considering CITES Appendix I or II listing.
	Haworthia paradoxa	Q	Conduct further research into status of wild population before considering CITES Appendix I or II listing.

Family	Taxon	Threat status	Recommendation
Asphodelaceae	Haworthia parksiana	E	Conduct further research into status of wild population before considering CITES Appendix I or II listing.
	Haworthia pehlemanniae	E	Conduct further research into status of wild population before considering CITES Appendix I or II listing.
	Haworthia peollnitziana	E	Conduct further research into status of wild population before considering CITES Appendix I or II listing.
	Haworthia pubescens	V	Conduct further research into status of wild population before considering CITES Appendix I or II listing.
	Haworthia pulchella	Q	Conduct further research into status of wild population before considering CITES Appendix II or III listing.
	Haworthia serrata	E	Conduct further research into status of wild population before considering CITES Appendix I or II listing.
	Haworthia sordida	V	Conduct further research into status of wild population before considering CITES Appendix I or II listing.
	Haworthia springbokvlakensis	V	Conduct further research into status of wild population before considering CITES Appendix I or II listing.
	Haworthia truncata	V	Conduct further research into status of wild population before considering CITES Appendix II or III listing.
	Haworthia wittebergensis	R	Conduct further research into status of wild population before considering CITES Appendix II or III listing.
	Haworthia woolleyi	V	Conduct further research into status of wild population before considering CITES Appendix I or II listing.
	Haworthia xiphiophylla	Q	Conduct further research into status of wild population before considering CITES Appendix II or III listing.
	Poellnitzia entire genus, 1 spp.		Conduct further research into status of wild population before considering CITES Appendix I or II listing.
Asteraceae	Senecio laticipes	Q	Conduct further research into status of wild populations.
	Othonna entire genus, c.120spp.		Conduct further research into status of wild population before considering CITES Appendix II or III listing.
Crassulaceae	Crassula mesembryanthoides	Q	Conduct further research into status of wild population.
	Crassula susannae	I	Conduct further research into status of wild population.

Family	Taxon	Threat status	Recommendation
Dioscoreaceae	Dioscorea elephantipes	V	Conduct further research into status of wild population. Explore listing on precautionary principle applies.
Genaniaceae	Sarcocaulon multifidum	Q	Conduct further research into status of wild population before considering CITES Appendix III listing for species.
	Sarcocaulon vanderietiae	Q	Conduct further research into status of populations to assess levels of collection in the wild.
	Pelargonium entire genus, c.280spp.		Conduct further research into status of wild population before considering CITES Appendix II or III listing.
Mesembryanthemaceae	Cheiridopsis pecularis	V	Conduct further research into status of wild population. Explore listing on precautionary principle applies.
	Conophytum burgeri	V	Conduct further research into status of wild population. Explore listing on precautionary principle applies.
	Conophytum comptonii	Q	Conduct further research into status of wild population. Explore listing on precautionary principle applies.
	Conophytum phoeniceum	R	Conduct further research into status of wild population. Explore listing on precautionary principle applies.
	Conophytum ratum	Q	Conduct further research into status of wild population. Explore listing on precautionary principle applies.
	Diplosoma spp.	Q	Conduct further research into status of wild population. Explore listing on precautionary principle applies.
	Gibbaeum esterhuyseniae	Ex	Due to uncertainty about status of wild populations an urgent review of wild population is required followed by consideration of CITES Appendix I listing.
	Muiria hortensae	Q	Conduct further research into status of wild population before considering CITES Appendix II or III listing.
Passifloraceae	Adenia pechuelii	R	review status of wild populations for all caudiciform species. If in decline due to collection consider CITES Appendix II listing.
Pedaliaceae	Pedaliacea (entire genus, 17 genera, 85 spp.)		Conduct further research into status of wild population to assess impact of trade before considering CITES listing.
Vitaceae	Cryphostemma humile	Q	Conduct further research into status of wild population. Explore listing on precautionary principle applies.
	Cyphostemma uter	Q	Conduct further research into status of wild population. Explore listing on precautionary principle applies.

9.5. Threatened Succulent Plants of the World

Format of data provided

First line(s)

1. **Inclusion on CITES Appendix**. A Roman numeral **I**, **II**, or **III** indicates the CITES Appendix on which the plant appears. **I, II, III** (normal font): inclusion is at the species, subspecies, or variety level; ***I, II, III*** (italicised): inclusion is at the genus level; **I, II, III** (underlined): inclusion is at the family level.

2. **Original IUCN Red Data Book category at the world level (in bold).** This is assigned by WCMC on the basis of national threat information available (see 1 below), and applies to the degree of threat to this taxon at the world level. Definitions are given in annex C of this report.

3. **Scientific name including author [Data source of name]**

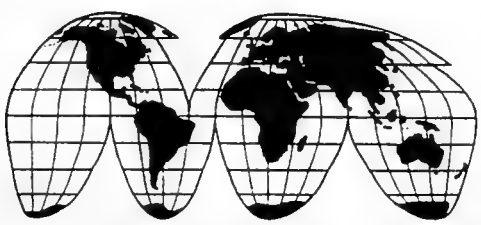
Subsequent line(s)

4. **IUCN Red Data Book category for this BRU**. This applies to the degree of threat to this taxon in this area only, and is assigned according to information in a data source. Data sources are listed after each plant list.

5. **Data source** number for conservation status in this BRU.

6. **Distribution of taxon (geographical qualifier) [Data source number for distribution]**. Note: A "**?**" directly before the area name indicates there is doubt as to the accuracy of the distribution information. If the distribution is known or assumed to be incomplete, an explanation to that effect is displayed after the last distribution.

Geographic Coding Scheme



WCMC has adopted the geographic coding system of Basic Recording Units (BRU) (Hollis and Brummitt, 1992). This system is used for recording plant, animal and protected area distribution information. Under this scheme the world is divided into 622 BRUS, with a hierarchy comprising four levels of subdivision. Level 1 divides the world into "continents" as follows:

Europe	Asia-Tropical	Northern America
Africa	Australasia	Southern America
Asia-Temperate	Pacific	Antarctic

Each continent is then subdivided into regions (level 2), these then being further subdivided into level 3 (mostly country level divisions) and level 4 (mostly state level divisions) which totals 622 separate units.

Examples of countries broken down to level 4:

Brazil (29 areas)	India (32 areas)	Mexico (30 areas)
China (27 areas)	New Zealand (8 areas)	USA (60 areas)

In addition to the countries listed above, oceanic islands and island groups are treated as level 4 areas regardless of their "parent" country.

Example of a record from the *World Threatened Plants Database*

V	**II**	***Euphorbia gillettii* Bally & S.Carter 17672, 20064**	
[global threat status]	[CITES listing]	[scientific name and authority]	[data source(s) for name]

V	**17672**	**Somalia**	**17672**
[local threat status]	[data source for local threat status]	[distribution]	[distribution data source]

Data sources are listed (by in numeric order) at the end of each taxonomic list.

Explanation of Family Statistics

Family statistics: number of genera; number of species and recorded threatened species and geographical notes are listed at the beginning of each family in annexes R-U. Number of genera and number of species are according to *Vascular Plant Families and Genera* (Brummitt,1992). Recorded threatened species are according to the *1997 IUCN Red List of Threatened Plants* (Walter & Gillett, 1998). This figure relates to all the threatened species within the family, rather than only the succulents.

Agavaceae

Number of genera:	18	
Number of species:	350-410	
Recorded threatened species:	68	(17%)

Warm, mostly arid regions of New and Old Worlds; a few in distinctly temperate climates.

E I ***Agave arizonica*** **Gentry & J.H. Weber** *20850, 11055*
- E *20850* U.S. - Arizona (Tonto National Forest) *20850*

V I ***Agave parviflora*** **Torr. ssp. *flexiflora*** **H.S. Gentry** *19889*
- V *21408* U.S. - Arizona *21408*
- Mexico
- Mexico - Chihuahua *21408*
- V *19850* Mexico - Sonora *19889*

R I ***Agave parviflora*** **Torr. ssp. *parviflora*** *19889*
- R *19002* U.S. - Arizona *19889*

E II ***Agave victoriae-reginae*** **T. Moore** *9019*
- E *19848* Mexico - Coahuila *19889*
- E *19848* Mexico - Nuevo Leon *19889*

Aloaceae

Number of genera:	5	
Number of species:	700	
Recorded threatened species:	206	(29%)

Arabia, Africa, Madagascar.

R II ***Aloe acutissima*** **H. Perrier var. *antanimorensis*** **G. Reyn.** *10368*
- R *20578* Madagascar (Toliara) *20578*

E I ***Aloe albiflora*** **Guillaumin** *10368*
- E *20578* Madagascar (Toliara) *20578*

V II ***Aloe albovestita*** **S. Carter & Brandham** *20064*
- V Somalia

R I ***Aloe alfredii*** **Rauh** *20578*
- R *20578* Madagascar (Antananarivo) *20578*
- [distribution possibly incomplete]

R II ***Aloe ambigens*** **Chiov.** *17668*
- R *17668* Somalia *17668*

V II ***Aloe amudatensis*** **G. Reyn.** *20264*
- V Kenya
- V *19007* Uganda *19007*

R II ***Aloe andringitrensis*** **H. Perrier** *10368*
- R *20578* Madagascar (Fianarantsoa) *20578*

V II ***Aloe archeri*** **Lavranos** *20264*
- V Kenya *20264*

R II ***Aloe arenicola*** **Reynolds** *20604, 18295*
- R *18295* Namibia *18295*
- V *20604* South Africa - Cape Province *20604*

R II ***Aloe asperifolia*** **A. Berger** *18295*
- R *18295* Namibia *18295*

I II ***Aloe babatiensis*** **Christian & Verdoorn** *20264*
- I *5926* Tanzania *20264*

R I ***Aloe bakeri*** **Scott Elliot** *10368*
- R *20578* Madagascar (Toliara) *20578*

E II ***Aloe ballii*** *20932*
- E *20932* Mozambique (Zimbabwe border) *20932*
- E *20932* Zimbabwe (Rusitu Valley) *20932*

R II ***Aloe ballyi*** **G. Reyn.** *20057*
- I *20057* Kenya *20057*
- E *20057* Tanzania *17435*

V II ***Aloe bargalensis*** **Lavranos** *20064*
- V Somalia

V II ***Aloe bella*** **G. Rowley** *20064*
- V Somalia

E I ***Aloe bellatula*** **G. Reynolds** *10368*
- E *20578* Madagascar (Fianarantsoa) *20578*

R II ***Aloe betsiliensis*** **H. Perrier** *20578*
- R *18295* Madagascar (Toliara) *20578*

I II ***Aloe boscawenii*** **Christian** *20264*
- I *5926* Tanzania (Tanga) *20264*

E II ***Aloe bowiea*** **Schult. & Schult.f.** *20604*
- E *20604* South Africa - Cape Province *20604*

V II ***Aloe breviscapa*** **G. Reyn. & Bally** *20064*
- V Somalia

R II ***Aloe buchlohii*** **Rauh** *20578*
- R *20578* Madagascar (Toliara) *20578*

R II ***Aloe buhrii*** **Lavranos** *20604*
- R *20604* South Africa - Cape Province *20604*

I II ***Aloe bullockii*** **G. Reyn.** *5926*
- I *5926* Tanzania (Buha, Kahama) *20264*

I II ***Aloe bussei*** **A. Berger** *20264*
- I *5926* Tanzania *20264*

E I ***Aloe calcairophila*** **G. Reyn.** *18294*
- E *20578* Madagascar (Fianarantsoa) *20578*

R II ***Aloe calidophila*** **G. Reyn.** *20264*
- R Ethiopia
- R Kenya

V II ***Aloe cameronii*** **Hemsl. var. *bondana*** **G. Reyn.** *20064*
- V *21420* Zimbabwe *21420*

I II ***Aloe canarina*** **S. Carter** *20264*
- I *19007* Uganda (Karamoja) *20264*

R II ***Aloe cannellii*** **Leach** *20064*
- R *17668* Mozambique *17668*

R II ***Aloe capitata*** **Baker var. *cipolinicola*** **H. Perrier** *20578*
- R *20578* Madagascar (Fianarantsoa) *20578*

R II ***Aloe capitata*** **Baker var. *silvicola*** **H. Perrier** *20578*
- R *20578* Madagascar (Mahajunga) *20578*

V II ***Aloe cheranganiensis*** **S. Carter & Brandham** *20057*
- V *20057* Kenya *20057*
- V *20057* Uganda *20264*

E II ***Aloe chlorantha*** **Lavranos** *20604*
- E *20604* South Africa - Cape Province *20604*

R II ***Aloe chortolirioides*** **A. Berger var. *boastii*** **(Letty) G. Reyn.** *20064*
- R Swaziland

V II ***Aloe chrysostachys*** **Lavranos & Newton** *20264*
- V Kenya

V II ***Aloe classenii*** **G. Reyn.** *20264*
- V Kenya

R II ***Aloe comosa*** **Marloth & A.Berger** *20604*
- R *20604* South Africa - Cape Province *20604*

E I ***Aloe compressa*** **H. Perrier var. *compressa*** *18294*

Liliopsida (monocots): Aloaceae: *Aloe*

E — *20578* Madagascar (Antananarivo) *20578*

E I *Aloe compressa* H. Perrier var. *rugosquamosa* H. Perrier *18294*
E — *20578* Madagascar (Antananarivo) *20578*

E I *Aloe compressa* H. Perrier var. *schistophila* H. Perrier *18294*
E — *20578* Madagascar (Antananarivo) *20578*

R II *Aloe confusa* Engl. *20264*
R — *17668* Kenya *17668*
V — *5926* Tanzania *5926*

R II *Aloe conifera* H. Perrier *20578*
R — *20578* Madagascar (Fianarantsoa) *20578*

E II *Aloe cremersii* Lavranos *20578*
E — *20578* Madagascar (Fianarantsoa) *20578*

R II *Aloe cremnophila* G. Reyn. & Bally *20064*
R — Somalia

R II *Aloe cryptoflora* G. Reyn. *20578*
R — *20578* Madagascar (Fianarantsoa) *20578*

R II *Aloe dabenorisana* Van Jaarsv. *20604*
R — *20604* South Africa - Cape Province *20604*

V II *Aloe decurva* G. Reyn. *20064*
V — Mozambique

R I *Aloe delphinensis* Rauh *20578, 19976*
R — *20578* Madagascar (Toliara) *20578* [distribution possibly incomplete]

E I *Aloe descoingsii* G. Reyn. *18294*
E — *20578* Madagascar (Toliara) *20578*

V II *Aloe deserti* Engl. *20264*
V — Kenya
V — Tanzania

V II *Aloe dhufarensis* Lavranos *20146*
V — *17668* Oman *17668*

R II *Aloe dinteri* A.Berger *20604, 18295*
R — *20604* Namibia *20604*

R II *Aloe distans* Haw. *20604*
R — *20604* South Africa - Cape Province *20604*

R II *Aloe doei* Lavranos *18295*
R — Yemen, Democratic

I II *Aloe dorothea* A. Berger *20264*
I — *5926* Tanzania *5926*

V II *Aloe elgonica* Bullock *20264*
V — Kenya

R II *Aloe eminens* G. Reyn. & Bally *20884*
R — *20884* Somalia (north) *20884*

R II *Aloe erythrophylla* Bosser *20578*
R — *20578* Madagascar (Fianarantsoa) *20578*

V II *Aloe fibrosa* Lavranos & Newton *20264*
V — Kenya
V — *17668* Tanzania *17668*

R II *Aloe fievetii* G. Reyn. *20578*
R — *20578* Madagascar (Fianarantsoa) *20578*

I II *Aloe flexilifolia* Christian *20264*
I — *5926* Tanzania *5926*

R II *Aloe forbesii* Balf. f. *15534*
R — *15534* Yemen - Socotra (Hajh) *15534*

E I *Aloe fragilis* Lavranos & Roosli *20578, 19976*
E — *20578* Madagascar (Antsiranana) *20578* [distribution possibly incomplete]

R II *Aloe fulleri* Lavranos *20064*
R — *17668* Yemen, Democratic *17668*

R II *Aloe gerstneri* Reynolds *20604*
R — *20604* South Africa - Natal *20604*

R II *Aloe gracilis* Haw. var. *decumbens* G. Reyn. *20803*
R — *20803* South Africa - Cape Province *20803*

V II *Aloe grisea* S. Carter & Brandham *20064*
V — Somalia

R II *Aloe haemanthifolia* A.Berger & Marloth *20604*
R — *20604* South Africa - Cape Province *20604*

V II *Aloe harlana* G. Reyn. *20064*
V — Ethiopia

R I *Aloe haworthioides* Baker var. *aurantiaca* H. Perrier *18294*
R — *20578* Madagascar (Fianarantsoa) *20578*

R I *Aloe haworthioides* Baker var. *haworthioides* *18294*
R — *20578* Madagascar (Fianarantsoa) *20578*

E I *Aloe helenae* Danguy *18294*
E — *18294* Madagascar (Toliara) *20578*

V II *Aloe heliderana* Lavranos *20064*
V — Somalia

I II *Aloe howmanii* G. Reynolds *7763*
I — *21420* Zimbabwe *7763*

R II *Aloe ibitiensis* H. Perrier *20578*
R — *18294* Madagascar (Antananarivo) *20578*

R II *Aloe inamara* Leach *20064*
R — *17668* Angola *17668*

R II *Aloe inconspicua* Plowes *20604, 19976*
R — *20604* South Africa - Natal *20604*

V II *Aloe inermis* Forsk.
V — *17668* Saudi Arabia *17668*
V — *17668* Yemen *17668*
V — Somalia

R II *Aloe itremensis* G. Reyn. *20578*
R — *20578* Madagascar (Fianarantsoa) *20578*

I II *Aloe jacksonii* G. Reyn. *20064*
I — Ethiopia

E II *Aloe jucunda* G. Reyn. *20064*
E — Somalia

R II *Aloe juvenna* Brandham & S. Carter *20264*
R — *17668* Kenya *17668*

V II *Aloe keithii* Reynolds *20604, 18023*
R — *20604* Swaziland *20604*

E II *Aloe kilifiensis* Christian *20264*
E — Kenya

V II *Aloe krapohliana* Marloth *20604*
V — *20604* South Africa - Cape Province *20604*

R II *Aloe kulalensis* Newton & Beentje *20057*
R — *20057* Kenya (Mt. Kulal) *20057*

R I *Aloe laeta* A. Berger var. *laeta* *20578*
R — *20578* Madagascar (Antananarivo) *20578*

R I *Aloe laeta* A. Berger var. *maniaensis* H. Perrier *20578*
R — *20578* Madagascar (Fianarantsoa) *20578*

I II *Aloe leachii* Reynolds *20264*
I — *5926* Tanzania *5926*

V II *Aloe lensayuensis* Lavranos & Newton *20264*
V — Kenya

Liliopsida (monocots): Aloaceae: *Aloe*

I // ***Aloe leptosiphon*** **A. Berger** *20264*
I *5926* Tanzania *20264*

V // ***Aloe longistyla*** **Baker** *20604*
V *20604* South Africa - Cape Province *20604*

R // ***Aloe mcloughlinii*** **Christian** *20064*
R Ethiopia

V // ***Aloe medishiana*** **G. Reyn. & Bally** *20064*
V Somalia

V // ***Aloe menachensis*** **(Schweinf.) Blatter**
V *17668* Yemen *17668*

V // ***Aloe mendesii*** **G. Reyn.** *6968*
V *6968* Angola *6968*

V // ***Aloe meruana*** **Lavranos** *20264*
V Kenya

R // ***Aloe meyeri*** **Van Jaarsv.** *20604*
R *20604* Namibia *20604*
R *20604* South Africa - Cape Province *20604*

R // ***Aloe microcantha*** **Haw.** *20604*
R *20604* South Africa - Cape Province *20604*

R // ***Aloe millotii*** **G. Reynolds** *18294*
R *20578* Madagascar (Toliara) *20578*

R // ***Aloe monotropa*** **I.Verd.** *20604, 17458*
R *20604* South Africa - Transvaal *20604*

R // ***Aloe monticola*** **G. Reyn.** *20064*
R Ethiopia

E // ***Aloe morijensis*** **S. Carter & Brandham** *20264*
E Kenya (Masai) *20264*
E Tanzania (Masai) *20264*

I // ***Aloe musapana*** **G. Reyn.** *20064*
I *21420* Zimbabwe *21420*

V // ***Aloe nyeriensis*** **Christian** *20057*
V *20057* Kenya *20057*

E // ***Aloe ortholopha*** **Christian & Milne-Redh.** *6088*
E *6088* Zimbabwe *6088*

E I ***Aloe parallelifolia*** **H. Perrier** *18294*
E *20578* Madagascar (Antananarivo) *20578*

E I ***Aloe parvula*** **A. Berger** *18294*
E *20578* Madagascar (Fianarantsoa) *20578*

R // ***Aloe patersonii*** **B. Mathew** *20064*
R *17668* DR of Congo *17668*

V // ***Aloe pearsonii*** **Schönland** *20604*
V *20604* Namibia *20604*
V *20604* South Africa - Cape Province *20604*

V // ***Aloe peckii*** **Bally & Verdoorn** *20064*
V Somalia

R // ***Aloe peglerae*** **Schönland** *20604*
R *20604* South Africa - Transvaal *20604*

I // ***Aloe penduliflora*** **Baker** *20264*
V *17668* Kenya *17668*
I *5926* Tanzania *5926*

R // ***Aloe perrieri*** **G. Reynolds** *18294*
R *20578* Madagascar (Fianarantsoa) *20578*

R // ***Aloe petrophila*** **Pillans** *20604*
R *20604* South Africa - Transvaal *20604*

R // ***Aloe pictifolia*** **D.S.Hardy** *20604*
R *20604* South Africa - Cape Province *20604*

E I ***Aloe pillansii*** **L.Guthrie** *20604*
E *20604* Namibia *20604*
E *20604* South Africa - Cape Province *20604*

E I ***Aloe polyphylla*** **Schönland ex Pillans** *20604, 20605*
E *20604* Lesotho *20604*
Ex *20604* South Africa - Orange Free State *20604*

R // ***Aloe powysiorum*** **Newton & Beentje** *20057*
R *20057* Kenya *20057*

R // ***Aloe prinslooi*** **I.Verd. & D.S.Hardy** *20604*
R *20604* South Africa - Natal *20604*

R // ***Aloe pruinosa*** **Reynolds** *20604*
R *20604* South Africa - Natal *20604*

R // ***Aloe pubescens*** **G. Reyn.** *20064*
R Ethiopia

V // ***Aloe ramosissima*** **Pillans** *20604*
V *20604* Namibia *20604*
V *20604* South Africa - Cape Province *20604*

R I ***Aloe rauhii*** **G. Reynolds** *18294*
R *20578* Madagascar (Toliara) *20578*

I // ***Aloe reitzii*** **G. Reyn. var.** ***reitzii*** *20604*
I *20604* South Africa - Transvaal *20604*

R // ***Aloe reitzii*** **G. Reyn. var.** ***vernalis*** **Hardy** *20604*
R *20604* South Africa - Natal *20604*

R // ***Aloe retrospiciens*** **G. Reyn. & Bally** *20064*
R Ethiopia
R Somalia

V // ***Aloe reynoldsii*** **Letty** *20604*
V *20604* South Africa - Cape Province (Transkei) *20604*

I // ***Aloe richardsiae*** **Reynolds** *5926*
I *5926* Tanzania *20264*

R // ***Aloe rigens*** **G. Reyn. & Bally var.** ***mortimeri*** **Lavranos** *20064*
R *17668* Yemen, Democratic *17668*

V // ***Aloe rivae*** **Baker** *20264*
V Ethiopia (south) *20264*
V Kenya (Northern Frontier Province) *20264*

V // ***Aloe rubroviolacea*** **Schweinf.** *20064*
V *17668* Saudi Arabia *17668*
V *17668* Yemen, Democratic *17668*

V // ***Aloe rugosifolia*** **M.G. Gilbert & Sebsebe Demissew** *20264*
V Ethiopia (south) *20264*
V Kenya (Northern Frontier Province) *20264*

V // ***Aloe saundersiae*** **(Reynolds) Reynolds** *20604*
V *20604* South Africa - Natal *20604*

R // ***Aloe schelpei*** **G. Reyn.** *20064*
R Ethiopia

V // ***Aloe scobinifolia*** **G. Reyn. & Bally** *20064*
V Somalia

V // ***Aloe simii*** **Pole Evans** *20604*
V *20604* South Africa - Transvaal *20604*

V // ***Aloe sinana*** **G. Reyn.** *20064*
V Ethiopia

V // ***Aloe somaliensis*** **W. Watson** *20064*
V Somalia

R // ***Aloe soutpansbergensis*** **I.Verd.** *20604*
R *20604* South Africa - Transvaal *20604*

E // ***Aloe squarrosa*** **Baker** *15534*
E *15534* Yemen - Socotra (western cliffs) *15534*

Liliopsida (monocots): Aloaceae: *Aloe*

R // ***Aloe striata*** Haw. ssp. ***komaggasensis*** (Kritzinger & Van Jaarsv.) Glen & D.S.Hardy *20604*
R *20604* South Africa - Cape Province *20604*

E I ***Aloe suzannae*** Decary *18294*
E *18294* Madagascar (Toliara) *20578*

I // ***Aloe tauri*** Leach *20064*
I *21420* Zimbabwe *21420*

I // ***Aloe thompsoniae*** Groenew. *20604, 17458*
I *20604* South Africa - Transvaal *20604*

V I ***Aloe thorncroftii*** Pole Evans *20604, 15658*
V *20604* South Africa - Transvaal *20604*

V // ***Aloe tororoana*** G. Reyn. *20264*
V *19007* Uganda *19007*

R // ***Aloe trachyticola*** (H. Perrier) G. Reyn. *20578*
R *20578* Madagascar (Antananarivo; Fianarantsoa) *20578*

V // ***Aloe trigonantha*** Leach *20064*
V Ethiopia

E // ***Aloe ukambensis*** G. Reyn. *20264*
E Kenya

V // ***Aloe vacillans*** Forssk.
V *17668* Saudi Arabia *17668*
V *17668* Yemen *17668*
V *17668* Yemen, Democratic *17668*

R // ***Aloe vandermerwei*** Reynolds *20604*
R *20604* South Africa - Transvaal *20604*

R I ***Aloe versicolor*** Guillaumin *18294*
R *20578* Madagascar (Toliara) *20578*

R // ***Aloe veseyi*** G. Reyn. *20264*
R *17668* Tanzania *17668*
R *17668* Zambia *17668*

R // ***Aloe viguieri*** H. Perrier *20578*
R *20578* Madagascar (Toliara) *20578*

V // ***Aloe vituensis*** Baker *20264*
V Kenya

R // ***Aloe vogtsii*** Reynolds *20604*
R *20604* South Africa - Transvaal *20604*

V // ***Aloe volkensii*** Engl. ssp. ***volkensii*** *20264*
V *17668* Kenya *17668*
V Tanzania *20264*

R I ***Aloe vossii*** Reynolds *20604, 15658*
R *20604* South Africa - Transvaal *20604*

E // ***Aloe whitcombii*** Lavaranos *20146*
E *20146* Oman (Dhofar) *20146*

I // ***Aloe wildii*** (G. Reyn.) G. Reyn. *20064*
I *21420* Zimbabwe *21420*

Apocynaceae

Number of genera:	168-200
Number of species:	2,000
Recorded threatened species:	149 (7%)

Tropics, particularly rain forest regions.

E I ***Pachypodium ambongense*** L. Poisson *10368*
E *19879* Madagascar (Mahajunga) *20578*

R I ***Pachypodium baronii*** Constantin & Bois var. ***baronii*** *10368*
R *19879* Madagascar (Mahajunga) *20578*

E I ***Pachypodium baronii*** Constantin & Bois var. ***windsori*** (L. Poisson) Pichon *10368*
E *20578* Madagascar (Antsiranana) *20578*

E I ***Pachypodium decaryi*** L. Poisson *10368*
E *20578* Madagascar (Mahajunga) *20578*

R // ***Pachypodium densiflorum*** Baker var. ***brevicalyx*** H. Perrier *10368*
R *19879* Madagascar (Antananarivo) *20578*

R // ***Pachypodium horombense*** Pichon *10368*
R *19879* Madagascar

R // ***Pachypodium lamerei*** Drake var. ***ramosum*** (Costantin & Bois) Pichon *10368*
R *19879* Madagascar (Toliara) *20578*

R // ***Pachypodium rosulatum*** Baker var. ***rosulatum*** *10368*
R *19879* Madagascar (Mahajunga) *20578*

Asclepiadaceae

Number of genera:	250-315
Number of species:	2,000
Recorded threatened species:	420 (21%)

Tropical and subtropical, especially Africa, with relatively few species in temperate regions.

E // ***Ceropegia achtenii*** De Wild. ssp. ***togoensis*** H. Huber *7926*
E *6072* Ghana *7926*

R // ***Ceropegia affinis*** Vatke *20202*
R *20211* Ethiopia *20202*
R *20211* Somalia *20202*

R // ***Ceropegia albisepta*** Jum. & H.Perrier *21415*

R // ***Ceropegia albisepta*** Jum. & H. Perrier var. ***albisepta*** *10368*
R *20211* Madagascar (Toliara) *20578*

R // ***Ceropegia albisepta*** Jum. & H. Perrier var. ***bruceana*** H. Huber *20064*
R *20211* Kenya *20202*
R *20211* Tanzania *20202*
R *20211* Uganda *20202*

R // ***Ceropegia albisepta*** Jum. & H. Perrier var. ***robynsiana*** (Werdermann) H. Huber *20064*
R *20211* DR of Congo *20228*

E // ***Ceropegia ampliata*** E. Meyer ssp. ***madagascariensis*** Lavranos *20273*
E *20211* Madagascar (Fianarantsoa) *20578*

I // ***Ceropegia ampliata*** E. Meyer ssp. ***oxyloba*** H. Huber *20206*
I *21416* Kenya *21416*
I *5926* Tanzania (Dar es Salaam) *5926*

V // ***Ceropegia angustifolia*** Wight *13883*
V *13883* Bangladesh *13883*
V *13883* India - Meghalaya *13883*
V *13883* Nepal *13883*

Ex // ***Ceropegia antennifera*** Schltr. *20604, 20207*
Ex *20604* South Africa - Natal *20604*

E // ***Ceropegia arenaria*** R.A. Dyer *20064*
E *20211* South Africa - Natal (Zululand) *20207*

R // ***Ceropegia aridicola*** W.W. Smith *10260*
R *20211* China

R // ***Ceropegia aridicola*** W.W.Sm. *21415*

E // ***Ceropegia armandii*** Rauh *20213*
E *20211* Madagascar (Toliara) *20578*

// ***Ceropegia attenuata*** **Hook.** *11494*
- R *20211* India - Karnataka *11494*
- R *20211* India - Maharashtra (Thane; Raigadh; Pune Dist.) *11494*

// ***Ceropegia ballyana*** **Bullock** *20206*
- R *20273* Kenya *20206*

// ***Ceropegia barbata*** **R.A.Dyer** *20604, 20064*
- I *20604* South Africa - Cape Province *20604*

// ***Ceropegia barnesii*** **Bruce & Chatterjee** *11494*
- E *20211* India - Karnataka (South Canara) *11494*
- E *20211* India - Tamil Nadu (Nilgiri Hills) *11494*

// ***Ceropegia beddomei*** **Hook.f.** *11494*
- R *20211* India - Kerala (Trivandrum; Ponmudi; Idukki) *11494*

// ***Ceropegia bhutanica*** **Hara** *20064*
- I *20211* Bhutan *20211*

// ***Ceropegia bosseri*** **Rauh & Buchloh** *20213*
- E *20211* Madagascar (Fianarantsoa) *20578*

// ***Ceropegia botrys*** **K. Schum.** *20212*
- R *20211* Saudi Arabia *20212*
- R *20211* Yemen *20212*
- R *20211* Somalia *20212*

// ***Ceropegia bowkeri*** **Harv. ssp.** ***sororia*** **(Harvey ex Hook.f.) R.A. Dyer** *20064*
- R *20211* South Africa - Cape Province (including Transkei) *20207*

// ***Ceropegia brevirostris*** **Bally & Field** *20064*
- R *20211* Tanzania *19976*

// ***Ceropegia bulbosa*** **Roxb.** *20202*
- V *20273* Oman (southwest) *20202*
- V *20273* Yemen *20202*
- V *21421* India (Delhi) *21421*
- V *20273* India - Uttar Pradesh *8754*
- E *20273* Pakistan (Punjab) *8754*
- V *20273* Ethiopia *20202*
- V *20273* Somalia *20202*

// ***Ceropegia cancellata*** **Rchb.** *20604, 20207*
- R *20604* South Africa - Cape Province (including Transkei) *20604*

// ***Ceropegia candelabrum*** **L. var.** ***biflora*** **(L.) M. Ansari** *20064*
- I *16162* Sri Lanka *16162*

// ***Ceropegia ceratophora*** **Svent.** *15105*
- E *20750* Spain - Canary Is. (La Gomera) *15105*

// ***Ceropegia chipiaensis*** **Stopp** *20064*
- R *20211* Angola *20206*

// ***Ceropegia chrysantha*** **Svent.** *20064*
- E *21417* Spain - Canary Is. (confined to single locality in the south of Tenerife) *21417*

// ***Ceropegia chrysochroma*** **Huber** *20064*
- I *5926* Tanzania *5926*

// ***Ceropegia cimiciodora*** **Oberm.** *20604, 18023*
- K *20604* Swaziland *20604*
- V *20604* South Africa - Transvaal *20604*
- V *20604* South Africa - Natal (Zululand) *20604*

// ***Ceropegia conrathii*** **Schlechter** *20207*
- R *20211* South Africa - Transvaal *20207*

// ***Ceropegia cycniflora*** **R.A.Dyer** *20604, 20064*
- E *20604* South Africa - Natal *20604*

// ***Ceropegia decaisneana*** **Wight var.** ***brevicollis*** **(Hook.f.) H. Huber** *20064*
- I India - Kerala
- I India - Tamil Nadu

R // ***Ceropegia decidua*** **E.A. Bruce ssp.** ***decidua*** *20211*
- I *18023* Swaziland *18023*
- R *20211* South Africa - Transvaal *20207*

R // ***Ceropegia decidua*** **E.A. Bruce ssp.** ***pretoriensis*** **R.A. Dyer** *20211*
- R *20211* South Africa - Transvaal *20207*

R // ***Ceropegia deightonii*** **Hutch. & Dalz. ssp.** ***deightonii*** *10260*
- R *20211* Ghana *7855*
- R *20211* Nigeria *7855*

R // ***Ceropegia dichotoma*** **Haw. ssp.** ***dichotoma*** *15105*
- R *15105* Spain - Canary Is. *15105*

R // ***Ceropegia dimorpha*** **Humbert** *20213*
- R *20211* Madagascar (Fianarantsoa) *20578*

R // ***Ceropegia dorjei*** **C.E.C. Fischer** *20211*
- R *20211* Bhutan

I // ***Ceropegia elegans*** **Wallich var.** ***gardneri*** **(Thwaites) H. Huber** *8021*
- I *16162* Sri Lanka *8021*

E // ***Ceropegia evansii*** **McCann** *11494*
- E *20211* India - Maharashtra (Khandala, Pune) *11494*

E // ***Ceropegia fantastica*** **Sedgw.** *11494*
- E *20211* India - Goa, Daman & Diu *11494*
- E *20211* India - Karnataka (Sulgeri, North Kanara) *11494*

R // ***Ceropegia filiformis*** **(Burch.) Schltr.** *20604, 10260*
- R *20604* South Africa - Cape Province *20604*
- V *20604* South Africa - Orange Free State *20604*

R // ***Ceropegia fimbriata*** **E. Mey. ssp.** ***fimbriata*** *10260*
- R *20211* South Africa - Cape Province *20207*

R // ***Ceropegia fimbriata*** **E. Mey. ssp.** ***geniculata*** **(R.A. Dyer) Bruyns** *20064*
- R *20211* South Africa - Cape Province *20207*

R // ***Ceropegia fimbriifera*** **Beddome** *11494*
- R *20211* India - Karnataka *11494*
- R *20211* India - Kerala (Travancore Hills) *10178*
- R *20211* India - Tamil Nadu *11494*

R // ***Ceropegia floribunda*** **N.E. Br.** *10260*
- R *20211* Botswana *20207*
- R *20211* Namibia *20207*

I // ***Ceropegia fortuita*** **R.A. Dyer** *18023*
- I *18023* Swaziland *18023*
- I *20207* South Africa - Natal *20207*

R // ***Ceropegia fusca*** **Bolle** *15105*
- R *15105* Spain - Canary Is. *15105*

R // ***Ceropegia hians*** **Svent. var.** ***hians*** *20064*
- R *15105* Spain - Canary Is. *15105*

R // ***Ceropegia hians*** **Svent. var.** ***striata*** **Sventenius** *20064*
- R *15105* Spain - Canary Is. *15105*

E // ***Ceropegia hofstaetteri*** **Rauh** *20213*
- E *20211* Madagascar (Mahajunga) *20578*

E // ***Ceropegia hookeri*** **Clarke ex Hook. f. var.** ***hookeri*** *10260*
- E *13883* China - Xizang Zizhiqu *13883*
- E *13883* India - Sikkim *13883*
- E *13883* Nepal *13883*

E // ***Ceropegia huberi*** **Ansari** *11494*

Magnoliopsida (dicots): Asclepiadaceae: *Ceropegia*

E *20211* India - Maharashtra (Varadha Ghat: Susale Island: Amba Ghat) *20266*

R // ***Ceropegia humbertii*** **H. Huber** *20213*
R *20211* Madagascar (Antsiranana) *20578*

E // ***Ceropegia insignis*** **R.A.Dyer** *20604, 20207*
K *20604* South Africa - Transvaal *20604*

I // ***Ceropegia intermedia*** **Wight. var. *wightii* Hook.f.** *10260*
I India - Tamil Nadu

R // ***Ceropegia jainii*** **Ansari & Kulk.** *10511*
R *20211* India - Maharashtra *10511*

R // ***Ceropegia kachinensis*** **Prain** *20211*
R *20211* Myanmar

V // ***Ceropegia krainzii*** **Svent.** *15105*
V *15105* Spain - Canary Is. (North east part of La Gomera.) *21417*

R // ***Ceropegia kundelunguensis*** **F. Malaisse** *20604*
R *20211* DR of Congo *20228*

R // ***Ceropegia langkawiensis*** **Rintz** *10260*
R *20211* Malaysia - Peninsular Malaysia

E // ***Ceropegia lawii*** **Hook.f.** *11494*
E *20211* India - Maharashtra (Konkan, Harishchandragad) *11494*

E // ***Ceropegia leroyi*** **Rauh & Marn.-Lap.** *20213*
E *20211* Madagascar (Fianarantsoa) *20578*

R // ***Ceropegia lindenii*** **Lavranos** *20604*
R *20211* Somalia *20604*

R // ***Ceropegia maccannii*** **Ansari** *10512*
R *20211* India - Maharashtra *10512*

Ex/E // ***Ceropegia maculata*** **Bedd.** *13883*
Ex/E *13883* India - Kerala *13883*
Ex/E *13883* India - Tamil Nadu *13883*
Ex/E *13883* Sri Lanka *13883*

R // ***Ceropegia madagascariensis*** **Decne.** *20213*
R *20211* Madagascar (Mahajunga) *20578*

R // ***Ceropegia mafekingensis*** **(N.E.Br.) R.A.Dyer** *20604, 20604*
R *20211* Namibia - Caprivi Strip *20276*
R *20604* South Africa - Transvaal *20604*
R *20604* South Africa - Cape Province *20604*
R *20211* South Africa - Natal *20207*

E // ***Ceropegia mahabalei*** **Hem. & Ans.** *20604*
E *20211* India - Maharashtra *13883*

R // ***Ceropegia maiuscula*** **Huber** *20604*
R *20211* Tanzania *20206*

E // ***Ceropegia mayottae*** **H. Huber** *20604*
E *20211* Comoros *20212*

R // ***Ceropegia media*** **(Huber) M.Y. Ansari** *20604*
R *20211* India - Maharashtra *20204*

R // ***Ceropegia muzingana*** **F. Malaisse** *20604*
R *20211* DR of Congo *20228*

R // ***Ceropegia ngoyana*** **F. Malaisse** *20604*
R *20211* DR of Congo *20228*

R // ***Ceropegia noorjahaniae*** **Ansari** *20604*
R *20211* India *13883*
R *20211* India - Maharashtra (Panchgani Ghat, Satara District) *13883*

R // ***Ceropegia nuda*** **Hutch. & Bruce** *20212*
R *20211* Somalia *20212*

V // ***Ceropegia occidentalis*** **R.A.Dyer** *20604, 20604*
V *20604* South Africa - Cape Province *20604*

E // ***Ceropegia occulta*** **R.A. Dyer** *20604*
E *20211* South Africa - Cape Province *20203*

R // ***Ceropegia oculata*** **Hook. var. *occulta*** *20604*
R *11494* India - Maharashtra (Pune: Ratnagiri: Raigad) *11494*

E // ***Ceropegia odorata*** **Nimmo ex Hook.f.** *10171*
E *20211* India - Gujarat (Pavagadh Hill) *11494*
E *20211* India - Maharashtra (Melghat) *11494*
E *20211* India - Rajasthan (Mt Abu) *11494*

E // ***Ceropegia omissa*** **Huber** *11494*
21412 India - Kerala *21421*
E *20211* India - Tamil Nadu (Sengalteri, Tirunelveliy) *11494*

E // ***Ceropegia panchganiensis*** **Blatter & McCann** *10506*
E *20211* India - Maharashtra (Panchgani: Lingmala) *10506*

R // ***Ceropegia paricyma*** **N.E. Brown** *20207*
R *20211* Malawi *7855*
R *20211* Mozambique *7855*
R *20211* Tanzania *20228*
R *20211* Zambia *20228*
R *20211* Zimbabwe *7855*
R *20211* Namibia - Caprivi Strip *20207*

I // ***Ceropegia parviflora*** **Trimen** *8021*
I *20211* Sri Lanka (Anuradhapura) *8021*

E // ***Ceropegia petignatii*** **Rauh** *20213*
E *20211* Madagascar (Toliara) *20578*

R // ***Ceropegia praetermissa*** **Raynal & A. Raynal** *8003*
R Senegal *8003*

I // ***Ceropegia purpurascens*** **K. Schum. ssp. *thysanotos* (Wederm.) Huber** *20604*
I *5926* Tanzania *5926*

R // ***Ceropegia pusilla*** **Wight & Arn.** *11494*
R *20211* India - Karnataka (Mysore District) *11494*
21421 India - Kerala *21421*
R *20211* India - Tamil Nadu *11494*

I // ***Ceropegia racemosa*** **N.E. Br. ssp. *glabra* H. Huber** *20213*
I Madagascar (centre & north) *20213*

I // ***Ceropegia racemosa*** **N.E. Br. ssp. *racemosa*** *10368*
I Madagascar

R // ***Ceropegia radicans*** **Schltr. ssp. *radicans*** *20211, 20604*
R *20211* South Africa - Cape Province (east & Transkei) *20207*

E // ***Ceropegia razafindratsirana*** **(Rauh & Buchloh) Rauh** *20213*
E *20211* Madagascar (Fianarantsoa) *20578*

R // ***Ceropegia rollae*** **Hemadri** *20211*
R *20211* India - Maharashtra *13883*

V // ***Ceropegia rudatisii*** **Schltr.** *20604, 20207*
V *20604* South Africa - Natal (coastal) *20604*

I // ***Ceropegia rupicola*** **Defl. var. *stictantha* N.P. Taylor** *20604*
I *20212* Yemen *20212*

E // ***Ceropegia sahyadrica*** **Ansari & Kulk.** *20211*
E *20211* India - Maharashtra (Pune & Sindhudurg District) *11494*

R // ***Ceropegia santapaui*** **Wadh. & Ans.** *20604*

Magnoliopsida (dicots): Asclepiadaceae: *Ceropegia*

R *20211* India - Maharashtra (Pune; Satara; Ratnagiri) *13883*

R II ***Ceropegia saxatilis*** **Jumelle & H. Perrier** *20213*
R *20211* Madagascar (Mahajunga) *20578*

R II ***Ceropegia scabra*** **Jumelle & H.Perrier** *20213*
R *20211* Madagascar (Toliara) *20578*

R II ***Ceropegia scabriflora*** **N.E.Br.** *20604, 20207*
R *20211* South Africa - Transvaal *20207*
V *20604* South Africa - Natal *20604*

E II ***Ceropegia simoneae*** **Rauh** *20578*
E *20211* Madagascar (Toliara) *20578*

I II ***Ceropegia sobolifera*** **N.E. Br. var. *nephroloba* Huber** *20064*
I *5926* Tanzania *5926*

I II ***Ceropegia somalensis*** **Chiovenda** *21416*

R II ***Ceropegia spiralis*** **Wight** *11494*
R *20211* India - Andhra Pradesh *11494*
R *20211* India - Karnataka *11494*
R *20211* India - Kerala *11494*
R *20211* India - Tamil Nadu *11494*

E II ***Ceropegia stentiae*** **E.A.Bruce** *20604, 20202*
R *20604* South Africa - Transvaal (Pietersburg Plateau) *20604*

R II ***Ceropegia swaziorum*** **D.V. Field** *20064*
R *20211* Swaziland *19976*

R II ***Ceropegia taprobanica*** **H. Huber** *8021*
R *20211* Sri Lanka (Rangala, Kandy; Gilimale) *8021*

R II ***Ceropegia tihamana*** **Chaudhary & Lavranos** *20064*
R *20211* Saudi Arabia *20212*
R *20211* Kenya *20212*
[distribution possibly incomplete]

R II ***Ceropegia tomentosa*** **Schltr.** *20604, 20207*
K *20604* South Africa - Cape Province (Transkei) *20604*

R II ***Ceropegia turricula*** **E.A.Bruce** *20604, 20211*
K *20604* South Africa - Transvaal *20604*

R II ***Ceropegia ugeni*** **C.E.C. Fischer** *19976*
R *20211* Bhutan *7855*

R II ***Ceropegia verruculosa*** **(R.A.Dyer) D.V.Field** *20604, 20064*
R *20604* South Africa - Transvaal *20604*

E II ***Ceropegia vincaefolia*** **Hook.** *20206*
E *20211* India - Maharashtra (Thane; Pune; Satara) *19976*

R II ***Ceropegia viridis*** **Choux** *21415*

R II ***Ceropegia viridis*** **Choux var. *truncata* (H. Huber) H. Huber** *20213*
R *20211* Madagascar *20213*

R II ***Ceropegia viridis*** **Choux var. *viridis*** *20213*
R *20211* Madagascar (Toliara) *20578*

E II ***Frerea indica*** **Dalz.** *11494*
E *11494* India - Maharashtra (Junnar & Purandhar hills) *11494*

Cactaceae

Number of genera:	30-200	
Number of species:	1,000-2,000	
Recorded threatened species:	577	(38%)

American deserts.

V II ***Acanthocereus brasiliensis*** **Britton & Rose** *15964*
V *15964* Brazil *15964*

R II ***Aporocactus flagelliformis*** **(L.) Lemaire** *15964, 12400*
R *19850* Mexico - Hidalgo *14255*
R *16360* Mexico - Oaxaca *9114*
R *19850* Mexico - Puebla *14255*

E I ***Ariocarpus agavoides*** **(Castaneda) E.F. Anderson** *15964, 21424*
21424 Mexico *21424*
E *20067* Mexico - Tamaulipas *9114*

E I ***Ariocarpus bravoanus*** **Hernandez & E.F. Anderson** *20067, 21424*
21424 Mexico *21424*
E *20067* Mexico - San Luis Potosi *20067*

V II ***Ariocarpus fissuratus*** **(Engelm.) K. Schum. var. *hintonii* Stuppy & N.P. Taylor** *20067*
V *20067* Mexico - San Luis Potosi *20067*

V II ***Ariocarpus fissuratus*** **(Engelm.) Britton & Rose var. *lloydii* (Rose) W.T. Marsh** *12437*
V *20067* Mexico - Coahuila *12437*
V *20067* Mexico - Durango *12437*
V *20067* Mexico - Zacatecas *12529*

V I ***Ariocarpus scaphirostris*** **Böedeker** *15964, 21424*
V *20067* Mexico - Nuevo Leon *9114*

V I ***Ariocarpus trigonus*** **(F.A.C. Weber) K. Schum.** *21384, 15964, 21424*
V *20067* Mexico - Nuevo Leon *9114*
V *20067* Mexico - Tamaulipas *9114*

I II ***Arrojadoa bahiensis*** *21307*
I *21426* Brazil (known from four populations) *21307*

I II ***Arrojadoa dinae*** **ssp. *dinae*** *15964, 21307*
I *21426* Brazil *15964*

I II ***Arrojadoa dinae*** **ssp. *eriocaulis*** *21307*
I *21426* Brazil *21307*

I II ***Arthrocereus glaziovii*** *15964*
I *21426* Brazil *15964*

I II ***Arthrocereus melanurus*** **ssp. *melanurus*** *21307*
I *21426* Brazil *21307*

I II ***Arthrocereus melanurus*** **ssp. *odorus*** *21307*
I *21426* Brazil *21307*

R II ***Arthrocereus odorus*** **F. Ritter** *15964*
R *15964* Brazil *15964*

I II ***Arthrocereus rondonianus*** *15964*
I *21426* Brazil *15964*

I II ***Arthrocereus spinosissimus*** **(Buining & Brederoo) F. Ritter** *15964*
I *15964* Brazil *15964*

E I ***Astrophytum asterias*** **(Zucc.) Lem.** *20883, 20850, 15964*
E *20850* U.S. - Texas (Rio Grande valley) *20850*
E *20883* Mexico *20883*
E *20067* Mexico - Nuevo Leon *12469*
E *20067* Mexico - Tamaulipas *12469*

V II ***Astrophytum asterias*** *21424*
Mexico *21424*

V II ***Astrophytum capricorne*** **(A. Dietr.) Britton & Rose var. *capricorne*** *12469*
V *9114* Mexico - Coahuila *9114*
V *21263* Mexico - Nuevo Leon *21263*

E II ***Astrophytum capricorne*** **(A. Dietr.) Britton & Rose var. *niveum* (K. Kayser) Oken** *12437*
E *16360* Mexico - Coahuila *12437*

Magnoliopsida (dicots): Cactaceae: *Astrophytum*

R II *Astrophytum hintonii* *21424*
Mexico *21424*

V II *Astrophytum myriostigma* *21424*
Mexico *21424*

E II *Astrophytum myriostigma* Lemaire var. *coahuilense* (K. Kayser) Borg *12437*
E *12437* Mexico - Coahuila *12437*

V II *Astrophytum myriostigma* Lemaire var. *cuadricostatum* C. Glass & R. Foster *14257*
V *14257* Mexico - Tamaulipas *14257*

V II *Astrophytum myriostigma* Lemaire var. *myriostigma* *12469*
V *9114* Mexico - Coahuila *9114*
V *14280* Mexico - San Luis Potosi *14280*
V *21263* Mexico - Tamaulipas *21263*

V II *Astrophytum ornatum* (DC.) A. Weber *15964*
V *21424* Mexico *21424*
I *9114* Mexico - Coahuila *9114*
I *21263* Mexico - Guanajuato *21263*
I *21263* Mexico - Hidalgo *21263*
I *9114* Mexico - Queretaro *9114*
I *21263* Mexico - San Luis Potosi *21263*

V II *Astrophytum ritteri* *21424*
Mexico *21424*

E II *Austrocactus hibernus* F. Ritter *15964*
E *15964* Chile *15964*

R II *Austrocactus philippii* (regel & Schmidt) Buxbaum & Ritter *15964*
R *19034* Chile *19034*

R II *Austrocactus spiniflorus* (Phil.) Ritter *15964*
R *15964* Chile *19034*

R I *Aztekium ritteri* (Böedeker) Böedeker *15964*
R *20067* Mexico - Nuevo Leon *9114*

R II *Bergerocactus emoryi* (Engelm.) Engelm. *20850, 15964*
V *20850* U.S. - California *20850*
? Mexico *15964*

R II *Brachycereus nesioticus* (Schumann) Backeb. *15964*
R *15964* Ecuador - Galapagos *11117*

R II *Brasilicereus markgrafii* Backeb. & Voll *15964*
R *21426* Brazil *15964*

V II *Browningia candelaris* (Meyen) Britton et Rose *20883, 15964*
V *20883* Chile *20883*
R *15964* Peru *20883*

R II *Cephalocereus apicicephalium* E.Y. Dawson *15964*
R *12787* Mexico - Oaxaca *12787*

R II *Cephalocereus nizandensis* (H. Bravo & Macdougall) F. Buxb. *15964*
R *19850* Mexico *19850*
R *21408* Mexico - Oaxaca (Juchitan, Nizanda) *21408*

V II *Cephalocereus senilis* (Haw.) Pfeiffer *15964*
V *15964* Mexico - Hidalgo *9114*

I II *Cereus gracilis* P. Mill. *19002*
I *19002* U.S. - Florida *19002*

I II *Cereus mirabella* *15964*
I *21426* Brazil *15964*

V II *Cereus quadricostatus* Bello *8058*
V *19002* Puerto Rico *8058*

I II *Cipocereus bradei* *15964*
I *21426* Brazil *15964*

R II *Cipocereus crassisepalus* *15964*
R *21426* Brazil *15964*

I II *Cipocereus minensis* ssp. *pleurocarpus* *21307*
I *21426* Brazil *21307*

R II *Cipocereus pleurocarpus* Ritter *15964*
R *15964* Brazil *15964*

R II *Cipocereus pusilliflorus* (Ritter) D.C. Zappi & N.P. Taylor *15964*
R *21426* Brazil *15964*

V II *Cleistocactus acanthurus* (Vaupel) D. Hunt *15964*
V *15964* Peru *18200*

R II *Coleocephalocereus pluricostatus* Buining & Brederoo *15964*
R *21426* Brazil *15964*

R II *Coleocephalocereus purpureus* (Buining & Brederoo) Ritter *15964*
R *15964* Brazil *15964*

R II *Copiapoa bridgesii* (Pfeiff.) Backeb. *15964*
R *15964* Chile *15964*

R II *Copiapoa calderana* F. Ritten *15964*
R *19535* Chile *15964*

R II *Copiapoa chaniaralensis* Ritter *15964*
R *19034* Chile *19034*

R II *Copiapoa coquimbana* (Karwinsky) Britton & Rose *15964*
R *15964* Chile *19034*

E II *Copiapoa desertorum* Ritter *15964*
E *15964* Chile *19034*

R II *Copiapoa desertorum* Ritter var. *hornilloensis* (Ritter) A. Hoffmann *19034*
R *19034* Chile *19034*

R II *Copiapoa desertorum* Ritter var. *rubriflora* (Ritter) A. Hoffmann *19034*
R *19034* Chile *19034*

V II *Copiapoa desertorum* Ritter var. *rupestris* (Ritter) A. Hoffmann *19034*
V *19034* Chile *19034*

R II *Copiapoa fiedleriana* (K. Schum.) Backeb. *15964*
R *19535* Chile *15964*

V II *Copiapoa humilis* (Philippi) Hutch. *15964*
V *16430* Chile *15964*

R II *Copiapoa humilis* (Philippi) Hutchinson var. *esmeraldana* (Ritter) A. Hoffmann *19034*
R *19034* Chile *19034*

V II *Copiapoa humilis* (Philippi) Hutchinson var. *longispina* (Ritter) A. Hoffmann *19034*
V *19034* Chile *19034*

R II *Copiapoa hypogaea* Ritter *15964*
R *19034* Chile *19034*

V II *Copiapoa krainziana* Ritter *15964*
V *19034* Chile *19034*

R II *Copiapoa laui* L. Diers *15964*
R *15964* Chile *15964*

R II *Copiapoa longistaminea* Ritter *15964*
R *15964* Chile *19034*

R II *Copiapoa malletiana* (Lem. ex Salm-Dyck) Backeb. *15964*
R *15964* Chile *19535*

R II *Copiapoa marginata* (Salm-Dyck.) Britton & Rose *15964*
R *19535* Chile *15964*

Magnoliopsida (dicots): Cactaceae: *Copiapoa*

V II ***Copiapoa megarhiza*** Britton & Rose var. ***echinata*** (Ritter) *19034*
V *19034* Chile *19034*

E II ***Copiapoa megarhiza*** Britton & Rose var. ***megarhiza*** *19034*
E *19535* Chile *15964*

E II ***Copiapoa rupestris*** Ritter *15964*
E *15964* Chile *15964*

V II ***Copiapoa solaris*** (Ritter) Ritter *15964*
V *19034* Chile *19034*

E II ***Copiapoa tenuissima*** Ritter *15964*
E *15964* Chile *15964*

E II ***Copiapoa tocopillana*** Ritter *15964*
E *15964* Chile *19034*

R II ***Copiapoa varispinata*** Ritter *15964*
R *15964* Chile *15964*

R II ***Corryocactus brevistylus*** (Schumann) Britton & Rose *15964*
V *19034* Chile *19034*
R *18200* Peru *19034*

V II ***Coryphantha asperispina*** Boedeker *12437*
V *12437* Mexico - Coahuila *12437*
V *12437* Mexico - Nuevo Leon *12437*

V II ***Coryphantha chaffeyi*** (Britton & Rose) Fosberg *19002*
V *19002* U.S. - Texas *19002*

I II ***Coryphantha dasyacantha*** (Engelm.) Orc. var. ***dasyacantha*** *8058*
I *8058* U.S. - Texas *8058*
I *8058* Mexico *8058*

I II ***Coryphantha dasyacantha*** (Engelm.) Orc. var. ***varicolor*** (Tiegel) L. Benson *8058*
I *19002* U.S. - Texas *19002*

R II ***Coryphantha durangensis*** (Runge) Britton & Rose *15964*
21424 Mexico *21424*
R *21408* Mexico - Coahuila *21408*
R *21408* Mexico - Durango *21408*

V II ***Coryphantha elephantidens*** (Lemaire) Lemaire *15964*
21424 Mexico *21424*
V *9114* Mexico - Morelos *9114*

V II ***Coryphantha glanduligera*** (Otto ex Dietrich) Lemaire *15964*
V *16360* Mexico *16360*

E II ***Coryphantha gracilis*** L. Bremer & Lau *15964*
21424 Mexico *21424*
E *9114* Mexico - Chihuahua *9114*

R II ***Coryphantha grata*** L. Bremer *15964*
21424 Mexico *21424*
R *19850* Mexico - Tamaulipas *19850*

R II ***Coryphantha hesteri*** Y. Wright *19002*
R *19002* U.S. - Texas *19002*

I II ***Coryphantha longicornis*** Boedeker *15964*
I *19850* Mexico *12469*

V II ***Coryphantha macromeris*** (Britt. & Rose) L. Benson var. ***runyonii*** (Britt. & Rose) L. Benson *20850*
V *20850* U.S. - Texas *20850*

R II ***Coryphantha maiz-tablasensis*** Backeb. *15964*
R *14262* Mexico - San Luis Potosi *14262*

R II ***Coryphantha melleospina*** H. Bravo-Holl. *15964*
R *15964* Mexico *12469*

R II ***Coryphantha odorata*** Boedeker *15964*
R *21424* Mexico *15964*

V II ***Coryphantha poselgeriana*** *21424*
Mexico *21424*

V II ***Coryphantha poselgeriana*** (A. Dietr.) Britton & Rose var. ***poselgeriana*** *12469*
V *9114* Mexico *9114*

I II ***Coryphantha poselgeriana*** (A. Dietr.) Britton & Rose var. ***saltillensis*** (Poselger) Bremer *12469*
I *15964* Mexico *12469*

R II ***Coryphantha pseudoechinus*** Boedeker *15964*
R *21424* Mexico *12469*

V II ***Coryphantha pulleineana*** (Backeb.) C. Glass *15964*
V *15964* Mexico *12469*

R II ***Coryphantha radians*** (DC.) Britton & Rose *15964*
Mexico - Coahuila (south) *21408*
R *21408* Mexico - Hidalgo *21408*
Mexico - Queretaro *21408*
Mexico - San Luis Potosi *21408*

V II ***Coryphantha ramillosa*** Cutak *20883, 20850, 15964*
V *20850* U.S. - Texas *20850*
I *21424* Mexico *20883*
V *19848* Mexico - Coahuila *9114*

R II ***Coryphantha recurvata*** (Engelm.) Britt. & Rose *20883, 20850, 15964*
V *20850* U.S. - Arizona *20850*
I *20883* Mexico *20883*

R II ***Coryphantha retusa*** Britton & Rose var. ***mellospina*** (H.Bravo-Hollis) H.Bravo-Hollis *15964*
R *21424* Mexico *19850*

I II ***Coryphantha sandbergii*** *8058*
I *19002* U.S. - New Mexico *19002*

R II ***Coryphantha scheeri*** Lemaire var. ***robustispina*** (Schott ex Engelm.) L. Benson *20883, 20850, 8058*
R *20850* U.S. - Arizona (Pima & Santa Cruz Co.) *20850*
E *20850* U.S. - Texas *20850*
E *20883* Mexico *20883*
E *19123* Mexico - Sonora (north) *19123*

R II ***Coryphantha scheeri*** Lemaire var. ***uncinata*** L. Benson *20850*
I *20850* U.S. - New Mexico *20850*
R *20850* U.S. - Texas *20850*

R II ***Coryphantha scheeri*** (Engelm.) L. Benson var. ***valida*** *19002*
I *19002* U.S. - Arizona *19002*
R *19002* U.S. - New Mexico *19002*

I II ***Coryphantha strobiliformis*** (Poselger) Moran var. ***durispina*** (Quehl) L. Benson *8058*
I *8058* U.S. - Texas *8058*
I *8058* Mexico *8058*

I II ***Coryphantha sulcata*** (Engelm.) Britton & Rose *15964*
I *19002* U.S. - Texas *19002*

V II ***Coryphantha sulcata*** (Engelm.) Britton & Rose var. ***nickelsiae*** (K. Brandeg.) L. Benson *20883, 20850, 9114*
Ex/E *20850* U.S. - Texas *20850*
I *20883* Mexico *20883*
V *19850* Mexico - Coahuila *12437*
V *19850* Mexico - Nuevo Leon *9114*
V *15964* Mexico - Tamaulipas *12437*

V II ***Coryphantha valida*** (J.A. Purpus) L. Bremer *15964*
V *19860* Mexico *12469*

R II ***Coryphantha villardii*** *19002*
R *19002* U.S. - New Mexico *19002*

E I ***Coryphantha werdermannii*** Boedeker *15964*

21424 Mexico *21424*
E *15964* Mexico - Coahuila *9114*

V II ***Dendrocereus nudiflorus*** (Engelm.) Britton & Rose *15964*
V *19105* Cuba *15964*

R I ***Discocactus bahiensis*** Britton & Rose *15964*
R *15964* Brazil (eastern) *14964*

E I ***Discocactus horstii*** Buin. & Bred. *15964*
E *15964* Brazil *14964*

I I ***Discocactus placentiformis*** (Lehm.) Schum. *15964*
I *21426* Brazil (eastern) *14964*

R I ***Discocactus pseudoinsignis*** Tayl. & Zapp. *15964*
R *21426* Brazil (eastern) *14964*

V I ***Discocactus zehntneri*** Britton & Rose *15964*
V *15964* Brazil (eastern) *14964*

I I ***Discocactus zehntneri*** Britton & Rose ssp. ***boomianus*** (Buin & Bred) Tayl & Zapp *21384, 21307*
I *21426* Brazil *21307*

I I ***Discocactus zehntneri*** ssp. ***zehntneri*** *21307*
I *21416* Brazil *21307*

R II ***Disocactus ackermannii*** (Lindley) Barthlott *15964*
R *16385* Mexico - Chiapas *16385*
V *16385* Mexico - Oaxaca *16385*
V *16385* Mexico - Veracruz *16385*

R II ***Disocactus biformis*** (Lindley in Edwards) Lindley *15964*
R *15964* Guatemala *15964*
R *15964* Honduras *15964*

R II ***Disocactus eichlamii*** (Weingard) Britton & Rose *15964*
R *15964* Guatemala *14247*

R II ***Disocactus kimnachii*** Rowley *15964*
R *14248* Costa Rica *15964*

R I ***Disocactus macdougallii*** (Alexander) Barthlott *15964*
R *19850* Mexico - Chiapas *14248*

R II ***Disocactus macranthus*** (Alex.) Kimnach & Hutchinson *15964*
R *19860* Mexico - Chiapas *16385*
R *19860* Mexico - Oaxaca *16385*
R *19860* Mexico - Veracruz *16385*

V II ***Disocactus phyllanthoides*** (DC.) Barthlott *15964*
V *19850* Mexico - Puebla *14248*
V *19850* Mexico - Veracruz *9114*

I II ***Disocactus quezaltecus*** (Standley & Steyerm.) Kimnach *15964*
I *14258* Guatemala *14258*

E II ***Echinocactus grusonii*** Hildm. *15964*
E *9114* Mexico - Hidalgo *9114*
E *9114* Mexico - Queretaro *9114*

V II ***Echinocactus horizonthalonius*** Lemaire var. ***nicholii*** L. Benson *20883, 20850, 20079*
V *20850* U.S. - Arizona *20850*
I *20883* Mexico *20883*

V II ***Echinocactus parryi*** Engelm. *15964*
21424 Mexico *21424*
V *19850* Mexico - Chihuahua *12437*

V II ***Echinocactus platyacanthus*** Link & Otto *15964*
V *15964* Mexico *12469*

V II ***Echinocereus adustus*** *21424*
Mexico *21424*

V II ***Echinocereus adustus*** Engelm. var. ***adustus*** *12107*
V *15964* Mexico - Chihuahua (Cusihuiriachi) *12107*

V II ***Echinocereus adustus*** Engelm. var. ***schwarzii*** (A. Lau) N.P. Taylor *12107*
V *15964* Mexico - Durango (Guanaceui & Canantlan) *12107*

V II ***Echinocereus berlandieri*** (Clover) L. Benson var. ***angusticeps*** *15964, 19002*
V *19002* U.S. - Texas *19002*

R II ***Echinocereus bristolii*** *21424*
Mexico *21424*

V II ***Echinocereus bristolii*** W. Marshall var. ***bristolii*** *12107*
V *15964* Mexico - Sonora *12107*

R II ***Echinocereus bristolii*** W. Marshall var. ***pseudopectinatus*** N.P. Taylor *12107*
V *12107* U.S. - Arizona (south-east) *12107*
R *19850* Mexico - Sonora (north-east) *12107*

V II ***Echinocereus chisoensis*** W.T. Marsh. *20850*
I *20850* U.S. - Texas *20850*

E II ***Echinocereus chisoensis*** W. Marshall var. ***chisoensis*** *15964, 20883, 20850, 12107*
E *20850* U.S. - Texas (Chisos Mts) *20850*
I *20883* Mexico *20883*

E II ***Echinocereus chloranthus*** (Engelm.) Hort.Haage var. ***neocapillus*** Weniger *20850, 12107*
E *20850* U.S. - Texas (Brewster Co.) *20850*

V II ***Echinocereus coccineus*** var. ***arizonicus*** (Rose ex Orcutt) Ferguson *20850*
V *20850* U.S. - Arizona *20850*
I *20850* U.S. - New Mexico *20850*

R II ***Echinocereus coccineus*** var. ***paucispinus*** (Engelm.) Ferguson *20850*
R *20850* U.S. - Texas *20850*

I II ***Echinocereus engelmannii*** (Parry ex Engelm.) Lemaire var. ***armatus*** L. Benson *12107*
I *15964* U.S. - California *12107*
I *15964* U.S. - Nevada (Mojavean Desert) *12107*

I II ***Echinocereus engelmannii*** (Parry ex Engelm.) Lemaire var. ***chrysocentrus*** (Engelm. & Bigelow) Ruempler *12107*
I *15964* U.S. - Arizona (north & west) *12107*
I *15964* U.S. - California *12107*
I *15964* U.S. - Nevada (south & east) *12107*
I *15964* U.S. - Utah (west) *12107*

E II ***Echinocereus engelmannii*** (Parry ex Engelm.) Lemaire var. ***howei*** L. Benson *20850, 12107*
E *20850* U.S. - California (southernmost Mojave Desert) *20850*
I *20850* U.S. - Nevada *20850*

I II ***Echinocereus engelmannii*** (Parry ex Engelm.) Lemaire var. ***munzii*** (Parish) Pierce & Fosb. *12107*
I *12107* U.S. - California (south) *12107*
I *12107* Mexico - Baja California Peninsula (Sierra Juarez, east slopes) *12107*

V II ***Echinocereus engelmannii*** (Parry ex Engelm.) Lemaire var. ***nicholii*** (L. Benson) D. Parfitt *12107*
V *12107* U.S. - Arizona (central south: Sonoran D.) *12107*
V *12107* Mexico - Sonora (north-west: Sonoran Desert) *12107*

I II ***Echinocereus engelmannii*** (Parry ex Engelm.) Lemaire var. ***purpureus*** L. Benson *12107*
I *19002* U.S. - Utah (near St George) *12107*

I II ***Echinocereus engelmannii*** (Parry ex Engelm.) Lemaire var.

Magnoliopsida (dicots): Cactaceae: *Echinocereus*

variegatus (Engelm. & Bigelow) Ruempler *12107*
I *15964* U.S. - Arizona (north-west) *12107*
I *15964* U.S. - Utah (south-east) *12107*

R II ***Echinocereus enneacanthus*** (Engelm.) L. Benson var. ***dubius*** *19002*
R *19002* U.S. - Texas *19002*

E II ***Echinocereus fendleri*** (Engelm.) Ruempler var. ***kuenzleri*** (Castetter, Pierce & Schwerin) L. Benson *20850. 12107*
E *20850* U.S. - New Mexico (Otero Co.) *20850*
I *12107* Mexico - Chihuahua (north) *12107*

E I ***Echinocereus ferreirianus*** H. Gates ssp. ***lindsayi*** (J. Meyrán) N.P. Taylor *21384. 12107*
E *20067* Mexico - Baja California Peninsula *12107*

V II ***Echinocereus freudenbergeri*** G. Frank *15964*
21424 Mexico *21424*
V *19850* Mexico - Coahuila (central & south) *12496*

V II ***Echinocereus knippelianus*** *21424*
Mexico *21424*

V II ***Echinocereus knippelianus*** Liebner var. ***knippelianus*** *12107*
V *20067* Mexico - Coahuila (south-east) *12107*

E II ***Echinocereus knippelianus*** Liebner var. ***kruegeri*** C. Glass & R. Foster *12107*
E *12107* Mexico - Nuevo Leon (south) *12107*

V II ***Echinocereus laui*** G. Frank *12107*
21424 Mexico *21424*
V *15964* Mexico - Sonora (near Yecora) *12107*

R II ***Echinocereus leucanthus*** N.P. Taylor *15964*
21424 Mexico *21424*
R *19850* Mexico - Sinaloa *12107*
R *19850* Mexico - Sonora *12107*

R II ***Echinocereus longisetus*** *21424*
Mexico *21424*

V II ***Echinocereus longisetus*** (Engelm.) Lemaire var. ***delaetii*** (Gurke) N.P. Taylor *12496*
V *19850* Mexico - Coahuila (central-south & south-east) *12496*

I II ***Echinocereus maritimus*** (M.E. Jones) Schumann var. ***hancockii*** (E. Dawson) N.P. Taylor *12107*
I *12107* Mexico - Baja California Peninsula (Cedros Is.) *12107*
I *12107* Mexico - Baja California Sur *12107*

R II ***Echinocereus micromeris*** *21424*
Mexico *21424*

V II ***Echinocereus nicholii*** (L. Benson) Parfitt *20850 15964*
I *20850* U.S. - Arizona *20850*
? Mexico *15964*

R II ***Echinocereus nivosus*** C. Glass & R. Foster *15964*
21424 Mexico *21424*
R *20067* Mexico - Coahuila (Sierra Madre Oriental) *12107*

E II ***Echinocereus palmeri*** Britton & Rose *15964*
21424 Mexico *21424*
E *19848* Mexico - Chihuahua (central & south) *12107*

I II ***Echinocereus pamanesiorum*** A. Lau *12107*
I *15964* Mexico - Zacatecas (Rio Huaynamuta valley) *12107*

R II ***Echinocereus papillosus*** Linke ex Rumpl. *20850*
R *20850* U.S. - Texas *20850*

E II ***Echinocereus papillosus*** Linke ex Ruempler var. ***angusticeps*** (Clover) W.T. Marsh. *20850. 12107*
E *20850* U.S. - Texas (Hidalgo Co.) *20850*

R II ***Echinocereus pensilis*** (K. Brandegee) J.A. Purpus *12107*
R *15964* Mexico - Baja California Sur (Cape region) *12107*

V II ***Echinocereus pulchellus*** *21424*
Mexico *21424*

E II ***Echinocereus pulchellus*** (C. Martius) Schumann var. ***pulchellus*** *12107*
E *20067* Mexico - Hidalgo *12107*
E *20067* Mexico - Oaxaca (north) *12107*
E *20067* Mexico - Puebla *12107*
E *20067* Mexico - Queretaro (south-east) *12107*

E II ***Echinocereus pulchellus*** (C. Martius) Schumann var. ***sharpii*** N.P. Taylor *20067*
E *20067* Mexico - Nuevo Leon *20067*

V II ***Echinocereus pulchellus*** (C. Martius) Schumann var. ***weinbergii*** (Weing.) N.P. Taylor *12107*
V *15964* Mexico - Zacatecas (west) *12107*

R II ***Echinocereus rayonesensis*** N.P. Taylor *15964*
R *12496* Mexico - Nuevo Leon (valley of Rayones) *12496*

E II ***Echinocereus reichenbachii*** (Tersch. ex Walp.) Hort.Haage var. ***albertii*** L. Benson *20850. 8058*
E *20850* U.S. - Texas (Rio Grande Plain) *20850*

I II ***Echinocereus reichenbachii*** (Lahman) L. Benson var. ***albispinus*** *19002*
I *19002* U.S. - Texas *19002*

R II ***Echinocereus reichenbachii*** (Tersch. ex Walp.) Hort.Haage var. ***baileyi*** (Rose) N.P. Taylor *20850. 12107*
I *20850* U.S. - New Mexico *20850*
I *20850* U.S. - Oklahoma (south) *20850*
E *20850* U.S. - Texas (Childress Co.) *20850*

I II ***Echinocereus reichenbachii*** (Tersch. ex Walp.) Hort. Haage var. ***fitchii*** (Britton & Rose) L. Benson *12107*
I *15964* U.S. - Texas (south) *12107*
21424 Mexico *21424*
V *19850* Mexico - Nuevo Leon (north) *12107*
V *19850* Mexico - Tamaulipas (north) *12107*

E I ***Echinocereus schmollii*** (Weing.) N.P. Taylor *15964*
21424 Mexico *21424*
E *19848* Mexico - Queretaro (south-east) *12107*

R II ***Echinocereus sciurus*** *21424*
Mexico *21424*

I II ***Echinocereus sciurus*** (K. Brandegee) Dams var. ***floresii*** (Backeb.) N.P. Taylor *12107*
I *12107* Mexico - Sinaloa (Topolobampa vicinity) *12107*

R II ***Echinocereus sciurus*** (K. Brandegee) Britton & Rose var. ***sciurus*** *12107*
R *19848* Mexico - Baja California Sur (South Cape) *12107*

R II ***Echinocereus stoloniferus*** W. Marshall var. ***stoloniferus*** *12107*
R *19850* Mexico - Sonora (south-east) *12107*

R II ***Echinocereus subinermis*** Salm-Dyck ex Scheer var. ***subinermis*** *12107*
R *19850* Mexico - Chihuahua (south-west) *12107*
R *19850* Mexico - Sinaloa *12107*
R *19850* Mexico - Sonora *12107*

I II ***Echinocereus triglochidiatus*** Engelm. var.

Magnoliopsida (dicots): Cactaceae: *Echinocereus*

paucispinus (Engelm.) W. Marshall *12107*
I *19002* U.S. - Texas (south) *12107*

R II ***Echinocereus unguispinus* var. *unguispinus*** *21424*
Mexico *21424*

V II ***Echinocereus viereckii* Werderm. var. *morricalii***
(Riha) N.P. Taylor *12107*
V *12107* Mexico - Nuevo Leon *12107*

V II ***Echinocereus viridiflorus* Engelm. var. *correllii***
L. Benson *20850, 12107*
V *20850* U.S. - Texas (Pecos Co.; Brewster Co.) *20850*

E II ***Echinocereus viridiflorus* Engelm. var. *davisii***
(A.D. Houghton) W.T. Marsh. *20850, 12107*
E *20850* U.S. - Texas (Brewster Co.) *20850*

R II ***Echinocereus warnockii*** *21424*
Mexico *21424*

R II ***Echinopsis chrysantha*** Werderm. *15964*
R *15964* Argentina *15964*

V II ***Echinopsis deserticola*** (Werd.) Friedrich & G.D. Rowley *15964*
V *19034* Chile *15964*

R II ***Echinopsis glauca*** (Ritter) Friedrich & G.D. Rowley *15964*
R *19034* Chile *15964*
R *18200* Peru *15964*

V II ***Echinopsis litoralis*** (Joh.) Friedrich & Rowley *15964*
V *19534* Chile *15964*

R II ***Echinopsis skottsbergii*** (Backeb.) Friedrich & G.D. Rowley *15964*
R *15964* Chile *19034*

E II ***Echinopsis smrziana*** Backeb. *15964*
E *20176* Argentina - Salta *20176*

V II ***Echinopsis spinibarbis*** (Otto) A. Hoffmann *19034*
V *19034* Chile *19034*

V II ***Echinopsis uebelmanniana*** (Lembcke & Backeb.) A. Hoffmann *15964*
V *15964* Chile *19034*

V II ***Epiphyllum anguliger*** (Lemaire) G. Don *15964*
V *14249* Mexico - Guerrero *14249*
? Mexico - Jalisco *21204*
V *14249* Mexico - Mexico State *12469*
V *14249* Mexico - Michoacan *14249*
V *14249* Mexico - Oaxaca *14249*

I II ***Epiphyllum caudatum*** Britton & Rose *15964*
I *15964* Mexico - Tabasco *14260*

R II ***Epiphyllum grandilobum*** (A. Weber) Britton & Rose *15964*
R *14249* Costa Rica *15964*
V *14249* Panama *15964*

I II ***Epiphyllum lauii*** Kimnach *15964*
I *15964* Mexico *15964*

E II ***Epiphyllum sp.*** Haw. *19434*
E *19434* Cayman Is. (Occurs in a single locality on Cayman Brac.) *19434*

V II ***Epithelantha bokei*** L. Benson *15964*
E *15964* U.S. - Texas *12437*
V *19850* Mexico *12437*

I II ***Epithelantha micromeris*** Britton & Rose var. ***greggii*** (Engelm.) Borg *12469*
I *19860* Mexico *12469*

E II ***Epithelantha micromeris*** Britton & Rose var. ***pachyrhiza*** Marshall *12469*
E *19860* Mexico *12469*

V II ***Epithelantha micromeris*** Britton & Rose var. ***polycephala*** (Backeb.) C. Glass & R. Foster *12437*
V *12437* Mexico - Coahuila *12437*

V II ***Eriosyce rodentiophila*** Ritter *15964*
V *19034* Chile *19034*

V II ***Eriosyce sandillon*** (Remy) Philippi *15964*
V *19034* Chile *19034*

R II ***Escobaria aguirreana*** (C. Glass & R. Foster) N.P. Taylor *15964*
21424 Mexico *21424*
R *9114* Mexico - Coahuila *9114*

V II ***Escobaria albicolumnaria*** Hester *20850, 15964*
V *20850* U.S. - Texas *20850*

V II ***Escobaria asperispina*** (Boedeker) D.R. Hunt *15964*
V *19850* Mexico *15964*

V II ***Escobaria chaffeyi*** Britton & Rose *14280*
21424 Mexico *21424*
V *14280* Mexico - Coahuila *14280*
V *14280* Mexico - San Luis Potosi *14280*

E II ***Escobaria cubensis*** (Britton & Rose) D.R. Hunt *15964*
E *21425* Cuba (Chanaral) *21408*

I II ***Escobaria dasyacantha*** Britton & Rose *15964*
I *15964* U.S. - Texas *8058*
I *8058* Mexico *15964*

V II ***Escobaria dasyacantha*** Britton & Rose var. ***chaffeyi*** (Britt. & Rose) N.P.Taylor *20850*
E *20850* U.S. - Texas *20850*

R II ***Escobaria dasyacantha*** Britton & Rose var. ***dasyacantha*** *20850*
I *20850* U.S. - New Mexico *20850*
V *20850* U.S. - Texas *20850*
I *20883* Mexico *20883*

R II ***Escobaria dasyacantha*** Britton & Rose var. ***duncanii*** (Hester) N.P.Taylor *20850*
E *20850* U.S. - New Mexico *20850*
E *20850* U.S. - Texas *20850*

E II ***Escobaria guadalupensis*** Brack & Heil *20850, 15964*
I *20850* U.S. - New Mexico *20850*
E *20850* U.S. - Texas *20850*

V II ***Escobaria hesteri*** (V. Wright) Buxbaum *20850, 15964*
nt *15964* United States of America *15964*
V *21408* U.S. - Texas *21408*

R II ***Escobaria laredoi*** (C. Glass & R. Foster) N.P. Taylor *15964*
21424 Mexico *21424*
R *20067* Mexico - Coahuila *11419*

V II ***Escobaria leei*** (Rose) Bodeker *15964*
V *20079* U.S. - New Mexico *20079*

E I ***Escobaria minima*** (Baird) D.R. Hunt *20850, 15964*
E *20850* U.S. - Texas *20850*

I II ***Escobaria missouriensis*** (Clover) D.R. Hunt *15964*
I *19002* U.S. - Texas *19002*

E II ***Escobaria missouriensis*** (Clover) D.R. Hunt var. ***marstonii*** (Clover) D.R. Hunt *20850*
I *20850* U.S. - Arizona *20850*
I *20850* U.S. - Oklahoma *20850*
20850 U.S. - Utah *20850*

R II ***Escobaria orcuttii*** Bodecker *20883, 20850, 15964*
I *20850* U.S. - Arizona *20850*
R *20850* U.S. - New Mexico *20850*

Magnoliopsida (dicots): Cactaceae: ***Escobaria***

I *20883* Mexico *20883*

R II ***Escobaria orcuttii*** **Castetter, Pierce, & Schwerin var. *koenigii*** *19002*
R *19002* U.S. - New Mexico *19002*

R II ***Escobaria orcuttii*** **Castetter, Pierce, & Schwerin var. *macraxina*** *19002*
R *19002* U.S. - New Mexico *19002*

V II ***Escobaria organensis*** **(A.D. Zimmerman) Castetter, Pierce & Schwerin** *20850, 15964*
V *20850* U.S. - New Mexico *20850*

E II ***Escobaria robbinsiorum*** **(W.H. Earle) D.R. Hunt** *20883, 20850*
E *20850* U.S. - Arizona *20850*
I *20883* Mexico *20883*

R II ***Escobaria robbinsorum*** **(W. Earle) D. Hunt** *15964*
V *15964* U.S. - Arizona (Cochise Co.) *4115*
R *14252* Mexico - Sonora *14252*

R II ***Escobaria roseana*** **(Boedeker) Backeb.** *12469*
R *19850* Mexico *12469*

V II ***Escobaria sandbergii*** **Castetter, Pierce & Schwerin** *20850, 15964*
V *20850* U.S. - New Mexico *20850*

V I ***Escobaria sneedii*** **Britt. & Rose** *20850, 15964*
V *20850* U.S. - New Mexico *20850*
I *20850* U.S. - Texas *20850*

V II ***Escobaria sneedii*** **Britt. & Rose var. *leei*** **(Rose ex Bodecker) D.R.Hunt** *20850*
V *20850* U.S. - New Mexico *20850*

V II ***Escobaria sneedii*** **Britt. & Rose var. *sneedii*** *20850*
V *20850* U.S. - New Mexico *20850*
V *20850* U.S. - Texas *20850*

V II ***Escobaria villardii*** **Castetter, Pierce & Schwerin** *20850, 15964*
I *20850* U.S. - California *20850*
V *20850* U.S. - New Mexico *20850*

R II ***Escobaria vivipara*** **var. *rosea*** **(Clokey) D.R. Hunt** *20850*
E *20850* U.S. - Arizona *20850*
V *20850* U.S. - California *20850*
R *20850* U.S. - Nevada *20850*

R II ***Espostoopsis dybowskii*** **(Roland-Goss) F. Buxb.** *15964*
R *21426* Brazil *15964*

E II ***Eulychnia aricensis*** **Ritt.** *15964*
E *19535* Chile *15964*

R II ***Eulychnia iquiquensis*** **(Schumann) Britton & Rose** *15964*
R *15964* Chile *19034*

V II ***Eulychnia procumbens*** **Backeb.** *15964*
V *5598* Chile *15964*

R II ***Facheiroa ulei*** **(Gurke) Werderm.** *15964*
R *15964* Brazil *15964*

R II ***Ferocactus alamosanus*** **Britton & Rose** *15964*
R *15964* Mexico *15964*
R *15964* Mexico - Sonora

I II ***Ferocactus chrysacanthus*** **(Orcutt) Britton & Rose** *12469*
21424 Mexico *21424*
I *19850* Mexico - Baja California Peninsula *14264*

R II ***Ferocactus cylindraceus*** *21424*
Mexico *21424*

I II ***Ferocactus cylindraceus*** **Orcutt. var. *cylindraceus*** *15964*
I *15964* U.S. - Arizona *8058*
I *15964* U.S. - California *8058*
I *19850* Mexico - Sonora *9114*

I II ***Ferocactus eastwoodiae*** **(L. Benson) L. Benson** *15964*
I *21408* U.S. - Arizona ((Pima, Pinal & Gila Co.)) *21408*

V II ***Ferocactus emoryi*** **(Engelm.) Orcutt** *20850, 15964*
I *20850* U.S. - Arizona *20850*
V *16360* Mexico *15964*

R II ***Ferocactus haematacanthus*** **(A. Weber) Backeb. & F. Knuth** *15964*
21424 Mexico *21424*
R *14264* Mexico - Puebla *9114*
R *14264* Mexico - Veracruz *14264*

R II ***Ferocactus johnstonianus*** **Britton & Rose** *12469*
R *19848* Mexico *9019*

E II ***Ferocactus peninsulae*** **(F.A.C. Weber) Britton & Rose var. *santa-maria*** **(Britton & Rose) N.P. Taylor** *20067*
E *20067* Mexico - Baja California Sur *20067*

V II ***Ferocactus pilosus*** **(Salm-Dyck) Werderm.** *15964*
21424 Mexico *21424*
Mexico - Durango *21408*
Mexico - Nuevo Leon *21408*
Mexico - San Luis Potosi *21408*
Mexico - Tamaulipas *21408*
Mexico - Zacatecas *21408*

V II ***Ferocactus recurvus*** **(Miller) Borg var. *greenwoodii*** **C. Glass** *9114*
V *9114* Mexico - Oaxaca *9114*

R II ***Ferocactus reppenhagenii*** **G. Unger** *15964*
21424 Mexico *21424*
Mexico - Colima *21408*
Mexico - Michoacan (Coalcoman) *21408*

V II ***Ferocactus townsendianus*** **Britton & Rose** *15964*
Mexico - Baja California Peninsula *21408*

V II ***Ferocactus townsendianus*** **var. *townsendianus*** *21424*
Mexico *21424*

I II ***Ferocactus viridescens*** **(Nutt.) Britton & Rose** *15964*
I *15964* U.S. - California *9114*
21424 Mexico *21424*
V *9114* Mexico - Baja California Peninsula *9114*

Ex/E II ***Frailea matoana*** **Buining & Brederoo** *15964*
Ex/E *15964* Brazil *15964*

V II ***Haageocereus australis*** **Backeb** *15964*
V *19034* Chile *19034*
V *18200* Peru *19034*

R II ***Haageocereus chilensis*** **Ritt.** *5598*
R *5598* Chile *5598*

V II ***Haageocereus fascicularis*** **(Meyen) Ritter** *15964*
V *19034* Chile *19034*

E II ***Haageocereus limensis*** **(Salm-Dyck) F. Ritter** *15964*
E *12468* Peru *18200*

E II ***Haageocereus multangularis*** **(Willd.) F. Ritter** *15964*
E *12468* Peru *18200*

V II ***Hamatocactus crassihamatus*** *21424*
Mexico *21424*

V II ***Hamatocactus uncinatus*** *21424*
Mexico *21424*

Magnoliopsida (dicots): Cactaceae: *Hamatocactus*

I II ***Harrisia aboriginum*** *15964*
I *15964* United States of America *15964*

V II ***Harrisia earlei*** **Britton & Rose** *15964*
V *19105* Cuba (Pinar del Rio) *5607*

R II ***Harrisia fernowii*** **Britton** *15964*
R *19105* Cuba *19105*

E II ***Harrisia fragrans*** **Small** *20850. 15964*
E *20850* U.S. - Florida *20850*

E II ***Harrisia portoricensis*** **Britt.** *20883. 15964*
E *20883* Puerto Rico (Mona; Desecheo) *20883*

V II ***Harrisia simpsonii*** **Small** *20850. 15964*
I *15964* United States of America *15964*
V *20850* U.S. - Florida *20850*

V II ***Harrisia taetra*** *15964*
V *21408* Cuba (west) *21408*

V II ***Harrisia taylori*** **Britton** *15964*
V *19105* Cuba *19105*

R II ***Hatiora epiphylloides*** *15964*
R *15964* Brazil *15964*

I II ***Hatiora epiphylloides*** **ssp.** ***bradei*** *21307*
I *21426* Brazil *21408*

I II ***Hatiora epiphylloides*** **ssp.** ***epiphylloides*** *21307*
I *21426* Brazil *21307*

I II ***Hatiora gaertneri*** *15964*
I *15964* Brazil *15964*

V II ***Hatiora herminiae*** *15964*
V *15964* Brazil *15964*

I II ***Hatiora rosea*** *15964*
I *15964* Brazil *15964*

R II ***Helianthocereus atacamensis*** **(Phil.) Backeb.** *20883*
R *20883* Chile *20883*

R II ***Heliocereus speciosus*** **(Cavan.) Britton & Rose var.** ***amecamensis*** **(Heese) Weing. ex A. Berger** *12469*
R *16385* Mexico - Michoacan *16385*

I II ***Heliocereus speciosus*** **(Cavan.) Britton & Rose var.** ***elegantissimus*** **(Britton & Rose)** *12469*
I *15964* Mexico *12469*

E II ***Heliocereus speciosus*** **(Cavan.) Britton & Rose var.** ***serratus*** **(Weing.) Borg** *12469*
E *16385* Guatemala *16385*
E *16385* Mexico *12469*

I II ***Heliocereus speciosus*** **(Cavan.) Britton & Rose var.** ***speciosus*** *12469*
I *15964* Mexico *12469*

E II ***Heliocereus speciosus*** **(Cavan.) Britton & Rose var.** ***superbus*** **(Ehrenbg.) A. Berger** *12469*
E *19860* Mexico *12469*

R II ***Horridocactus garaventae*** *15964*
R *19535* Chile *15964*

R II ***Hylocereus calcaratus*** **(A. Weber) Britton & Rose** *15964*
R *14255* Costa Rica *16385*

R II ***Hylocereus stenopterus*** **(A. Weber) Britton & Rose** *15964*
R *14255* Costa Rica *14255*
V *14255* Panama (Chiriquí) *10747*

R II ***Jasminocereus thouarsii*** **(F.A.C. Weber) Backeb. var.** ***delicatus*** **(E. Dawson) E.F. Anders. & Walk.** *11117*
R *11117* Ecuador - Galapagos *11117*

R II ***Jasminocereus thouarsii*** **(F.A.C. Weber) Backeb. var.** ***sclerocarpus*** **(Schumann) E.F. Anders. & Walk.** *11117*
R *11117* Ecuador - Galapagos *11117*

R II ***Jasminocereus thouarsii*** **(F.A.C. Weber) Backeb. var.** ***thouarsii*** *11117*
R *11117* Ecuador - Galapagos *11117*

V II ***Leptocereus arboreus*** **Britton & Rose** *15964*
V *19105* Cuba *5607*

R II ***Leptocereus assurgens*** **(C. Wright) Britton & Rose** *15964*
R *19105* Cuba *19105*

E II ***Leptocereus ekmanii*** **(Werderm.) Knuth** *15964*
E *21425* Cuba (Pinar del Rio) *5607*

E II ***Leptocereus grantianus*** **Britt.** *20883. 15964*
I *21425* Puerto Rico (Culebra Is.) *21425*

R II ***Leptocereus maxonii*** **Britton & Rose** *15964*
R *19105* Cuba (SC; Gu) *5607*

V II ***Leptocereus prostratus*** **Britton & Rose** *15964*
V *19105* Cuba (Pinar del Rio) *5607*

E II ***Leptocereus quadricostatus*** **(Bello) Britt. & Rose** *20883. 15964*
I *20883* Puerto Rico *20883*

R II ***Leptocereus sylvestris*** **Britton & Rose** *15964*
R *19105* Cuba (Granma) *5607*

Ex II ***Leptocereus wrightii*** **León** *15964*
Ex *19105* Cuba (Ciud. Habana) *5607*

R II ***Leuchtenbergia principis*** **Hooker** *15964*
21424 Mexico *21424*
R *20067* Mexico - Coahuila *9114*
R *21263* Mexico - Durango *21263*
R *20067* Mexico - Hidalgo *20067*
R *20067* Mexico - Nuevo Leon *9114*
R *20067* Mexico - San Luis Potosi *9114*
R *21263* Mexico - Tamaulipas *21263*
R *21263* Mexico - Zacatecas *21263*

Ex II ***Lobivia vatteri*** **Krainz** *16336*
Ex *16336* Argentina *16336*

R II ***Lophocereus schottii*** **var.** ***mieckleyanus*** *21424*
Mexico *21424*

R II ***Lophophora diffusa*** **(Croizat) H. Bravo-Hollis** *15964*
21424 Mexico *21424*
R *20067* Mexico - Queretaro *20067*

E II ***Mammillaria aff.*** **Salm-Dyck** *20883*
E *20883* Jamaica *20883*

R II ***Mammillaria albicans*** **A. Berger** *1058*
R *19848* Mexico *1058*

V II ***Mammillaria albicoma*** **Boedeker** *9114*
21424 Mexico *21424*
V *19848* Mexico - Tamaulipas *9114*

R II ***Mammillaria angelensis*** **R.T. Craig** *1058*
R *19848* Mexico *1058*

R II ***Mammillaria anniana*** **C. Glass & R. Foster** *1058*
R *19848* Mexico *1058*

V II ***Mammillaria aureiceps*** **Lemaire** *15964*
V *19848* Mexico - Mexico D.F. *9114*

V II ***Mammillaria aureilanata*** **Backeb.** *1058*
21424 Mexico *21424*
V *20067* Mexico - San Luis Potosi *20067*

R II ***Mammillaria aurihamata*** **Boedeker** *1058*
21424 Mexico *21424*
R *14271* Mexico - San Luis Potosi *1058*

Magnoliopsida (dicots): Cactaceae: *Mammillaria*

R II ***Mammillaria backebergiana*** *21424*
Mexico *21424*

R II ***Mammillaria backebergiana*** Buchenau var. ***backebergiana*** *1058*
R *14271* Mexico - Mexico State *1058*

R II ***Mammillaria backebergiana*** Buchenau var. ***ernestii*** (Fittkau) C. Glass & R. Foster *14271*
R *14271* Mexico *14271*

R II ***Mammillaria baumii*** Boedeker *1058*
21424 Mexico *21424*
R *15964* Mexico - Tamaulipas *1058*

R II ***Mammillaria beiselii*** Diers *1058*
R *15964* Mexico *1058*

R II ***Mammillaria bella*** Backeb. *1058*
R *15964* Mexico *1058*

R II ***Mammillaria blossfeldiana*** Boedeker *1058*
R *19850* Mexico *1058*

V II ***Mammillaria bocasana*** Poselger *9114*
V *19848* Mexico - San Luis Potosi (Sierra de Bocas) *9114*

V II ***Mammillaria bocensis*** R.T. Craig *19850*
V *19850* Mexico *15964*

R II ***Mammillaria bombycina*** Quehl *1058*
R *19850* Mexico *1058*

R II ***Mammillaria boolii*** G. Lindsay *1058*
R *19850* Mexico *1058*

I II ***Mammillaria candida*** Scheidw. *9114*
I *19850* Mexico - Chihuahua *9114*
I *19850* Mexico - Coahuila (Saltillo (DS:21408)) *9114*
I *19850* Mexico - Nuevo Leon *9114*
I *19850* Mexico - Tamaulipas *9114*
I *19850* Mexico - Zacatecas *9114*

R II ***Mammillaria capensis*** (H. Gates) R.T. Craig *1058*
R *19848* Mexico *1058*

E II ***Mammillaria carmenae*** Castaneda & Nunez *9114*
21424 Mexico *21424*
E *19848* Mexico - Tamaulipas *9114*

V II ***Mammillaria carretii*** Rebut *1058*
V *15964* Mexico *1058*

R II ***Mammillaria cerralboa*** (Britton & Rose) Orcutt *12469*
R *19848* Mexico *12469*

V II ***Mammillaria coahuilensis*** (Boedeker) Moran *9114*
21424 Mexico *21424*
V *19848* Mexico - Coahuila *9114*

R II ***Mammillaria crucigera*** Martius *9114*
21424 Mexico *21424*
R *19850* Mexico - Oaxaca *9114*

R II ***Mammillaria deherdtiana*** Farwig var. ***deherdtiana*** *1058*
21424 Mexico *21424*
R *19850* Mexico - Oaxaca *14271*

R II ***Mammillaria diguetii*** (A. Weber) D.R. Hunt *1058*
R *15964* Mexico *1058*

R II ***Mammillaria dixanthocentron*** Backeb. *9058*
R *19850* Mexico *9058*

R II ***Mammillaria duoformis*** R.T. Craig & E. Dawson *1058*
R *19848* Mexico *1058*

V II ***Mammillaria erectacantha*** Foerster *1058*
V *19848* Mexico *1058*

V II ***Mammillaria esperanzaensis*** Boedeker *9114*
V *16360* Mexico - Puebla *9114*

R II ***Mammillaria estebanensis*** G. Lindsay *1058*
R *15964* Mexico *1058*

R II ***Mammillaria evermanniana*** (Britton & Rose) Orcutt *1058*
R *19848* Mexico *1058*

R II ***Mammillaria fittkaui*** C. Glass & R. Foster *1058*
21424 Mexico *21424*
R *14265* Mexico - Jalisco *14265*

R II ***Mammillaria fuauxiana*** Backeb. *1058*
R *15964* Mexico *15964*

R II ***Mammillaria glareosa*** Boedeker *1058*
21424 Mexico *21424*
R *21408* Mexico - Baja California Peninsula (western side) *21408*

R II ***Mammillaria glassii*** R. Foster var. ***ascensionis*** (Reppenhagen) C. Glass & R. Foster *1058*
R *14271* Mexico - Nuevo Leon *14271*

R II ***Mammillaria goodridgei*** Scheer var. ***goodridgei*** *15964*
R *15964* Mexico - Guadelupe *10339*
21424 Mexico *21424*
R *15964* Mexico - Baja California Peninsula (I. Cedros) *10339*

V II ***Mammillaria goodridgei*** Scheer var. ***rectispina*** E. Dawson *12469*
V *19860* Mexico - Baja California Peninsula (Cedros Is.) *12469*

R II ***Mammillaria grusonii*** Runge *1058*
R *19848* Mexico *1058*

V II ***Mammillaria guelzowiana*** Werderm. *1058*
V *19848* Mexico *1058*

V II ***Mammillaria guelzowiana*** *21424*
Mexico *21424*

R II ***Mammillaria guerreronis*** (H. Bravo-Holl.) Backeb. *9114*
21424 Mexico *21424*
R *19848* Mexico - Guerrero *9114*

V II ***Mammillaria hahniana*** Werderm. *1058*
V *19850* Mexico *1058*

V II ***Mammillaria halei*** T.S. Brandegee *1058*
21424 Mexico *21424*
V *20067* Mexico - Baja California Sur (Isla Magdalena, Isla Santa Margarita) *20067*

R II ***Mammillaria heidiae*** Krainz *9114*
21424 Mexico *21424*
R *19850* Mexico - Puebla *9114*

R II ***Mammillaria hernandezii*** C. Glass & R. Foster *19850*
R *19850* Mexico *19848*
21408 Mexico - Oaxaca ((Telixtlahuaca)) *21408*

V II ***Mammillaria herrerae*** Werderm. *1058*
V *19848* Mexico *1058*

R II ***Mammillaria hertrichiana*** R.T. Craig *1058*
R *19848* Mexico *1058*

R II ***Mammillaria huajuapensis*** H. Bravo-Holl. *1058*
R *15964* Mexico *1058*

V II ***Mammillaria huitzilopochtli*** D.R. Hunt *1058*
V *15964* Mexico *1058*

V II ***Mammillaria humboldtii*** Ehrenb. *9114*
21424 Mexico *21424*
V *19850* Mexico - San Luis Potosi *9114*

Magnoliopsida (dicots): Cactaceae: *Mammillaria*

R II ***Mammillaria insularis*** H. Gates *1058*
R *19848* Mexico *1058*

R II ***Mammillaria johnstonii*** (Britton & Rose) Orcutt *1058*
R *19848* Mexico *1058*

V II ***Mammillaria klissingiana*** Boedeker *9114*
21424 Mexico *21424*
V *19848* Mexico - Tamaulipas *9114*

R II ***Mammillaria knippeliana*** Quehl *1058*
R *15964* Mexico *1058*

V II ***Mammillaria kraehenbuehlii*** Krainz *1058*
V *19848* Mexico *1058*

I II ***Mammillaria laui*** D.Hunt forma ***dasyacantha*** D.Hunt *19850*
I *21424* Mexico *19850*

I II ***Mammillaria laui*** D. Hunt var. ***discata*** D. Hunt *19850*
I *21408* Mexico *21408*

I II ***Mammillaria laui*** D. Hunt. var. ***laui*** *19850*
21424 Mexico *21424*
I *19850* Mexico - Tamaulipas *9114*

V II ***Mammillaria lenta*** K. Brandegee *1058*
V *19848* Mexico *1058*

R II ***Mammillaria lindsayi*** R.T. Craig *1058*
R *19848* Mexico *1058*

V II ***Mammillaria longiflora*** (Britton & Rose) A. Berger *1058*
V *19848* Mexico *1058*

R II ***Mammillaria magnifica*** Buchenau *1058*
R *19848* Mexico *1058*

I II ***Mammillaria mainiae*** Curran *19002*
V *19002* U.S. - Arizona *19002*
I *19002* Mexico - Sonora *19002*

R II ***Mammillaria maritima*** G. Lindsay *1058*
R *19848* Mexico *1058*

R II ***Mammillaria marksiana*** Krainz *1058*
R *19848* Mexico *1058*

V II ***Mammillaria mathildae*** Krahenb. & Krainz *1058*
V *19848* Mexico *1058*

R II ***Mammillaria matudae*** H. Bravo-Holl. *1058*
R *19848* Mexico *1058*

V II ***Mammillaria melaleuca*** Karw. *1058*
V *15964* Mexico *1058*

R II ***Mammillaria mercadensis*** Patoni *9114*
21424 Mexico *21424*
R *21408* Mexico - Durango ((cerro del Mercado)) *21408*

R II ***Mammillaria meyranii*** H. Bravo-Holl. *1058*
R *19850* Mexico *1058*

R II ***Mammillaria microhelia*** Werderm. *9114*
21424 Mexico *21424*
R *19850* Mexico - San Luis Potosi *9114*

R II ***Mammillaria miegiana*** Earle *1058*
R *15964* Mexico *1058*

R II ***Mammillaria moelleriana*** Boedeker *1058*
R *15964* Mexico *1058*

R II ***Mammillaria multidigitata*** G. Lindsay *1058*
R *15964* Mexico *1058*

R II ***Mammillaria nana*** Backeb. *1058*
21424 Mexico *21424*
R *21263* Mexico - Guanajuato *21263*
R *21263* Mexico - Queretaro *21263*

V II ***Mammillaria napina*** J.A. Purpus *9114*
21424 Mexico *21424*
V *19850* Mexico - Puebla *9114*

R II ***Mammillaria nejapensis*** R.T. Craig & F. Dawson *1058*
R *15964* Mexico *1058*

R II ***Mammillaria neopalmeri*** R.T. Craig *1058*
R *15964* Mexico *1058*

V II ***Mammillaria oteroi*** C. Glass & R. Foster *1058*
V *19850* Mexico *1058*

R II ***Mammillaria painteri*** Rose *9114*
21424 Mexico *21424*
R *15964* Mexico - Queretaro *9114*

R II ***Mammillaria parkinsonii*** Ehrenb. *1058*
R *15964* Mexico *1058*

E I ***Mammillaria pectinifera*** (Rümpler) A. Weber *9114*
21424 Mexico *21424*
E *20067* Mexico - Oaxaca *9114*
E *20067* Mexico - Puebla *9114*

R II ***Mammillaria peninsularis*** (Britton & Rose) Orcutt *1058*
R *15964* Mexico *1058*

R II ***Mammillaria pennispinosa*** *21424*
Mexico *21424*

R II ***Mammillaria pennispinosa*** Krainz var. ***nazasensis*** C. Glass & R. Foster *1058*
R *1058* Mexico *1058*

R II ***Mammillaria pennispinosa*** Krainz var. ***pennispinosa*** *12469*
R *21263* Mexico - Coahuila *21263*
R *21263* Mexico - Durango *21263*

R II ***Mammillaria perezdelarosae*** H. Bravo-Holl. & Scheinvar *1058*
21424 Mexico *21424*
R *19850* Mexico - Jalisco *1058*

R II ***Mammillaria petrophila*** K. Brandegee *1058*
R *15964* Mexico *1058*

R II ***Mammillaria pilcayensis*** H. Bravo-Holl. *15964*
R *15964* Mexico *15964*

R II ***Mammillaria pilispina*** J.A. Purpus *9114*
21424 Mexico *21424*
R *15964* Mexico - San Luis Potosi *9114*

I II ***Mammillaria plumosa*** A. Weber *9114*
21424 Mexico *21424*
I *19848* Mexico - Coahuila *9114*
I *19848* Mexico - Nuevo Leon *9114*

R II ***Mammillaria pondii*** Greene *1058*
R *19848* Mexico *1058*

R II ***Mammillaria pringlei*** (J. Coulter) K. Brandegee *9114*
R *19850* Mexico - Mexico D.F. *9114*
21408 Mexico - San Luis Potosi *21408*

R II ***Mammillaria pubispina*** Boedeker *1058*
R *15964* Mexico *1058*

R II ***Mammillaria reppenhagenii*** D.R. Hunt *1058*
R *15964* Mexico *1058*

R II ***Mammillaria rettigiana*** Boedeker *1058*
R *15964* Mexico *1058*

R II ***Mammillaria roseoalba*** Boedeker *9114*
21424 Mexico *21424*
R *15964* Mexico - Nuevo Leon *12437*
R *15964* Mexico - Tamaulipas *9114*

Magnoliopsida (dicots): Cactaceae: *Mammillaria*

R II *Mammillaria rubrograndis* Lau & Reppenhagen *1058*
R *15964* Mexico *1058*

V II *Mammillaria saboae* *21424*
Mexico *21424*

V II *Mammillaria saboae* C. Glass var. *goldii* C. Glass & R. Foster *1058*
V *15964* Mexico - Sonora *12437*

V II *Mammillaria saboae* C. Glass var. *saboae* *1058*
V *15964* Mexico *1058*

E II *Mammillaria san-angelensis* Sanchez-Mej. *9114*
21424 Mexico *21424*
E *15964* Mexico - Mexico D.F. *9114*

E II *Mammillaria sanchez-mejoradae* R. Gonzalez G. *20067*
21424 Mexico *21424*
E *20067* Mexico - Nuevo Leon *20067*

V II *Mammillaria schiedeana* *21424*
Mexico *21424*

V II *Mammillaria schiedeana* Ehrenb. var. *dumetorum* (J.A. Purpus) C. Glass & R. Foster *12469*
V *14267* Mexico - San Luis Potosi *14267*

V II *Mammillaria schiedeana* Ehrenb. var. *schiedeana* *1058*
V *14267* Mexico - Hidalgo *14267*
V *14267* Mexico - Queretaro *14267*

R II *Mammillaria schwarzii* Shurly *1058*
21424 Mexico *21424*
R *14269* Mexico - Guanajuato *14269*

V II *Mammillaria senilis* Lodd. *1058*
V *21408* Mexico (Durango, Chiluahua, sierra Madre Occidental) *21408*

R II *Mammillaria setispina* Coulter *1058*
R *16360* Mexico *1058*

R II *Mammillaria slevinii* (Britton & Rose) Boedeker *1058*
R *15964* Mexico *1058*

E *Mammillaria solisioides* Backeb. *9114*
21424 Mexico *21424*
E *20067* Mexico - Oaxaca *20067*
E *20067* Mexico - Puebla *9114*

E II *Mammillaria sp. nov. ined.* *19890*
E *19890* Jamaica (Trelawny) *19221*

R II *Mammillaria stella-de-tacubaya* Heese *1058*
R *15964* Mexico *1058*

V II *Mammillaria supertexta* C. Martius *1058*
V *15964* Mexico *1058*

R II *Mammillaria surculosa* Boedeker *1058*
R *15964* Mexico *1058*

R II *Mammillaria surculosa* *21424*

I II *Mammillaria swinglei* (Britton & Rose) Boedeker *1058*
I *15964* Mexico *1058*

R II *Mammillaria tayloriorum* C. Glass & R. Foster *1058*
R *15964* Mexico *1058*

R II *Mammillaria tepexicensis* J. Meyrán *19850*
R *21408* Mexico *21408*

R II *Mammillaria tetrancistra* Engelm. *15964*
R *19002* U.S. - Utah *19002*

V II *Mammillaria theresae* Cutak *9114*
21424 Mexico *21424*
V *16360* Mexico - Durango *9114*

V II *Mammillaria tonalensis* D.R. Hunt *1058*
V *19850* Mexico *1058*

R II *Mammillaria varieaculeata* Buchenau *1058*
R *19850* Mexico *1058*

V II *Mammillaria weingartiana* Boedeker *1058*
V *15964* Mexico *1058*

R II *Mammillaria wiesingeri* Boedeker *1058*
R *15964* Mexico *1058*

R II *Mammillaria wrightii* Engelm. var. *wrightii* *20850*
E *20850* U.S. - Arizona *20850*
R *20850* U.S. - New Mexico *20850*
E *20850* U.S. - Texas *20850*

R II *Mammillaria xaltianguensis* Sánchez-Mej. *1058*
R *15964* Mexico *1058*

R II *Mammillaria yaquensis* R.T. Craig *9114*
21424 Mexico *21424*
R *15964* Mexico - Sonora *9114*

R II *Mammillaria yucatanensis* (Britton & Rose) Orcutt *15964*
21424 Mexico *21424*
R *21408* Mexico - Yucatan *21408*

R II *Mammillaria zeilmanniana* Boedeker *1058*
R *19850* Mexico *1058*
21408 Mexico - Guanajuato *21408*

V II *Mammillaria zephyranthoides* Scheidw. *9114*
21424 Mexico *21424*
V *21263* Mexico - Guanajuato *21263*
V *19850* Mexico - Oaxaca *9114*

I II *Mammillaria zeyeriana* W. Haage *1058*
I *15964* Mexico *1058*

V II *Matucana aurantiaca* *15964*
V *15964* Peru *15964*

V II *Matucana formosa* F. Ritter *15964*
V *12468* Peru *18200*

V II *Matucana krahnii* (Donald) Bregman *15964*
V *15964* Peru *12468*

E II *Matucana madisoniorum* (Hutchinson) G. Rowley *15964*
E *15964* Peru *12468*

V II *Matucana paucicostata* F. Ritter *15964*
V *15964* Peru *18200*

V II *Matucana tuberculata* (Donald) Bregman *15964*
V *12468* Peru *18200*

V II *Melocactus azureus* *15964*
V *15964* Brazil *15964*

I II *Melocactus azureus* ssp. *ferreophilus* *21307*
I *21426* Brazil *21307*

E I *Melocactus conoideus* Buining & Brederoo *15964*
E *15964* Brazil (Vitoria da Conquista) *14964*

E II *Melocactus curvispinus* Pfeiffer ssp. *dawsonii* (H. Bravo-Holl.) N.P. Taylor *15964*
E *20067* Mexico - Jalisco *20067*

V I *Melocactus deinacanthus* Buing & Brederoo *15964*
V *15964* Brazil *14964*

V II *Melocactus ferreophilus* *15964*
V *15964* Brazil *15964*

V I *Melocactus glaucescens* Buining & Brederoo *15964*
V *21426* Brazil *14964*

E II *Melocactus harlowii* (Britton & Rose) Vaupel *15964*
E *19105* Cuba (Guantanamo) *5607*

E II *Melocactus holguinensis* Areces *15964*
E *19105* Cuba (Holguin) *5607*

Magnoliopsida (dicots): Cactaceae: *Melocactus*

V II *Melocactus margaritaceus* *15964*
V *15964* Brazil *15964*

E II *Melocactus matanzanus* Leon *15964*
E *19105* Cuba (Guantanamo; Matanzas) *5607*

V II *Melocactus oaxacensis* (Britton & Rose) Backeb. *9114*
V *9114* Mexico - Oaxaca *9114*

V II *Melocactus pachyacanthus* *15964*
V *15964* Brazil *15964*

I II *Melocactus pachyacanthus* ssp. *viridis* *21307*
I *21408* Brazil *21408*

V I *Melocactus paucispinus* G. Heimen & R. Paul *15964*
V *21426* Brazil *14964*

V II *Melocactus violaceus* *15964*
V *21408* Brazil *21408*

I II *Micranthocereus albicephalus* *15964*
I *21426* Brazil *15964*

R II *Micranthocereus auriazureus* *15964*
R *21426* Brazil *15964*

V II *Micranthocereus dolichospermaticus* *15964*
V *15964* Brazil *15964*

R II *Micranthocereus polyanthus* *15964*
R *21426* Brazil *15964*

V II *Micranthocereus streckeri* *15964*
V *15964* Brazil *15964*

R II *Micranthocereus violaciflorus* *15964*
R *21426* Brazil *15964*

E II *Mila caespitosa* Britton & Rose *15964*
E *12468* Peru *12468*

R II *Morangaya pensilis* *21424*
Mexico *21424*

I II *Neobesseya cubensis* (Britton & Rose) Hest. *5607*
I *5607* Cuba *5607*

V II *Neobuxbaumia euphorbioides* (Haw.) F. Buxb. *15964*
V *15964* Mexico - Tamaulipas *12437*
V *15964* Mexico - Veracruz *12787*

I II *Neobuxbaumia macrocephala* (A. Weber) Dawson *15964*
I *15964* Mexico - Puebla *12787*

R II *Neobuxbaumia polylopha* (DC.) Backeb. *12469*
R *15964* Mexico - Hidalgo *12787*
R *15964* Mexico - Queretaro *12787*

R II *Neoporteria andreaeana* *15964*
R *15964* Argentina *15964*

R II *Neoporteria aricensis* (Ritter) Don & G.D. Rowley *15964*
R *15964* Chile *19034*

Ex II *Neoporteria aspillagae* *15964*
Ex *19034* Chile *15964*

R II *Neoporteria bulbocalyx* *15964*
R *15964* Argentina *15964*

V II *Neoporteria carrizalensis* (Ritter) A. Hoffmann var. *carrizalensis* *19034*
V *19034* Chile *19034*

V II *Neoporteria carrizalensis* (Ritter) A. Hoffmann var. *totoralensis* (Ritter) A. Hoffmann *19034*
V *19034* Chile *19034*

E II *Neoporteria chilensis* (Hildmann) Britton & Rose *15964*
E *15964* Chile *19034*

V II *Neoporteria clavata* (Soehr.) Werdermann var. *nigrihorrida* (Backeb.) A. Hoffmann *19034*
V *19034* Chile *19034*

R II *Neoporteria confinis* *15964*
R *15964* Chile *15964*

R II *Neoporteria crispa* (F.Ritter) Donald & Rowley *15964*
R *15964* Chile *15964*

V II *Neoporteria curvispina* (Bert.) Don & G.D. Rowley *15964*
V *19034* Chile *19034*

V II *Neoporteria eriosyzoides* (Ritter) Don & G.D. Rowley *15964*
V *19034* Chile *19034*

V II *Neoporteria horrida* (Reny ex Gay) Hunt var. *armata* (Ritter) A. Hoffmann *19034*
V *19034* Chile *19034*

V II *Neoporteria horrida* (Reny ex Gay) Hunt var. *coliguayensis* (Ritter) A. Hoffmann *19034*
V *19034* Chile *19034*

V II *Neoporteria horrida* (Reny ex Gay) Hunt var. *horrida* *19034*
V *19034* Chile *19034*

V II *Neoporteria horrida* (Reny ex Gay) Hunt var. *limariensis* (Ritter) A. Hoffmann *19034*
V *19034* Chile *19034*

V II *Neoporteria horrida* (Reny ex Gay) Hunt var. *odoriflora* (Ritter) A. Hoffmann *19034*
V *19034* Chile *19034*

I II *Neoporteria islayensis* (Forst.) Donald & Rowley *15964*
I *19034* Chile *19034*
E *12468* Peru *15964*

V II *Neoporteria jussieui* (Monville) Britton & Rose var. *chaniarensis* (Ritter) A. Hoffmann *19034*
V *19034* Chile *19034*

I II *Neoporteria jussieui* (Monville) Britton & Rose var. *chorosensis* (Ritter) A. Hoffmann *19034*
I *19034* Chile *19034*

V II *Neoporteria jussieui* (Monville) Britton & Rose var. *dimorpha* (Ritter) A. Hoffmann *19034*
V *19034* Chile *19034*

I II *Neoporteria jussieui* (Monville) Britton & Rose var. *huascensis* (Ritter) A. Hoffmann *19034*
I *19034* Chile *19034*

V II *Neoporteria jussieui* (Monville) Britton & Rose var. *jussieui* *19034*
V *19034* Chile *19034*

I II *Neoporteria jussieui* (Monville) Britton & Rose var. *setosiflora* (Ritter) A. Hoffmann *19034*
I *19034* Chile *19034*

I II *Neoporteria jussieui* (Monville) Britton & Rose var. *wagenknechtii* (Ritter) A. Hoffmann *19034*
I *19034* Chile *19034*

I II *Neoporteria kunzei* (Foerster) Backeb. var. *confinis* (Ritter) A. Hoffmann *19034*
I *19034* Chile *19034*

V II *Neoporteria kunzei* (Foerster) Backeb. var. *kunzei* *19034*
V *15964* Chile *19034*

R II *Neoporteria napina* (Phil.) Backeb. & Dolz *15964*
R *15964* Chile *19034*

E II ***Neoporteria nidus*** (Soehr.) Werdermann var. ***coimasensis*** (Ritter) A. Hoffmann *19034*
E *15964* Chile *19034*

E II ***Neoporteria nidus*** (Soehr.) Werdermann var. ***gerocephala*** (Ito) Ritter *19034*
E *15964* Chile *19034*

E II ***Neoporteria nidus*** (Ritter) A. Hoffmann var. ***multicolor*** *19034*
E *15964* Chile *19034*

E II ***Neoporteria nidus*** (Soehr.) Britton & Rose var. ***nidus*** *19034*
E *15964* Chile *19034*

E II ***Neoporteria occulta*** (Schumann) *15964*
E *15964* Chile *19034*

E II ***Neoporteria odieri*** (Salm Dyck) *15964*
E *15964* Chile *19034*

R II ***Neoporteria pilispina*** *15964*
R *15964* Chile *15964*

E II ***Neoporteria recondita*** (Ritter) Don & G.D. Fowley *15964*
E *15964* Chile *19034*

E II ***Neoporteria simulans*** (Ritter) Don & G.D. Fowley *15964*
E *15964* Chile *19034*

R II ***Neoporteria sociabilis*** *15964*
R *21408* Chile (north Caldera, south Totoral Bajo) *21408*

R II ***Neoporteria strausiana*** *15964*
R *15964* Argentina *15964*

V II ***Neoporteria taltalensis*** Hutchinson *15964*
V *19034* Chile *19034*

R II ***Neoporteria umadeave*** *15964*
R *15964* Argentina *15964*

V II ***Neoporteria vallenarensis*** *15964*
V *21408* Chile (south Vicuna) *21408*

R II ***Neoporteria villicumensis*** *15964*
R *15964* Argentina *15964*

R I ***Obregonia denegrii*** Fric *15964*
21424 Mexico *21424*
R *20067* Mexico - Tamaulipas *9114*

R II ***Opuntia anteojoensis*** D.J. Pinkava *15964*
R *19848* Mexico *15964*
21408 Mexico - Coahuila (west Cuatro Cienagas) *21408*

E II ***Opuntia atacamensis*** Phil. *15964*
E *19535* Chile *15964*

E II ***Opuntia aureispina*** (Brack & Heil) Pinkava & Parfitt *20850. 15964*
E *20850* U.S. - Texas *20850*

R II ***Opuntia basilaris*** Engelm. & Bigelow var. ***aurea*** (E.M. Baxter) W.T. Marsh. *20850. 14662*
R *20850* U.S. - Arizona *20850*
I *20850* U.S. - Utah *20850*

E II ***Opuntia basilaris*** Engelm. & Bigelow var. ***brachyclada*** (Griffiths) Munz *20850*
E *20850* U.S. - California *20850*
I *20850* U.S. - Nevada *20850*

E II ***Opuntia basilaris*** Engelm. & Bigelow var. ***heilii*** Welsh & Neese *20850*
E *20850* U.S. - Utah *20850*

V II ***Opuntia basilaris*** Engelm. & Bigelow var. ***treleasei*** (Coult.) Coult. ex Tourney *20850*
I *20850* U.S. - Arizona *20850*
V *20850* U.S. - California *20850*
E *20850* U.S. - Utah *20850*

V II ***Opuntia basilaris*** Engelm. & Bigelow var. ***woodburyi*** W.H. Earle *20850. 14662*
20850 U.S. - Utah *20850*

R II ***Opuntia bigelovii*** Engelm. *20850. 14662*
I *20850* U.S. - Arizona *20850*
I *20850* U.S. - California *20850*
I *20850* U.S. - Nevada *20850*
? Mexico *15964*

V II ***Opuntia bigelovii*** Engelm. var. ***hoffmannii*** Fosberg *20850*
I *20850* U.S. - California *20850*

I II ***Opuntia borinquensis*** Britt. & Rose *15964*
E *21425* Puerto Rico (west Antilles) *21408*

I II ***Opuntia brachyclada*** *15964*
I *15964* United States of America *15964*

R II ***Opuntia bravoana*** E. Baxter *12469*
R *21424* Mexico *12469*

R II ***Opuntia camachoi*** *15964*
R *15964* Chile *15964*

R II ***Opuntia chaffeyi*** Britton & Rose *12469*
R *19850* Mexico *12469*

R II ***Opuntia clavarioides*** *15964*
R *15964* Argentina *15964*

R II ***Opuntia clavata*** Engelm. *20850. 15964*
I *20850* U.S. - Arizona *20850*
I *20850* U.S. - New Mexico *20850*

I II ***Opuntia echinocarpa*** Engelm. & Bigelow *15964*
V *19002* U.S. - Utah *19002*
I *19002* Mexico - Sonora *19002*

I II ***Opuntia echios*** J. Howell var. ***barringtonensis*** E. Dawson *11117*
I *15964* Ecuador - Galapagos (Santa Fe) *11117*

I II ***Opuntia echios*** J. Howell var. ***echios*** *11117*
I *15964* Ecuador - Galapagos *11117*

I II ***Opuntia echios*** J. Howell var. ***gigantea*** (J. Howell) D. Porter *11117*
I *15964* Ecuador - Galapagos (Santa Cruz) *11117*

I II ***Opuntia echios*** J. Howell var. ***inermis*** E. Dawson *11117*
I *15964* Ecuador - Galapagos (V. Sierra Negra, Isabela) *11117*

I II ***Opuntia echios*** J. Howell var. ***zacana*** (J. Howell) E.F. Anders. & Walk. *11117*
I *15964* Ecuador - Galapagos (Floreana) *11117*

E II ***Opuntia engelmannii*** (Griffiths) Parfitt & Pinkava var. ***flexospina*** (Griffiths) Parfitt & Pinkava *20850*
E *20850* U.S. - Texas *20850*

E II ***Opuntia engelmannii*** (Griffiths) Parfitt & Pinkava var. ***linguiformis*** (Griffiths) Parfitt & Pinkava *20850*
E *20850* U.S. - Texas *20850*

R II ***Opuntia excelsa*** Sanchez-Mej. *12469*
21424 Mexico *21424*
R *19850* Mexico - Jalisco *16385*

I II ***Opuntia flexospina*** *15964*
I *15964* United States of America *15964*

I II ***Opuntia fosbergii*** *15964*

I *15964* United States of America *15964*

R II ***Opuntia fulgida*** **Engelm.** *20850, 14662*
I *20850* U.S. - Arizona *20850*
I *20850* U.S. - New Mexico *20850*
? Mexico *15964*

V II ***Opuntia fuliginosa*** **Griffiths** *12469*
V *16385* Mexico - Morelos *16385*

I II ***Opuntia galapageia*** **Henslow var. *galapageia*** *11117*
I *15964* Ecuador - Galapagos *11117*

I II ***Opuntia galapageia*** **Henslow var. *macrocarpa*** **E. Dawson** *11117*
I *15964* Ecuador - Galapagos (Pinzon) *11117*

I II ***Opuntia galapageia*** **Henslow var. *profusa*** **E.F. Anderson & Walkington** *11117*
I *15964* Ecuador - Galapagos (Rabida) *11117*

V II ***Opuntia gosseliniana*** **A. Weber** *20850*
I *20850* U.S. - Arizona *20850*

V II ***Opuntia heacockiae*** **Arp** *20850, 15964*
I *20850* U.S. - Colorado *20850*

R II ***Opuntia helleri*** **Schumann** *11117*
R *15964* Ecuador - Galapagos *11117*

E II ***Opuntia imbricata*** **Haw. var. *argentea*** **Anthony** *20850*
E *20850* U.S. - Texas *20850*

R II ***Opuntia insularis*** **A. Stewart** *11117*
R *15964* Ecuador - Galapagos *11117*

E II ***Opuntia jamaicensis*** **Britton & Harris** *20883, 15964*
E *13336* Jamaica *20883*

E II ***Opuntia lindheimeri*** **Engelmann var. *linguiformis*** **(Griffiths) L. Benson** *19002*
E *19002* U.S. - Texas *19002*

I II ***Opuntia lindheimeri*** **Engelmann var. *tricolor*** **(Griffiths) L. Benson** *14662*
I *19002* U.S. - Texas *14662*

Ex II ***Opuntia linguiformis*** **Griffiths** *15964*
Ex *15964* United States of America *15964*

R II ***Opuntia littoralis*** **(Engelm.) Cockerell** *20850, 15964*
I *20850* U.S. - Arizona *20850*
I *20850* U.S. - California *20850*
? Mexico *15964*

V II ***Opuntia macracantha*** *15964*
V *19105* Cuba *19105*

V II ***Opuntia martiniana*** **(L. Benson) Parfitt** *20850, 15964*
I *20850* U.S. - Arizona *20850*
I *20850* U.S. - California *20850*
I *20850* U.S. - Nevada *20850*
I *20850* U.S. - Utah *20850*

V II ***Opuntia megarhiza*** **Rose** *12469*
V *19850* Mexico - San Luis Potosi *19850*

V II ***Opuntia megasperma*** **J. Howell var. *megasperma*** *11117*
V *14980* Ecuador - Galapagos (Champion: Floreana) *5670*

R II ***Opuntia megasperma*** **J. Howell var. *mesophytica*** **Lundh** *11117*
R *15964* Ecuador - Galapagos *11117*

R II ***Opuntia megasperma*** **J. Howell var. *orientalis*** **(J. Howell) D. Porter** *11117*
R *15964* Ecuador - Galapagos *11117*

R II ***Opuntia microdasys*** **(J. Lehm.) Pfeiffer var. *albispina*** **Fobe** *12469*
R *14290* Mexico - San Luis Potosi *14290*

R II ***Opuntia molinensis*** *15964*
R *15964* Argentina *15964*

I II ***Opuntia multigeniculata*** *15964*
I *15964* United States of America *15964*

E II ***Opuntia munzii*** **C.B. Wolf** *20850, 15964*
E *20850* U.S. - California *20850*

R II ***Opuntia oricola*** **Philbrick** *20850, 14662*
I *20850* U.S. - California *20850*
? Mexico *15964*

E II ***Opuntia pachypus*** **Schumann** *12468*
E *15964* Peru *12468*

R II ***Opuntia parryi*** **Engelm.** *20850*
I *20850* U.S. - California *20850*

I II ***Opuntia phaeacantha*** **Engelm. var. *flavispina*** **L. Benson** *19002*
I *19002* U.S. - Arizona *19002*

R II ***Opuntia phaeacantha*** **Engelm. var. *spinosibacca*** **(Anthony) L. Benson** *14662*
R *19002* U.S. - Texas *14662*

R II ***Opuntia polyacantha*** **Haw. var. *juniperina*** **(Britt. & Rose) L. Benson** *20850*
I *20850* U.S. - Arizona *20850*
I *20850* U.S. - Colorado *20850*
I *20850* U.S. - New Mexico *20850*
I *20850* U.S. - Utah *20850*
E *20850* U.S. - Wyoming *20850*

I II ***Opuntia pusilla*** **(Haw.) Nutt.** *15964*
I *19002* U.S. - North Carolina *14662*

R II ***Opuntia rosarica*** **G. Lindsay** *16385*
21424 Mexico *21424*
R *19848* Mexico - Baja California Peninsula *16385*

E II ***Opuntia sanguinea*** **Proctor** *20883, 13336*
E *13336* Jamaica *20883*

R II ***Opuntia santamaria*** **(Baxter) H. Bravo-Holl.** *16385*
21424 Mexico *21424*
R *19848* Mexico - Baja California Sur *16385*

V II ***Opuntia santa-rita*** **(Griffiths & Hare) Rose** *20850, 15964*
I *20850* U.S. - Arizona *20850*
I *20850* U.S. - New Mexico *20850*
I *20850* U.S. - Texas *20850*

R II ***Opuntia saxicola*** **J. Howell** *11117*
R *15964* Ecuador - Galapagos (V. Cerro Azul, Isabela) *11117*

R II ***Opuntia spinosissima*** **P. Mill.** *20883, 20850, 15964*
E *21408* U.S. - Florida (Jamaica (LR), Florida (CR)) *21408*
R *20883* Jamaica *20883*
R *20883* Puerto Rico *20883*
R *20883* British Virgin Is. (Green Cay) *20883*
R *20883* USA - Virgin Is. *20883*

V II ***Opuntia stenopetala*** **Engelm. var. *inerme*** **H. Bravo-Holl.** *16385*
V *16385* Mexico - Hidalgo *16385*
V *16385* Mexico - Queretaro *16385*

I II ***Opuntia strigil*** **Engelm.** *14662*
I *19002* U.S. - Texas *14662*

V II ***Opuntia strigil*** **Engelm. var. *flexospina*** **(Griffiths) L. Benson** *19002*
V *19002* U.S. - Texas *19002*

Magnoliopsida (dicots): Cactaceae: *Opuntia*

R II ***Opuntia tarapacana*** **Phil.** *15964*
R *19535* Chile *15964*

V II ***Opuntia tetracantha*** **Toumey** *20883. 20850. 15964*
I *20850* U.S. - Arizona *20850*
I *20883* Mexico *20883*

I II ***Opuntia treleasei*** **Coult.** *14662*
I *15964* U.S. - California *14662*

V II ***Opuntia viridiflora*** **Britt. & Rose** *15964. 14662*
V *19002* U.S. - New Mexico *14662*

I II ***Opuntia werneri*** *21307*
I *21426* Brazil (Rui Barbosa) *21426*

V II ***Opuntia whipplei*** **Engelm. & Bigelow** *20850. 14662*
I *20850* U.S. - Arizona *20850*
I *20850* U.S. - Colorado *20850*
V *20850* U.S. - Nevada *20850*
I *20850* U.S. - New Mexico *20850*
V *20850* U.S. - Utah *20850*

E II ***Opuntia whipplei*** **Engelm. & Bigelow var. *multigeniculata*** **(Clokey) L. Benson** *20850*
I U.S. - Arizona
E *20850* U.S. - Nevada *20850*

R II ***Opuntia wigginsii*** **L. Benson** *20850. 15964*
I *20850* U.S. - Arizona *20850*
E *20850* U.S. - California *20850*

E II ***Opuntia yanganucensis*** **(Rauh & Backeb.) G. Rowley** *15964*
E *12468* Peru *15964*

V II ***Opuntia sp.*** *19434*
V *19434* Cayman Is. (Cayman Brac.) *19434*

V II ***Oreocereus australis*** *15964*
V *15964* Chile *15964*

R II ***Oreocereus hempelianus*** **(Guerke) D. Hunt** *15964*
V *15964* Chile *5598*
R *18200* Peru *15964*

V II ***Ortegocactus macdougallii*** **Alex.** *12469*
V *15964* Mexico *12469*

R II ***Pachycereus fulviceps*** **(F.A.C. Weber ex Schumann) D. Hunt** *15964*
R *19850* Mexico *19850*

E II ***Pachycereus gaumeri*** **Britton & Rose** *15964*
21424 Mexico *21424*
E *19848* Mexico - Chiapas *16385*
E *19848* Mexico - Yucatan *16385*

E I ***Pediocactus bradyi*** **L. Benson** *20850. 15964*
E *20850* U.S. - Arizona *20850*

V I ***Pediocactus despainii*** **Welsh & Goodrich** *20850. 15964*
V *20850* U.S. - Utah *20850*

E I ***Pediocactus knowltonii*** **L. Benson** *20850. 15964*
E *20850* U.S. - New Mexico *20850*

V I ***Pediocactus paradinei*** **B.W. Benson** *20850. 15964*
V *20850* U.S. - Arizona *20850*

V II ***Pediocactus peeblesianus*** **(Croizat) L. Benson** *20850*
V *20850* U.S. - Arizona *20850*

V I ***Pediocactus peeblesianus*** **(Croizat) L. Benson var. *fickeiseniae*** **L. Benson** *20850*
V *20850* U.S. - Arizona *20850*

E I ***Pediocactus peeblesianus*** **(Croizat) L. Benson var. *peeblesianus*** *20850. 20079*
E *20850* U.S. - Arizona *20850*

R I ***Pediocactus sileri*** **(Engelm.) L. Benson** *20850. 19582*
R *20850* U.S. - Arizona *20850*
E *20850* U.S. - Utah *20850*

R II ***Pediocactus simpsonii*** **(Engelm.) Britt. & Rose var. *minor*** **(Engelm.) Cockerell** *20850*
I *20850* U.S. - Colorado *20850*
R *20850* U.S. - New Mexico *20850*
I *20850* U.S. - Utah *20850*
I *20850* U.S. - Wyoming *20850*

E I ***Pediocactus winkleri*** **Heil** *20850. 15964*
E *20850* U.S. - Utah *20850*

R I ***Pelecyphora aselliformis*** **Ehrenb.** *15964*
21424 Mexico *21424*
R *20067* Mexico - San Luis Potosi *9114*

V I ***Pelecyphora strobiliformis*** **(Werderm.) Fric & Schelle** *15964*
21424 Mexico *21424*
V *20067* Mexico - Nuevo Leon *12437*
E *20067* Mexico - Tamaulipas *9114*

R II ***Peniocereus cuixmalensis*** **Sánchez-Mej.** *15964*
R *21408* Mexico *15964*

R II ***Peniocereus fosterianus*** *21424*
Mexico *21424*

R II ***Peniocereus fosterianus*** **Cutak var. *fosterianus*** *12469*
R *15964* Mexico *12469*

I II ***Peniocereus fosterianus*** **Cutak var. *multitepalus*** **Sánchez-Mej.**
I *15964* Mexico *15964*

R II ***Peniocereus fosterianus*** **Cutak var. *nizandensis*** **Sánchez-Mej.** *14255*
R *15964* Mexico - Chiapas *14255*
R *15964* Mexico - Oaxaca *14255*

R II ***Peniocereus greggii*** **Britton & Rose** *15964*
I *15964* U.S. - Arizona *8058*
I *8058* U.S. - California *8058*
I *8058* U.S. - New Mexico *8058*
I *8058* U.S. - Texas *8058*
R *19850* Mexico *8058*

V II ***Peniocereus greggii*** **var. *greggii*** *20850*
I *20850* U.S. - Arizona *20850*
I *20850* U.S. - New Mexico *20850*
V *20850* U.S. - Texas *20850*

R II ***Peniocereus greggii*** **var. *transmontanus*** *19002*
I *15964* U.S. - Arizona *19002*
R *19002* U.S. - New Mexico *19002*

R II ***Peniocereus lazaro-cardenasii*** **(Contereras) D. Hunt** *15964*
R *21408* Mexico *15964*

R II ***Peniocereus maculatus*** **(Weing.) Cutak** *12469*
21424 Mexico *21424*
R *15964* Mexico - Guerrero *16385*

R II ***Peniocereus marianus*** **(Gentry) Sánchez-Mej.** *12469*
21424 Mexico *21424*
R *15964* Mexico - Sinaloa *16385*
R *15964* Mexico - Sonora *16385*

I II ***Peniocereus rosei*** **G. Ortega** *12469*
I *15964* Mexico *12469*

R II ***Peniocereus striatus*** **(Brandegee) F. Bauxhaum** *15964*
R *19893* U.S. - Arizona *19893*
R *19893* Mexico *19893*

R II ***Peniocereus tepalcatepecanus*** **Sánchez-Mej.** *12469*
21424 Mexico *21424*
R *15964* Mexico - Michoacan *16385*

R II ***Peniocereus zopilotensis*** **(J. Meyrán) F. Buxham** *15964*

Magnoliopsida (dicots): Cactaceae: *Peniocereus*

21424 Mexico *21424*
R *15964* Mexico - Guerrero *12787*

R II ***Pereskia aureiflora*** **Ritter** *20883, 15964*
R *21426* Brazil (is rare except in the north-eastern Minas Gerais (Rio Jequitinhonha valley)) *21426*

R II ***Pereskia bahiensis*** **Gurke** *20883, 15964*
R *20883* Brazil *20883*

R II ***Pereskia diaz-romeroana*** **Cárdenas** *20883, 15964*
R *20883* Bolivia *20883*

V II ***Pereskia grandifolia*** **Haw. var. *violacea*** **Leuenberger** *20883*
R *20883* Brazil *20883*

V II ***Pereskia humboldtii*** **Britton & Rose var. *humboldtii*** *20883*
V *20883* Peru *20883*

V II ***Pereskia humboldtii*** **Britton & Rose var. *rauhii*** **(Backeberg) Leuenber** *20883*
V *20883* Peru *20883*

R II ***Pereskia portulacifolia*** **(Linnaeus) De Candolle** *20883, 5642*
V *20883* Dominican Republic *20883*
R *21408* Haiti (Saint Domingue) *21408*

E II ***Pereskia quisqueyana*** **Liogier** *20883, 15964*
E *20883* Dominican Republic *20883*
21408 Haiti (Saint Domingue) *21408*
E *21425* Hispaniola *21425*

V II ***Pereskia weberiana*** **K. Schumann.** *20883, 15964*
V *20883* Bolivia *20883*

R II ***Pereskia zinniiflora*** **De Candolle** *20883, 15964*
R *20883* Cuba *20883*

I II ***Pilosocereus aurisetus*** **ssp. *aurilanatus*** *21307*
I *21307* Brazil *21307*

I II ***Pilosocereus floccosus*** **ssp. *quadricostatus*** *21307*
I *21426* Brazil *21307*

R II ***Pilosocereus fulvilanatus*** *15964*
R *15964* Brazil *15964*

I II ***Pilosocereus robinii*** **(L.) Byles & Rowley** *15964*
20883, 20850, 19718
I *20850* U.S. - Florida *20850*
V *15964* Cuba *15964*
I *20883* Puerto Rico *20883*
I *20883* USA - Virgin Is. *20883*

E II ***Pilosocereus robinii*** **var. *deeringii*** **(Small) Kartesz & Gandhi** *20850*
E *20850* U.S. - Florida *20850*

I II ***Pilosocereus robinii*** **(L.) Byles & Rowley var. *robinii*** *20883, 20850*
E *20850* U.S. - Florida *20850*
I *20883* Cuba *20883*
I *20883* Puerto Rico *20883*
I *20883* USA - Virgin Is. *20883*

R II ***Pilosocereus rosae*** *15964*
R *15964* Brazil *15964*

R II ***Pilosocereus tehuacanus*** **(Weing.) Byles & Rowl.** *15964*
R *12787* Mexico - Puebla *12787*

R II ***Pilosocereus ulei*** *15964*
R *21426* Brazil *15964*

R II ***Pilosocereus vilaboensis*** *15964*
R *15964* Brazil *15964*

V II ***Pseudorhipsalis alata*** **(Swartz) Britton & Rose** *15964*
V *13336* Jamaica *15964*

R II ***Pseudorhipsalis lankesteri*** **(Kimnach) W. Barthlott** *15964*
R *15964* Costa Rica *15964*

R II ***Pyrrhocactus duripulpa*** **Ritt.** *5598*
R *5598* Chile *5598*

E II ***Pyrrhocactus esmeraldana*** **Ritt.** *5598*
E *5598* Chile *5598*

E II ***Pyrrhocactus fankhauseri*** **Ritt.** *5598*
E *5598* Chile *5598*

V II ***Pyrrhocactus fulva*** **Ritt.** *5598*
V *5598* Chile *5598*

R II ***Pyrrhocactus hypogea*** **Ritt.** *5598*
R *5598* Chile *5598*

E II ***Pyrrhocactus imitans*** **Backeb.** *5598*
E *5598* Chile *5598*

E II ***Pyrrhocactus krausii*** **Ritt.** *15964*
E *19535* Chile *15964*

E II ***Pyrrhocactus laniceps*** **Ritt.** *5598*
E *5598* Chile *5598*

R II ***Pyrrhocactus limariensis*** *15964*
R *15964* Chile *15964*

Ex II ***Pyrrhocactus longirama*** **Ritt.** *5598*
Ex *5598* Chile *5598*

E II ***Pyrrhocactus malleota*** **Ritt.** *5598*
E *5598* Chile *5598*

E II ***Pyrrhocactus napinus*** **Philippi** *5598*
E *5598* Chile *5598*

R II ***Pyrrhocactus nigriscoparia*** **Backeb.** *5598*
R *5598* Chile *5598*

Ex II ***Pyrrhocactus nuda*** **Ritt.** *5598*
Ex *5598* Chile *5598*

E II ***Pyrrhocactus odieri*** **Ritt.** *5598*
E *5598* Chile *5598*

R II ***Pyrrhocactus olivana*** **Ritt.** *19534*
R *19534* Chile *19534*

E II ***Pyrrhocactus pseudoreichei*** **Lembcke & Backeb.** *5598*
E *19535* Chile *5598*

E II ***Pyrrhocactus reichei*** **Schumann** *5598*
E *19535* Chile *5598*

E II ***Rebutia neumanniana*** *15964*
E *16336* Argentina *16336*
E *20185* Argentina - Jujuy (Humahuaca) *20175*

I II ***Rhipsalis baccifera*** **ssp. *hileiabaiana*** *21307*
I *21408* Brazil *21408*

I II ***Rhipsalis burchellii*** *15964*
I *21307* Brazil *15964*
21426 Brazil - Sao Paulo ((type locality)) *21426*

I II ***Rhipsalis cereoides*** *15964*
I *21307* Brazil *15964*
I *21426* Brazil - Rio de Janeiro *21426*

I II ***Rhipsalis mesembryanthoides*** *15964*
I *21307* Brazil *15964*
I *21426* Brazil - Rio de Janeiro *21426*

I II ***Rhipsalis pacheo-leonis*** **ssp. *pacheo-leonis*** *21307*
I *21426* Brazil (Cabo Frio) *21426*

I II ***Rhipsalis pilocarpa*** *15964*

Magnoliopsida (dicots): Cactaceae: *Rhipsalis*

I *21426* Brazil *15964*

R II ***Schlumbergera kautskyi*** *15964*
R *15964* Brazil *15964*

E II ***Schlumbergera orssichiana*** *15964*
E *15964* Brazil *15964*

V II ***Schlumbergera truncata*** *15964*
V *15964* Brazil *15964*

E II ***Sclerocactus blainei*** Welsh & Thorne *20850*
E *20850* U.S. - Nevada *20850*

R II ***Sclerocactus erectocentrus*** (Coult.) N.P. Taylor *20850*
R *20850* U.S. - Arizona *20850*
I *20850* U.S. - New Mexico *20850*
I *20883* Mexico *20883*

E I ***Sclerocactus erectocentrus*** var. ***acunensis*** (W.T. Marsh) H. Bravo *20883*
V *20078* U.S. - Arizona *20078*
I *20883* Mexico *20883*
I *20078* Mexico - Sonora *9114*

R I ***Sclerocactus erectocentrus*** var. ***erectocentrus*** *20883, 19002*
I *19002* U.S. - Arizona *19002*
I *20883* Mexico *20883*

R I ***Sclerocactus glaucus*** (J.A. Purpus ex K. Schum.) L. Benson *20850, 15964*
R *21408* U.S. - Colorado (Utah) *21408*
R *20850* U.S. - Utah *20850*

V I ***Sclerocactus mariposensis*** (Hester) N.P. Taylor *20883, 20850, 15964*
V *20850* U.S. - Texas *20850*
I *20883* Mexico *20883*
V *19850* Mexico - Coahuila *8058*

V I ***Sclerocactus mesae-verdae*** (Boissevain ex Boissevain & C. Davids.) L. Benson *20850, 15964*
V *20850* U.S. - Colorado *20850*
V *20850* U.S. - New Mexico *20850*

V I ***Sclerocactus papyracanthus*** (Engelm.) N.P. Taylor *20883, 20850, 15964*
V *20850* U.S. - Arizona *20850*
V *20850* U.S. - New Mexico *20850*
E *20850* U.S. - Texas *20850*
I *20883* Mexico *20883*

R II ***Sclerocactus parviflorus*** Clover & Jotter var. ***intermedius*** (Peebles) Woodruff & L. Benson *20850*
I *20850* U.S. - Arizona *20850*
I *20850* U.S. - Colorado *20850*
R *20850* U.S. - New Mexico *20850*
I *20850* U.S. - Utah *20850*

I I ***Sclerocactus pubispinus*** (Engelm.) L. Benson var. ***pubispinus*** *19002*
I *19002* U.S. - Nevada *19002*
I *19002* U.S. - Utah *19002*

R I ***Sclerocactus pubispinus*** (Engelm.) L. Benson var. ***spinosior*** (Boiss.) Welsh *19002*
V *19002* U.S. - Arizona *19002*
R *19002* U.S. - Utah *19002*

E II ***Sclerocactus schlesseri*** Heil & Welsh *20850*
E *20850* U.S. - Nevada *20850*

V II ***Sclerocactus spinosior*** (Engelm.) Woodruff & L. Benson *20850*
E *21408* U.S. - Arizona (Utah) *21408*
I *20850* U.S. - Colorado *20850*
V *20850* U.S. - Utah *20850*

R II ***Sclerocactus unguispinus*** (Engelm.) N.P. Taylor *15964*
R *19850* Mexico - San Luis Potosi *15964*

R II ***Sclerocactus warnockii*** (L. Benson) N.P Taylor *15964*
I *19002* U.S. - Texas *19002*
R *21408* Mexico (Chihuahua; USA: Texas) *21408*

R II ***Sclerocactus whipplei*** (Eng. & Bigel.) Britton & Rose var. ***heilii*** Castetter, Pierce & Schwerin *20850*
R *20850* U.S. - New Mexico *20850*

E I ***Sclerocactus wrightiae*** L. Benson *20850, 15964*
E *20850* U.S. - Utah *20850*

V II ***Selenicereus anthonyanus*** (Alex.) D.R. Hunt *15964*
21424 Mexico *21424*
V *14253* Mexico - Chiapas *12469*

R II ***Selenicereus atropilosus*** Kimnach *16390*
21424 Mexico *21424*
R *16385* Mexico - Jalisco *16385*

R II ***Selenicereus brevispinus*** Britton & Rose *5607*
R *15964* Cuba (Camaguey) *5607*

V II ***Selenicereus chrysocardium*** (Alexander) Kimnach *15964*
V *19850* Mexico - Chiapas *14249*
V *19850* Mexico - Tabasco *14249*

R II ***Selenicereus donkelaarii*** (Salm-Dyck) Britton & Rose *15964*
R *14254* Mexico - Yucatan *12469*

R II ***Selenicereus hamatus*** (Scheidw.) Britton & Rose *12469*
R *15964* Mexico *12469*

I II ***Selenicereus innesii*** Kimnach *5607*
E *21425* St Vincent (near Owia) *8767*

R II ***Stenocactus coptonogonus*** (Lemaire) A. Berger
R *21408* Mexico (Hidalgo, Guanajuato, S.L.Potosi, Zacatecas) *21408*

R II ***Stenocactus sulphureus*** (Dietrich) H. Bravo-Hollis *19850*
R *21408* Mexico (Hidalgo) *21408*

R II ***Stenocereus chacalapensis*** (H. Bravo-Holl. & Macdougall) F. Buxb.
21424 Mexico *21424*
R *12787* Mexico - Oaxaca *12787*

V II ***Stenocereus eruca*** (K. Brandegee) Gibson & Horak *12787*
21424 Mexico *21424*
E *20067* Mexico - Baja California Peninsula *12437*
V *20067* Mexico - Baja California Sur *20067*

R II ***Stenocereus martinezii*** (G. Ortega) H. Bravo-Holl.
21424 Mexico *21424*
R *19848* Mexico - Sinaloa *12787*

R II ***Tacinga braunii*** *15964*
R *15964* Brazil *15964*

V II ***Thelocactus bicolor*** (Pfeiffer) Britton & Rose var. ***bolaensis*** (Runge) A. Berger *12437*
21424 Mexico *21424*
V *12437* Mexico - Coahuila *12437*

V II ***Thelocactus bicolor*** (Pfeiffer) Britton & Rose var. ***flavidispinus*** Backeberg *20883, 20850, 19002*
V *20850* U.S. - Texas *20850*
I *20883* Mexico *20883*

V II ***Thelocactus bicolor*** (Pfeiffer) Britton & Rose var. ***schwarzii*** (Backeberg) E.F. Anderson *20067*
V *20067* Mexico - Tamaulipas *20067*

V II ***Thelocactus conothelos*** (Regel & Klein) Backeberg & Knuth var. ***argenteus*** C. Glass & R. Foster *14281*

Magnoliopsida (dicots): Cactaceae: *Thelocactus*

V — *20067* Mexico - Nuevo Leon *20067*

V II ***Thelocactus conothelos*** (Regel & Klein) Backeberg & Knuth var. ***aurantiacus*** C. Glass & R. Foster *11419*
V — *20067* Mexico - Nuevo Leon *11419*

V II ***Thelocactus hastifer*** (Werderm. & Bodecker) F.M. Knuth *15964*
V — *20067* Mexico - Queretaro *20067*

R II ***Thelocactus heterochromus*** (A. Weber) V. Oosten *15964*
R — *21408* Mexico (Chihuahua, Coahuila, Durango) *21408*

R II ***Thelocactus leucacanthus*** (Zucc.) Britton & Rose var. ***ehrenbergii*** (Pfeiffer) H. Bravo-Holl. *19850*
R — *21408* Mexico (Hidalgo) *21408*

V II ***Thelocactus macdowellii*** (Rebut ex Quehl) C. Glass *12529*
21424 Mexico *21424*
V — *20067* Mexico - Coahuila *12437*

R II ***Thelocactus rinconensis*** (Poselger) Britton & Rose var. ***nidulans*** (Quehl) Glass & R. Foster *19850*
R — *21408* Mexico (chihuahua (desert), Coahuila (south)) *21408*

V II ***Thelocactus tulensis*** (Poselger) Britton & Rose *15964*
V — *15964* Mexico *12469*

V II ***Thelocactus tulensis*** (Poselger) Britton & Rose var. ***matudae*** (Sánchez-Mejorada & A. Lau) E.F. Anderson *14281*
V — *20067* Mexico - Nuevo Leon *15964*

E II ***Thelocephala krausii*** *15964*
E — *15964* Chile *15964*

E II ***Trichocereus atacamensis*** (Philippi) Marshall & Bock *11748*
E — *19534* Chile *11748*

V I ***Turbinicarpus gautii*** (L. Benson) A. Zimmerman *15964*
V — *19002* U.S. - Texas *19002*
21424 Mexico *21424*
V — *9114* Mexico - Coahuila *9114*
V — *21263* Mexico - Nuevo Leon *21263*

V I ***Turbinicarpus gielsdorfianus*** (Werderm.) John & Riha *15964*
21424 Mexico *21424*
V — *19850* Mexico - San Luis Potosi *9114*
V — *21263* Mexico - Tamaulipas *21263*

V I ***Turbinicarpus hoferi*** J.M. Luthy & A.B. Lau *21384, 19850*
V — *19850* Mexico *19850*

R I ***Turbinicarpus knuthianus*** (Boed.) John & Riha *15964*
R — *12469* Mexico - San Luis Potosi *15964*

V I ***Turbinicarpus laui*** C. Glass & R. Foster *9114*
V — *20067* Mexico - San Luis Potosi *9114*

V I ***Turbinicarpus lophophoroides*** (Werderm.) F. Buxb. & Backeb. *14273*
21424 Mexico *21424*
V — *16360* Mexico - San Luis Potosi *14273*

V I ***Turbinicarpus mandragora*** (Berger) A. Zimmerman *15964*
21424 Mexico *21424*
V — *19850* Mexico - Coahuila *9114*

R I ***Turbinicarpus pseoudopectinatus*** *21424*
Mexico *21424*

V I ***Turbinicarpus pseudomacrochele*** (Backeb.) F. Buxb. & Backeb. *15964, 20067*
21424 Mexico *21424*
V — *20067* Mexico - Queretaro *9114*

I I ***Turbinicarpus saueri*** (Boedeker) John & Riha *15964*
21424 Mexico *21424*
I — *19850* Mexico - Coahuila *9114*
I — *19850* Mexico - Tamaulipas *14273*

E I ***Turbinicarpus schmiedickeanus*** (Bödeker) F. Buxb. & Backeb var. ***flaviflorus*** (G. Frank) C. Glass & R. Foster *14273*
E — *14273* Mexico - Nuevo Leon *14273*
E — *14273* Mexico - San Luis Potosi *14273*
E — *14273* Mexico - Tamaulipas *14273*

V I ***Turbinicarpus schmiedickeanus*** (Bödeker) F. Buxb. & Backeb var. ***gracilis*** (C. Glass & R. Foster) C. Glass & R. Foster *14273*
21424 Mexico *21424*
V — *14273* Mexico - Nuevo Leon *14273*

V I ***Turbinicarpus schmiedickeanus*** (Bödeker) F. Buxb. & Backeb var. ***klinkerianus*** (Backeberg & H.J. Jacobsen) C. Glass & R Foster *14273*
V — *20067* Mexico - San Luis Potosi *14273*

V I ***Turbinicarpus schmiedickeanus*** (Bödeker) F. Buxb. & Backeb var. ***macrochele*** (Werderm.) C. Glass & R. Foster *14273*
V — *20067* Mexico - San Luis Potosi *14273*

V I ***Turbinicarpus schmiedickeanus*** (Bödeker) F. Buxb. & Backeb var. ***schmiedickeanus*** *9019*
V — *20067* Mexico - Tamaulipas *14273*

V I ***Turbinicarpus schmiedickeanus*** (Bödeker) F. Buxb. & Backeb var. ***schwarzii*** (Shurly) C. Glass & R. Foster *14273*
V — *20067* Mexico - San Luis Potosi *14273*

V I ***Turbinicarpus schwarzii*** (Shurly) Backeb. *21384, 15964*
V — *21263* Mexico - Tamaulipas *21263*

V I ***Turbinicarpus subterraneus*** (Backeb.) A. Zimmerman var. ***zaragosae*** (Glass & Foster) A. Zimmerman *20067*
V — *20067* Mexico - Nuevo Leon *20067*

V I ***Turbinicarpus swobodae*** L. Diers *21384, 19850*
V — *19850* Mexico *19850*

V I ***Turbinicarpus ysabelae*** (K. Schlange) John & Riha *21384, 15964*
V — *19850* Mexico *15964*

E I ***Uebelmannia buiningii*** Donald *14964*
21426 Brazil *21426*
E — *15964* Brazil - Minas Gerais (east) *14964*

V I ***Uebelmannia gummifera*** (Backeb. & Voll) Buining *14964*
21426 Brazil *21426*
V — *15964* Brazil - Minas Gerais (east) *14964*

I I ***Uebelmannia pectinifera*** Buin ssp. ***flavispina*** (Buin. & Bred.) Braun & Est *21307*
I — *21426* Brazil *21307*

V I ***Uebelmannia pectinifera*** Buin. ssp. ***horrida*** (Braun) Braun & Est *21384, 14964*
21426 Brazil (Known from only one single locality) *21426*
V — *15964* Brazil - Minas Gerais (east) *14964*

V I ***Uebelmannia pectinifera*** Buining var. ***pectinifera*** *14964*
21426 Brazil *21426*
V — *15964* Brazil - Minas Gerais (east) *14964*

V I ***Uebelmannia pectinifera*** Buining var. ***pseudopectinifera*** *14964*
V — *15964* Brazil - Minas Gerais *14964*

R II ***Weberocereus bradei*** (Britton & Rose) Rowley *15964*
R — *14260* Costa Rica *15964*

R II ***Weberocereus imitans*** (Kimnach & Hutch.) D.

Magnoliopsida (dicots): Cactaceae: *Weberocereus*

Hunt *15964*

R *14260* Costa Rica *15964*

E II ***Weberocereus rosei*** *15964*

E *15964* Ecuador *15964*

I II ***Weberocereus tonduzii*** (A. Weber) Rowley *15964*

I *14253* Costa Rica *15964*

V *14253* Panama *14253*

R II ***Weberocereus trichophorus*** Johnson & Kimnach *14255*

R *14255* Costa Rica *14255*

Crassulaceae

Number of genera:	25	
Number of species:	900	
Recorded threatened species:	227	(25%)

Cosmopolitan, except Australia and Polynesia.

E I ***Dudleya stolonifera*** Moran *20850*

E *20850* U.S. - California *20850*

E I ***Dudleya traskiae*** (Rose) Moran *20850*

E *20850* U.S. - California (Santa Barbara Is.) *20850*

Dracaenaceae

Number of genera:	6	
Number of species:	156	
Recorded threatened species:	20	(12%)

Tropics and subtropics, to south-west USA.

V I ***Nolina interrata*** Gentry *20883, 20850, 8058*

E *20850* U.S. - California *20850*

E *20883* Mexico *20883*

Euphorbiaceae

Number of genera:	300	
Number of species:	7,500	
Recorded threatened species:	927	(12%)

Cosmopolitan, especially tropical and subtropical.

E II ***Euphorbia abdelkuri*** Balf. f. *15534*

E *15534* Yemen - Socotra (Abd al Kuri) *15534*

R II ***Euphorbia actinoclada*** S. Carter *17672*

R *17672* Ethiopia (South) *17672*

V *17672* Kenya (northeast) *17672*

V *17672* Somalia (Southwest) *17672*

V II ***Euphorbia alata*** Hook. *20883, 13336*

V *13336* Jamaica *20883*

I II ***Euphorbia albertensis*** N.E.Br. *20604, 17672*

I *20604* South Africa - Cape Province *20604*

V II ***Euphorbia albipollinifera*** L.C.Leach *20604, 19976*

V *20604* South Africa - Cape Province *20604*

E I ***Euphorbia ambovombensis*** Rauh & Razaf. *15658*

E *17672* Madagascar *17672*

V II ***Euphorbia ampliphylla*** Pax *19525*

V *17672* Ethiopia *17672*

V *17672* Kenya (W.Suk, Elgeyo, Masai) *19525*

V *17672* Malawi (Zambia border) *19525*

V *17672* Tanzania (Ufipa, Mbeya) *19525*

V *17672* Uganda (Karamoja, Mbale) *19525*

R II ***Euphorbia angustiflora*** Pax *19525*

R *17672* Tanzania (Chunya, Mbeya) *19525*

I II ***Euphorbia ankarensis*** Boit. *17672*

I *17672* Madagascar *17672*

R II ***Euphorbia annamarieae*** Rauh *20064*

? Madagascar *19976* [distribution possibly incomplete]

R II ***Euphorbia arbuscula*** Balf. f. var. ***montana*** Balf. f. *15534*

R *15534* Yemen - Socotra *15534*

R II ***Euphorbia asthenacantha*** S. Carter *19525*

R *17672* Tanzania (Kigoma) *19525*

R II ***Euphorbia atrispina*** N.E. Br. var. ***viridis*** A. White, R.A. Dyer & Sloane *17672*

R *17672* South Africa *17672*

I II ***Euphorbia atrocarmesina*** Leach ssp. ***arborea*** Leach *17672*

I *17672* Angola *17672*

I II ***Euphorbia atrocarmesina*** Leach ssp. ***atrocarmesina*** *17672*

I Angola

R II ***Euphorbia atrox*** S.Carter *17672*

R *17672* Somalia *17672*

I II ***Euphorbia aureoviridiflora*** (Rauh) Rauh *21391*

? Madagascar *21391*

E II ***Euphorbia awashensis*** M. G. Gilbert *19704*

E *19704* Ethiopia (Shewa Upland) *19704*

R II ***Euphorbia baioensis*** S. Carter *15926*

R *17672* Kenya (Northern Frontier Province: Baio Mountain) *15926*

E II ***Euphorbia baleensis*** M. Gilbert *19704*

E *19704* Ethiopia (Bale) *19704*

R II ***Euphorbia baliola*** N.E.Br. *20604, 17672*

R *20604* Namibia *20604*

I II ***Euphorbia ballyana*** Rauh *15926*

I *17672* Kenya (Rift valley) *15926*

V II ***Euphorbia ballyi*** S. Carter *17672*

V *17672* Somalia *17672*

V II ***Euphorbia balsamifera*** Ait. ssp. ***adenensis*** (Defl.) Bally *17672*

E *17672* Yemen, Democratic *17672*

V *17672* Somalia *17672*

V *17672* Sudan (Red Sea Hills) *17672*

V II ***Euphorbia barnardii*** A.C.White, R.A.Dyer & B.Sloane *20604, 15922*

V *20604* South Africa - Transvaal *20604*

V II ***Euphorbia bayeri*** L.C.Leach *20604, 20064*

V *20604* South Africa - Cape Province *20604*

R II ***Euphorbia baylissii*** Leach *17672*

R *17672* Mozambique (Sol do Save) *17672*

R II ***Euphorbia berotica*** N.E.Br. *20604, 17672*

R *17672* Angola *17672*

R *20604* Namibia *20604*

E II ***Euphorbia bitataensis*** M. G. Gilbert *19704*

E *19704* Ethiopia (Sidamo) *19704*

R II ***Euphorbia bongolavensis*** Rauh *21391*

? Madagascar *21391*

R II ***Euphorbia bougheyi*** Leach *17672*

R *17672* Mozambique *17672*

E II ***Euphorbia bourgeauana*** Gay ex Boiss. *17672*

E *20750* Spain - Canary Is. *17672*

Magnoliopsida (dicots): Euphorbiaceae: *Euphorbia*

R II ***Euphorbia brakdamensis*** **N.E.Br.** *20604, 17672*
R *20604* South Africa - Cape Province *20604*

V II ***Euphorbia bravoana*** **Svent.** *17672*
V *20750* Spain - Canary Is. (Two main localities. Riscos de Agulo with few plants but in a protected area and Majona National park.) *21417*

I II ***Euphorbia brevirama*** **N.E.Br.** *20604, 17672*
I *17672* South Africa *17672*
Ex *20604* South Africa - Cape Province *20604*

E II ***Euphorbia brevitorta*** **Bally** *17672*
E *17672* Kenya *17672*

R II ***Euphorbia brunellii*** **Chiov.** *17672*
R *17672* Ethiopia *17672*
R *17672* Kenya *17672*
R *17672* Sudan *17672*
I *19007* Uganda *17672*

R II ***Euphorbia bruynsii*** **L.C.Leach** *20604, 17672*
R *17672* South Africa *17672*
R *20604* South Africa - Cape Province *20604*

R II ***Euphorbia bulbispina*** **Rauh & Razafindratsira** *19976*
? Madagascar *19976*
[distribution possibly incomplete]

E II ***Euphorbia burgeri*** **M. G. Gilbert** *19704*
E *19704* Ethiopia (Haerege) *19704*

V II ***Euphorbia buruana*** **Pax** *19525*
E *17672* Kenya *17672*
V *17672* Tanzania (Masai, Pare, Lushoto) *19525*

R II ***Euphorbia bwambensis*** **S. Carter** *20556*
R *20733* Uganda (Bwamba forest) *7959*

I II ***Euphorbia caerulans*** **Pax** *21391, 17672*
I Angola

I II ***Euphorbia cannellii*** **Leach** *17672*
I Angola

E II ***Euphorbia carteriana*** **Bally** *17672*
E *17672* Somalia *17672*

R II ***Euphorbia cibdela*** **N.E.Br.** *20604, 17672*
R *20604* Namibia *20604*
R *20604* South Africa - Cape Province *20604*

R II ***Euphorbia classenii*** **Bally & S. Carter** *17672*
R *17672* Kenya *17672*

E II ***Euphorbia clavigera*** **N.E.Br.** *20604, 17672*
E *20604* Swaziland *20604*

V II ***Euphorbia clivicola*** **R.A.Dyer** *20604, 17672*
V *20604* South Africa - Transvaal *20604*

V II ***Euphorbia colubrina*** **Bally & S. Carter** *15926*
V Ethiopia (Dawa Parma River) *15926*
V Kenya (Dawa Parma River) *15926*
V *17672* Somalia *17672*

E II ***Euphorbia columnaris*** **Bally** *17672*
E Somalia

I II ***Euphorbia confinalis*** **R.A. Dyer ssp. *rhodesiaca* Leach** *17672*
I *21420* Zimbabwe *21420*

I II ***Euphorbia congestiflora*** **Leach** *17672*
I Angola

Ex II ***Euphorbia crassipes*** **Marloth** *20604, 17672*
Ex *20604* South Africa - Cape Province *20604*

E II ***Euphorbia cryptocaulis*** **M. Gilbert** *19704*
E *19704* Ethiopia (Sidamo) *19704*

I II ***Euphorbia cuneneana*** **Leach ssp. *cuneneana*** *17672*
I Angola

I II ***Euphorbia cuneneana*** **Leach ssp. *rhizomatosa* Leach** *17672*
I Angola

E II ***Euphorbia cussonioides*** **Bally** *17672*
E *19109* Kenya *19109*

R II ***Euphorbia cylindrica*** **A.C.White, R.A.Dyer & B.Sloane** *20604, 15937*
V *20604* South Africa - Cape Province (north-western: Calvinia District) *20604*

I I ***Euphorbia cylindrifolia*** **Marn.-Lap. & Rauh ssp. *tuberifera* Rauh** *17672*
I Madagascar

E II ***Euphorbia dalettiensis*** **M. G. Gilbert** *19704*
E *19704* Ethiopia (Harerge) *19704*

R II ***Euphorbia dauana*** **S. Carter** *17672*
R *17672* Kenya *17672*

I I ***Euphorbia decaryi*** **Guillaumin** *15658*
I Madagascar

I II ***Euphorbia decepta*** **N.E.Br.** *20604, 15926*
I *20604* South Africa - Cape Province (Willowmore) *20604*

R II ***Euphorbia dekindtii*** **Pax** *17672*
R Angola

I II ***Euphorbia demissa*** **Leach** *17672*
I Angola

V II ***Euphorbia dichroa*** **S. Carter** *15926*
V *19007* Uganda (north-eastern) *15926*

I II ***Euphorbia didiereoides*** **Denis ex Leandri** *17672*
I Madagascar

I II ***Euphorbia dispersa*** **Leach** *17672*
I *17672* Angola *17672*

I II ***Euphorbia dissitispina*** **Leach** *17672*
I *21420* Zimbabwe *21420*

R II ***Euphorbia dumeticola*** **P.R.O.Bally & S. Carter** *19525*
R Tanzania (Ruaha valley) *20921*

V II ***Euphorbia elegantissima*** **Bally & S. Carter** *19525*
V Kenya *19525*
E Tanzania (Mbulu, Masai) *19525*

R II ***Euphorbia ellenbeckii*** **Pax** *17672*
E *19704* Ethiopia (Sidamo) *19704*
R Kenya
V Somalia

V II ***Euphorbia eyassiana*** **Bally & S. Carter** *19525*
V Tanzania (Musoma, Masai, Mbulu) *19525*

R II ***Euphorbia fanshawei*** **Leach** *17672*
R *17672* Zambia *17672*

R II ***Euphorbia fascicaulis*** **S. Carter** *17672*
R Somalia

V II ***Euphorbia fasciculata*** **Thunb.** *20604, 15932*
V *20604* South Africa - Cape Province (Knersvlakte) *20604*

R II ***Euphorbia faucicola*** **Leach** *17672*
R Angola

R II ***Euphorbia filiflora*** **Marloth** *15926*
R *17672* South Africa (Namaqualand; 900 to 1500 m elevation) *15926*

V II ***Euphorbia fluminis*** **S. Carter** *15926*
V *17435* Kenya (North-eastern: near the Tana River) *15926*

Magnoliopsida (dicots): Euphorbiaceae: *Euphorbia*

R II ***Euphorbia fortissima*** **Leach** *15926*
R *17672* Zambia *15926*
I *21420* Zimbabwe *15926*

V II ***Euphorbia fractiflexa*** **S. Carter & J.R.I. Wood** *17672*
V *17672* Saudi Arabia *17672*
V *17672* Yemen *17672*

R II ***Euphorbia franksiae*** **N.E. Br. var.** ***zuluensis*** **A. White, R.A. Dyer & Sloane** *17672*
R *17672* South Africa *17672*

I II ***Euphorbia friedrichiae*** **Dinter** *20604, 15932*
I *20604* Namibia *20604*

R II ***Euphorbia friesiorum*** **(Hässler) S. Carter** *20057*
R *19109* Kenya *19109*

V II ***Euphorbia furcata*** **N.E. Br.** *19525*
V Kenya (Kilifi) *19525*
V Tanzania (Moshi, Pare) *19525*

V II ***Euphorbia gemmea*** **Bally & S. Carter** *17672*
V Kenya

V II ***Euphorbia gillettii*** **Bally & S. Carter ssp.** ***gillettii*** *17672*
V *17672* Somalia *17672*

I II ***Euphorbia gillettii*** **Bally & S. Carter ssp.** ***tenuior*** **S. Carter** *17672*
I *17672* Somalia *17672*

I II ***Euphorbia giumboensis*** **Hassler** *17672*
I Somalia

R II ***Euphorbia globosa*** **(Haw.) Sims** *20604, 17672*
R *20604* South Africa - Cape Province *20604*

R II ***Euphorbia grandialata*** **R.A.Dyer** *20604, 15922*
R *20604* South Africa - Transvaal (Lebowa) *20604*

R II ***Euphorbia grandicornis*** **N.E. Br. ssp.** ***sejuncta*** **Leach** *17672*
R *17672* Mozambique *17672*

R II ***Euphorbia graniticola*** **Leach** *17672*
R Mozambique

R II ***Euphorbia greenwayi*** **Bally & S. Carter** *17672*
R *17672* Tanzania *15926*

E II ***Euphorbia groenewaldii*** **R.A.Dyer** *20604, 15922*
E *20604* South Africa - Transvaal (Pietersburg District) *20604*

R II ***Euphorbia grosseri*** **Pax** *17672*
R Ethiopia

E II ***Euphorbia gymnocalycioides*** **M. C. Gilbert & S. Carter** *19704*
E *19704* Ethiopia (Sidamo) *19704*

R II ***Euphorbia hallii*** **R.A.Dyer** *20604, 15926*
R *20604* South Africa - Cape Province (Calvinia) *20604*

E II ***Euphorbia handiensis*** **Burchard** *15926*
E *19174* Spain - Canary Is. (Fuerteventura) *15926*

V II ***Euphorbia hopetownensis*** **Nel** *20604, 15926*
V *20604* South Africa - Cape Province (Hopetown) *20604*

V II ***Euphorbia horwoodii*** **S. Carter & Lavranos** *15926*
V Somalia *15926*

V II ***Euphorbia hubertii*** **Pax** *19525*
V Tanzania (Mwanza, Musoma) *19525*

R II ***Euphorbia imitata*** **N.E. Br.** *17672*
R *17672* Angola *17672*

E II ***Euphorbia immersa*** **Bally & S. Carter** *15926*
E *17672* Somalia *15926*

I II ***Euphorbia inaequispina*** **N.E. Br.** *17672*
I *17672* Ethiopia *17672*
I *17672* Somalia *17672*

I II ***Euphorbia inculta*** **Bally** *17672*
I *17672* Somalia *17672*

R II ***Euphorbia indurescens*** **Leach** *17672*
R *17672* Angola *17672*

I II ***Euphorbia ingenticapsa*** **Leach** *17672*
I Angola

R II ***Euphorbia isacantha*** **Pax** *19525*
R *17672* Malawi *17672*
R Tanzania (Songea) *19525*

E II ***Euphorbia jansenvillensis*** **Nel** *20604, 17672*
E *20604* South Africa - Cape Province *20604*

R II ***Euphorbia jubata*** **Leach** *15926*
R *17672* Zambia (central prov. Serenje dist.) *15926*

R II ***Euphorbia knuthii*** **Pax ssp.** ***johnsonii*** **(N.E. Br.) Leach** *17672*
R *17672* Mozambique *17672*

V II ***Euphorbia lambii*** **Svent.** *15926*
V *20750* Spain - Canary Is. (Gomera) *21391*

R II ***Euphorbia ledienii*** **Berger var.** ***dregei*** **N.E. Br.** *17672, 20604*
R *20604* South Africa - Cape Province *20604*

I II ***Euphorbia letestui*** **Raynal** *17672*
I Cameroon

I II ***Euphorbia leucochlamys*** **Chiov.** *17672*
I *17672* Somalia *17672*

V II ***Euphorbia louwii*** **L.C.Leach** *20604, 15926*
K *20604* South Africa - Transvaal (north-western) *20604*

R II ***Euphorbia lumbricalis*** **L.C.Leach** *20604, 20064*
R *20604* South Africa - Cape Province *20604*

E II ***Euphorbia makallensis*** **S. Carter** *15926*
E Ethiopia (central Tigrai, Makalle region) *15926*

R II ***Euphorbia malevola*** **Leach ssp.** ***bechuanica*** **Leach** *17672*
R *17672* Botswana *17672*

V II ***Euphorbia marlothiana*** **N.E.Br.** *20604, 17672*
V *20604* South Africa - Cape Province *20604*

V II ***Euphorbia marsabitensis*** **S. Carter** *17672*
V Kenya

I II ***Euphorbia masirahensis*** **Ghazanfar** *20146*
I *20146* Oman (Masirah Island) *20146*

I II ***Euphorbia meloformis*** **Aiton** *20604, 17672*
I *20604* South Africa - Cape Province *20604*

V II ***Euphorbia memoralis*** **R.A. Dyer** *17672*
V *21420* Zimbabwe *6088*

V II ***Euphorbia meridionalis*** **Bally & S. Carter** *19525*
V Kenya (Nairobi, Machakos) *19525*
V Tanzania (Masai) *19525*

I II ***Euphorbia millotii*** **Ursch & Leandri** *17672*
I *18294* Madagascar *18294*

R II ***Euphorbia mitriformis*** **Bally & S. Carter** *17672*
R Somalia

R II ***Euphorbia mlanjeana*** **Leach** *17672*
R Malawi

Magnoliopsida (dicots): Euphorbiaceae: *Euphorbia*

V II ***Euphorbia monacantha*** **Pax** *17672*
V *19704* Ethiopia (Sidamo; Bale) *19704*

R I ***Euphorbia moratii*** **Rauh** *15658*
R Madagascar *15926*

I II ***Euphorbia mosaica*** **Bally & S. Carter** *17672*
I *17672* Somalia *17672*

R II ***Euphorbia multiclava*** **Bally & S. Carter** *15926*
R *15926* Somalia *15926*

I II ***Euphorbia mwinilungensis*** **Leach** *17672*
I Angola
I *17672* Zambia *17672*

R II ***Euphorbia nesemannii*** **R.A.Dyer** *20604, 17672*
R *20604* South Africa - Cape Province *20604*

V II ***Euphorbia nigrispinioides*** **M. Gilbert** *19704*
V *19704* Ethiopia (Shewa Upland) *19704*

R II ***Euphorbia noxia*** **Pax** *17672*
R *20884* Somalia (north) *20884*

I II ***Euphorbia nubigena*** **Leach var. *nubigena*** *15926*
I Angola (north of Quibala) *15926*

I II ***Euphorbia nyassae*** **Pax** *17672*
I *19035* Tanzania *19035*

E II ***Euphorbia obesa*** **Hook.f.** *20604, 17672*
E *20604* South Africa - Cape Province *20604*

V II ***Euphorbia odontophora*** **S. Carter** *15926*
V Kenya (Northern Frontier Province) *15926*

R II ***Euphorbia ogadenensis*** **Bally & Carter** *19704*
R *19704* Ethiopia (Bale; Harerge) *19704*

R II ***Euphorbia oligoclada*** **Leach** *17672*
R *17672* Angola *17672*

R II ***Euphorbia opuntioides*** **Welw.** *17672*
R *17672* Angola *17672*

I II ***Euphorbia orbiculifolia*** **S. Carter** *20146*
I *20146* Oman (Dhofar) *20146*

V II ***Euphorbia oxystegia*** **Boiss.** *20604, 15937*
V *20604* South Africa - Cape Province (Namaqualand) *20604*

I II ***Euphorbia pachypodioides*** **Boit.** *17672*
I *17672* Madagascar *17672*

R II ***Euphorbia panchganiensis*** **Blatt. & McCann** *14782*
R *14782* India - Maharashtra (21421: Panchgani Hills) *14782*

R I ***Euphorbia parvicyathophora*** **Rauch** *15658*
R *17672* Madagascar *17672*

R II ***Euphorbia paulianii*** **Ursch & Léandri** *17672*
R *17672* Madagascar *17672*

I II ***Euphorbia pedemontana*** **L.C.Leach** *20604, 20064*
I *20604* South Africa - Cape Province *20604*

R II ***Euphorbia pedilanthoides*** **Denis** *15926*
R *17672* Madagascar *15926*

E II ***Euphorbia perangusta*** **R.A.Dyer** *20604, 15922*
E *20604* South Africa - Transvaal *20604*

I II ***Euphorbia perarmata*** **S. Carter** *17672*
I *17672* Somalia *17672*

V II ***Euphorbia perpera*** **N.E. Br.** *17672*
V *17672* South Africa *17672*

I II ***Euphorbia perrieri*** **Drake var. *elongata*** **Denis** *17672*
I *18294* Madagascar *17672*

R II ***Euphorbia perrieri*** **Drake var. *perrieri*** *17672*
R *17672* Madagascar *17672*

V II ***Euphorbia petraea*** **S. Carter** *17672*
V *17672* Uganda *17672*

E II ***Euphorbia petricola*** **Bally & S. Carter** *15926*
E *17672* Kenya (south-east: 500 to 1000 m elevation) *15926*

V II ***Euphorbia phillipsiae*** **N.E. Br.** *17672*
V *17672* Somalia *17672*

E II ***Euphorbia piscidermis*** **Gilbert** *17672*
E *17672* Ethiopia *17672*

R II ***Euphorbia platyrrhiza*** **Leach** *17672*
R *17672* Zambia *17672*

I II ***Euphorbia polycephala*** **Marloth** *20604, 17672*
I *20604* South Africa - Cape Province *20604*

I II ***Euphorbia primulifolia*** **Baker** *15658*
I *17672* Madagascar *15926*

R II ***Euphorbia probaliyana*** **Leach** *19525*
R *17672* Tanzania (Ruaha valley) *20921*

V II ***Euphorbia pseudoburuana*** **P.R.O.Bally & S. Carter** *19525*
V Kenya (Masai) *15926*
V Tanzania (Masai) *19525*

I II ***Euphorbia pseudocactus*** **A. Berger** *15923*
I *17672* South Africa - Natal *15932*

R II ***Euphorbia pteroclada*** **Leach** *17672*
R *17672* DR of Congo *17672*

R II ***Euphorbia pubiglans*** **N.E. Br.** *15937*
R *17672* South Africa - Cape Province *15937*

V II ***Euphorbia quadrangularis*** **Pax** *19525*
V *17672* Tanzania (Maswa, Kilosa, Iringa) *19525*

R II ***Euphorbia quadrata*** **Nel** *20604, 17672*
R *20604* South Africa - Cape Province *20604*

E II ***Euphorbia quadrialata*** **Pax** *19525*
E *17672* Tanzania (Pare, Lushoto, Handeni) *19525*

V II ***Euphorbia quadrilatera*** **Leach** *19525*
V *17672* Tanzania (Chunya, Iringa) *19525*

E II ***Euphorbia quadrispina*** **S. Carter** *15926*
E *17672* Kenya (near the Dawa Parma River at 400m elevation) *15926*

R I ***Euphorbia quartziticola*** **Leandri** *15658*
R *17672* Madagascar *15926*

I II ***Euphorbia reptans*** **Bally & S. Carter** *17672*
I *17672* Somalia *17672*

R II ***Euphorbia restituta*** **N.E.Br.** *20604, 15940*
R *20604* South Africa - Cape Province *20604* [distribution incomplete]

R II ***Euphorbia restricta*** **R.A.Dyer** *20604, 15922*
R *20604* South Africa - Transvaal (Drakensberg Mts.) *20604*

R II ***Euphorbia richardsiae*** **Leach ssp. *richardsiae*** *17672*
R *17672* Malawi *17672*

R II ***Euphorbia richardsiae*** **Leach ssp. *robusta*** **Leach** *17672*
R *17672* Malawi *17672*

V II ***Euphorbia rossii*** **Rauh & Buchloh** *17672*
V *17672* Madagascar *17672*

R II ***Euphorbia rowlandii*** **R.A.Dyer** *20604, 15922*
R *21420* Zimbabwe *20604*
R *20604* South Africa - Transvaal (Kruger N.P. &

Venda) *20604*

E II ***Euphorbia rubella*** Pax *21391, 15926*
E *17672* Ethiopia *15926*

R II ***Euphorbia rubrispinosa*** S. Carter *19525*
R *17672* Tanzania (Kigoma) *19525*

I II ***Euphorbia sacchii*** Chiov. *17672*
I *17672* Somalia *17672*

E II ***Euphorbia saxorum*** Bally & S. Carter *17672*
E *17672* Kenya *17672*

R II ***Euphorbia schizacantha*** Pax *15926*
R *15926* Ethiopia *15926*
R *17672* Kenya *17672*
V *15926* Somalia *15926*

R II ***Euphorbia schmitzii*** Leach *17672*
R *17672* DR of Congo *17672*

V II ***Euphorbia schoenlandii*** Pax *20604, 15932*
E *15932* South Africa (Vanrhynsdorp area) *15932*
V *20604* South Africa - Cape Province *20604*

I II ***Euphorbia scitula*** Leach *17672*
I *17672* Angola *17672*

E II ***Euphorbia sebsebei*** M. G. Gilbert *19704*
E *19704* Ethiopia (Sidamo) *19704*

R II ***Euphorbia sekukuniensis*** R.A.Dyer *20604, 15922*
R *20604* South Africa - Transvaal (Lebowa) *20604*

I II ***Euphorbia semperflorens*** Leach *15926*
I *17672* Angola (south-western; Mozamedes district) *15926*

V II ***Euphorbia sepulta*** Bally & S. Carter *17672*
V *17672* Somalia *17672*

R II ***Euphorbia sereti*** De Wild. ssp. ***sereti*** *17672*
R *17672* DR of Congo *17672*

R II ***Euphorbia socotrana*** Balf. f. *15534*
R *15534* Yemen - Socotra *15534*

R II ***Euphorbia spicata*** E. Meyer ex Boiss. *17672*
R *17672* South Africa *17672*

R II ***Euphorbia spiralis*** Balf. f. *15534*
R *15534* Yemen - Socotra *15534*

V II ***Euphorbia stapelioides*** Boiss. *17672*
V *17672* South Africa *17672*

I II ***Euphorbia strangulata*** N.E. Br. ssp. ***deminuens*** Leach *17672*
I *17672* Angola *17672*

I II ***Euphorbia strangulata*** N.E. Br. ssp. ***strangulata*** *17672*
I *17672* Angola *17672*

R II ***Euphorbia stygiana*** H.C.Watson *17672, 20171*
R *17672* Portugal - Azores *17672*

R II ***Euphorbia subscandens*** Bally & S. Carter *17672*
R *17672* Kenya *17672*

E II ***Euphorbia symmetrica*** A.C.White, R.A.Dyer & B.Sloane *20604, 17672*
E *17672* South Africa *17672*
V *20604* South Africa - Cape Province *20604*

E II ***Euphorbia tanaensis*** Bally *17672*
E *17672* Kenya (Witu forest) *17435*

R II ***Euphorbia tenuispinosa*** Gilli *17672*
R *17672* Kenya *17672*

I II ***Euphorbia tetracantha*** Rendle *17672*
I *17672* Ethiopia *17672*

E II ***Euphorbia torta*** Pax & K. Hoffm. *19525*
E *17672* Tanzania (Tabora, Iringa) *17672*

V II ***Euphorbia tortirama*** R.A.Dyer *20604, 15922*
V *20604* South Africa - Transvaal (Waterberg, Potgietersrust & Zoutpansberg) *20604*

V II ***Euphorbia triaculeata*** Forsk. *21391, 17672*
V *17672* Saudi Arabia (Arabian Peninsula) *17672*

E II ***Euphorbia turbiniformis*** Chiov. *17672*
E Somalia

V II ***Euphorbia turkanensis*** S. Carter *17672*
V *17672* Kenya *17672*

V II ***Euphorbia uhligiana*** Pax *17672*
V *17672* Kenya (Masai) *19525*
V *17672* Tanzania (Masai, Lushoto) *19525*

R II ***Euphorbia umfoloziensis*** Peckover *20604, 20064*
R *20604* South Africa - Natal *20604*

R II ***Euphorbia unicornis*** R.A. Dyer *17672*
R *17672* Mozambique *17672*

E II ***Euphorbia uniglans*** M. Gilbert *19704*
E *19704* Ethiopia (Sidamo) *19704*

V II ***Euphorbia uzmuk*** S. Carter & J.R.I. Wood *17672*
V *17672* Yemen *17672*

R II ***Euphorbia vaalputsiana*** L.C.Leach *20604, 20064*
R *20604* South Africa - Cape Province *20604*

V II ***Euphorbia valida*** N.E.Br. *20604, 17672*
V *20604* South Africa - Cape Province *20604*

I II ***Euphorbia vallaris*** Leach *15926*
I *15926* Angola (Huila) *15926*

I II ***Euphorbia viduiflora*** Leach *17672*
I *17672* Angola *17672*

V II ***Euphorbia vittata*** S. Carter *17672*
V *17672* Kenya *17672*

E II ***Euphorbia wakefieldii*** N.E. Br. *17672*
E *17672* Kenya (Mombasa-Kilifi) *20057*

V II ***Euphorbia waterbergensis*** R.A.Dyer *20604, 15922*
V *20604* South Africa - Transvaal (Waterberg District) *20604*

I II ***Euphorbia wildii*** Leach *7924*
I *21420* Zimbabwe *7924*

R II ***Euphorbia williamsonii*** Leach *15926*
R *17672* Zambia (Northern Province) *15926*

R II ***Euphorbia zoutpansbergensis*** R.A.Dyer *20604, 15922*
R *20604* South Africa - Transvaal (Zoutpansberg District) *20604*

Fouquieriaceae

Number of genera: 1
Number of species: 11
Recorded threatened species: 5 (45%)

Arid parts of Mexico and southwestern United States.

V I ***Fouquieria fasciculata*** Nash *15658*
V *21424* Mexico *19850*

I I ***Fouquieria purpusii*** Brandegee *15658*
I *21424* Mexico *19850*

Portulacaceae

Number of genera: 20
Number of species: 500
Recorded threatened species: 52 (10%)

Cosmopolitan, especially western North America and Andes.

R *Anacampseros comptonii* **Pillans** *20604, 20306* II
R *20604* South Africa - Cape Province *20604*

R II *Anacampseros filamentosa* **(Haw.) Sims ssp.** *filamentosa* *20306, 20604*
R *20604* South Africa - Cape Province *20306*
R *20604* South Africa - Orange Free State (Griqualand west) *20306*

R II *Anacampseros filamentosa* **(Haw.) Sims ssp.** *tomentosa* **(A. Berger) Gerbaulet** *20306*
R *20604* Namibia *20306*

R II *Anacampseros lanceolata* **(Haw.) Sweet ssp.** *lanceolata* *20306*
R *20803* Botswana *20803*
R *20604* South Africa - Cape Province *20604*

R II *Anacampseros lanceolata* **(Haw.) Sweet ssp.** *nebrownii* **(Poelln.) Gerbaulet** *20306*
R *20604* South Africa - Cape Province *20306*

R II *Anacampseros papyracea* **E. Meyer ex Fenzl ssp.** *papyracea* *20306, 20604*
R *20604* South Africa - Cape Province *20306*

R II *Anacampseros scopata* **G.Will.** *20604, 20308*
R *20604* South Africa - Cape Province *20604*

V II *Lewisia cotyledon* **Hohn var.** *1* *19002*
V *19002* U.S. - California *19002*

V II *Lewisia cotyledon* **(S.Watson) Robinson var.** *heckneri* **(Morton) Munz** *20850*
V *20850* U.S. - California *20850*

E II *Lewisia maguirei* **A. Holmgren** *20850, 15658*
E *20850* U.S. - Nevada *20850*

V II *Lewisia serrata* **Heckard & Stebbins** *20850, 15658*
V *20850* U.S. - California *20850*

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Annex S. CITES Listed Nationally Threatened Succulent Plants

Aloaceae

Number of genera: 5
Number of species: 700
Recorded threatened species: 206 (29%)

Arabia, Africa, Madagascar.

K I *Aloe albida* (Stapf) Reynolds *20604, 15658*
- K *20604* Swaziland *20604*
- V *20604* South Africa - Transvaal *20604*

? II *Aloe bicomitum* Leach *20264*
- R Tanzania *20264*
- ? Zambia (Lake Tanganyika) *20264*

? II *Aloe brachystachys* Baker *20264*
- R *5926* Tanzania *20264*

? II *Aloe chortolirioides* Berger var. *woolliana* (Pole Evans) Glen & Hardy *18023*
- ? Southern Africa *20039*
- I *18023* Swaziland *18023*

? II *Aloe cooperi* Bak. ssp. *cooperi* *18023*
- I *18023* Swaziland *18023*
- ? South Africa - Transvaal
- ? South Africa - Cape Province
- ? South Africa - Natal

K II *Aloe cooperi* Baker ssp. *pulchra* Glen & Hardy *20039*
- K *20039* Southern Africa *20039*
- K *20604* Namibia *20604*
- I *20039* Swaziland *20039*
- K *20604* South Africa - Orange Free State *20604*

? II *Aloe corallina* I.Verd. *20604*
- R *20604* Namibia *20604*

? II *Aloe dewinteri* Giess *20604*
- R *20604* Namibia *20604*

? II *Aloe erensii* Christian *20264*
- E Kenya (Turkana) *20264*
- ? Sudan (Kaimothia, Ilemi Triangle) *20264*

? II *Aloe erinacea* D.S.Hardy *20604, 18295*
- R *20604* Namibia (Luederitz Prov.) *20604* [distribution possibly incomplete]

? II *Aloe eru* A. Berger *5908*
- I *5908* Sudan *5908* [distribution possibly incomplete]

? II *Aloe falcata* Baker *20604*
- ? Namibia
- V *20604* South Africa - Cape Province *20604*

? II *Aloe hazeliana* G. Reyn. *7754*
- ? Mozambique
- I *21420* Zimbabwe (chimanimani) *7754*

? II *Aloe macrocarpa* Tod. *6072*
- R *6072* Ghana *6072* [distribution possibly incomplete]

? II *Aloe macrosiphon* Baker *20264*
- R Kenya *20264*
- ? Rwanda *20264*
- I *5926* Tanzania *20264*
- I *19007* Uganda *20264*

? II *Aloe maculata* All. *20039, 20171*
- ? Southern Africa *20039*
- I *20039* Swaziland *20039*

? II *Aloe massawana* G. Reyn. *20264*
- ? Ethiopia (Eritrea) *20264*
- R *17668* Kenya *17668*
- ? Mozambique *20264*
- R *17668* Tanzania *17668*

K II *Aloe modesta* Reynolds *20604*
- K *20604* South Africa - Transvaal *20604*
- R *20604* South Africa - Natal *20604*

? II *Aloe munchii* Christian *6088*
- ? Mozambique
- V *6088* Zimbabwe *6088*

? II *Aloe namibensis* Giess *20604*
- R *20604* Namibia *20604*

? II *Aloe parvidens* M.G. Gilbert & Sebsebe Demissew *20264*
- V Ethiopia (Ogaden) *20264*
- V Kenya (Northern Frontier Province) *20264*
- V Somalia *20264*
- ? Tanzania (Pare) *20264*

? II *Aloe plowesii* G. Reyn. *20064*
- ? Mozambique
- V *21420* Zimbabwe *21420*

? II *Aloe rhodesiana* Rendle
- ? Mozambique
- I *21420* Zimbabwe *21420*

? II *Aloe rivieri* Lavranos & Newton *20064*
- R *17668* Saudi Arabia *17668*
- ? Yemen

? II *Aloe sabaea* Schweinf.
- V *17668* Saudi Arabia *17668*
- ? Yemen

? II *Aloe sladeniana* Pole Evans *20604*
- R *20604* Namibia *20604*

? II *Aloe suffulta* G. Reyn.
- ? Mozambique
- I *21420* Zimbabwe *7924*
- R South Africa - Natal

? II *Aloe suprafoliata* Pole Evans *18023*
- ? Southern Africa *20039*
- R *17825* Swaziland *17825*

? II *Aloe tugenensis* Newton & Lavranos *20264*
- I *21416* Kenya *20264*

? II *Aloe vera* (L.) N.L. Burman var. *vera* *17833*
- ? Greece *8000*
- ? Greece - Crete *8000*
- ? Italy *8000*
- ? Italy - Sicily *8000*
- V *13351* Malta (Gozo, Wied is-Sabbara) *13351*
- ? Portugal *8000*
- ? Spain *8000*
- ? North Africa & Middle East *8000*
- ? Islands of the Caribbean [distribution incomplete]

? II *Aloe viridiflora* Reynolds *20604*
- R *20604* Namibia *20604*

? II *Aloe vryheidensis* Groenew. *20604*
- ? South Africa - Transvaal *20604*
- R *20604* South Africa - Natal *20604*

Apocynaceae

Number of genera: 168-200
Number of species: 2,000
Recorded threatened species: 149 (7%)

Tropics, particularly rain forest regions.

Magnoliopsida (dicots): Apocynaceae: *Rauvolfia*

? ***Rauvolfia serpentina*** **Benth. ex Kurz** *8319*
- ? Bangladesh *12763*
- ? Bhutan *12763*
- V *18228* India - Kerala *18341*
- V *7771* India - Orissa (Ganjam, Puri, Keonjhar, Mayurbhanj) *7771*
- V *18228* India - Tamil Nadu *18341*
- V Myanmar *8319*
- V Nepal (east & central) *11520*
- ? Pakistan (Sind) *7956*
- ? Thailand *8319*
- E *20985* Vietnam *20985*
- ? Indonesia - Java *8319*
- ? Malaysia - Peninsular Malaysia *7731*
- ? India - Andaman Is. *7771*
- I *16162* Sri Lanka *8319*

Asclepiadaceae

Number of genera: 250-315
Number of species: 2,000
Recorded threatened species: 420 (21%)

Tropical and subtropical, especially Africa, with relatively few species in temperate regions.

? II ***Ceropegia ampliata*** **E. Meyer ssp. *ampliata*** *20202*
- ? Tanzania *20213*
- R *5914* Swaziland *20207*
- ? South Africa - Transvaal *20207*
- ? South Africa - Cape Province (including Transkei) *20207*
- ? South Africa - Natal (including Zululand) *20207*

[distribution possibly incomplete]

K II ***Ceropegia arnottiana*** **Wight** *13883*
- Ex/E *13883* India - Meghalaya *13883*
- K *20211* Myanmar *7855*
- K *20211* Thailand *7855*

? II ***Ceropegia boerhaaviifolia*** **Defl.** *10260*
- I *20212* Yemen, Democratic *20212*

[distribution possibly incomplete]

? II ***Ceropegia bonafouxii*** **Schumann** *20207*
- ? Angola *20207*
- E *20273* Zambia *20276*
- ? Zimbabwe *20207*
- ? Botswana *20207*
- E *20273* Namibia *20276*

K II ***Ceropegia bowkeri*** **Harv. ssp. *bowkeri*** *20207* *20604*
- K *20211* South Africa - Cape Province (Transkei) *20207*
- I *20604* South Africa - Orange Free State *20604*

K II ***Ceropegia candelabrum*** **L. var. *candelabrum*** *16162*
- K *20211* India
- I *16162* Sri Lanka *16162*

? II ***Ceropegia carnosa*** **E. Mey** *18023*
- I *18023* Swaziland *18023*
- ? South Africa - Transvaal *20207*
- ? South Africa - Cape Province (including Transkei) *20207*
- ? South Africa - Natal (including Zululand) *20207*

? II ***Ceropegia claviloba*** **Werderm.** *20228*
- ? Malawi *20228*
- ? Tanzania *20228*
- I *20228* DR of Congo (southeast) *20228*
- ? Zambia *20228*
- ? Zimbabwe *20228*

? II ***Ceropegia crassifolia*** **Schltr. var. *copleyae*** **(E.A. Bruce & P.R.O. Bally) H. Huber** *20064*
- I *21416* Kenya

[distribution possibly incomplete]

? II ***Ceropegia crassifolia*** **Schltr. var. *crassifolia*** *10260*
- ? Namibia *20207*
- R *5914* Swaziland *5914*
- ? South Africa - Transvaal *20207*
- ? South Africa - Cape Province (including Transkei) *20207*
- ? South Africa - Natal (including Zululand) *20207*

? II ***Ceropegia galeata*** **H. Huber** *20064*
- I *21416* Kenya *20206*

? II ***Ceropegia juncea*** **Roxb.** *10260*
- ? India *20202*
- *21421* India - Andhra Pradesh *21421*
- *21421* India - Karnataka *21421*
- *21421* India - Tamil Nadu *21421*

[distribution possibly incomplete]

? II ***Ceropegia lucida*** **Wallich ssp. *lucida*** *10260*
- ? Bangladesh
- Ex/E *13883* India *13883*
- ? India - Meghalaya
- ? India - Sikkim
- ? Myanmar
- ? Malaysia - Peninsular Malaysia (Bukit Penara, Penang)

[distribution possibly incomplete]

? II ***Ceropegia metziana*** **Miq.** *13883*
- R *13883* India - Karnataka *13883*
- R *13883* India - Kerala *13883*
- R *13883* India - Tamil Nadu *13883*
- ? Sri Lanka *13883*

? II ***Ceropegia meyeri*** **Decne.** *20203*
- ? Mozambique *20207*
- ? Tanzania *20228*
- ? Zambia *20228*
- E *20273* Namibia - Caprivi Strip *20276*
- ? South Africa - Transvaal *20207*
- ? South Africa - Cape Province (including Transkei) *20207*
- ? South Africa - Natal *20207*

? II ***Ceropegia pachystelma*** **Schlecter** *10260*
- ? Mozambique *20207*
- ? Botswana *20207*
- ? Lesotho *20207*
- R *20276* Namibia *20207*
- ? Swaziland *20207*
- ? South Africa - Transvaal *20207*
- ? South Africa - Cape Province (including Transkei) *20207*
- ? South Africa - Natal *20207*

? II ***Ceropegia pachystelma*** **Schlecter ssp. *undulata*** **(N.E. Brown) H. Huber** *20064*
- R *5914* Swaziland *5914*

[distribution possibly incomplete]

? II ***Ceropegia peteri*** **Werderm.** *5926*
- K *20211* Angola *20206*
- I *5926* Tanzania *5926*

[distribution possibly incomplete]

? II ***Ceropegia plicata*** **E.A. Bruce** *20207*
- R *5914* Swaziland *5914*

[distribution possibly incomplete]

? II ***Ceropegia racemosa*** **N.E. Br. ssp. *setifera*** **(Schlechter) H. Huber** *20064*
- ? Botswana *20207*
- ? Namibia *20207*

Magnoliopsida (dicots): Asclepiadaceae: *Ceropegia*

R *5914* Swaziland *20207*
? South Africa - Transvaal *20207*
? South Africa - Cape Province (Transkei) *20207*
? South Africa - Natal *20207*

? II ***Ceropegia ringoetii*** **De Wild.** *20228*
? Malawi *20228*
? Tanzania *20228*
I *20228* DR of Congo *20228*
? Zambia *20228*
[distribution possibly incomplete]

? II ***Ceropegia rupicola*** **Defl. var. *rupicola*** *10260*
? Saudi Arabia *20212*
? Yemen *20212*
I *20212* Yemen, Democratic *20212*
[distribution possibly incomplete]

? II ***Ceropegia sandersonii*** **Hook. F.** *18023*
? Mozambique *20207*
I *18023* Swaziland *20207*
? South Africa - Transvaal *20207*
? South Africa - Natal (including Zululand) *20207*

K II ***Ceropegia schliebenii*** **Markgraf** *20211*
I *20273* Rwanda *7953*
K *20211* Tanzania *5926*

? II ***Ceropegia sobolifera*** **var. *sobolifera*** *20206*
V *6087* Ethiopia *6087*
[distribution possibly incomplete]

? II ***Ceropegia somalensis*** **Chiov. forma *somalensis*** *10260*
? Yemen *20212*
I *6087* Ethiopia *6087*
? Kenya *20206*
I *20212* Somalia *20206*
[distribution possibly incomplete]

? II ***Ceropegia stenantha*** **K. Schumann** *20207*
? Malawi *20228*
? Rwanda *20228*
? Sudan *20228*
? Tanzania *20228*
? Uganda *20228*
? DR of Congo *20228*
? Zambia *20228*
? Zimbabwe *20228*
R *20207* Namibia - Caprivi Strip *20207*
R *20207* South Africa - Natal (Zululand) *20207*
[distribution possibly incomplete]

? II ***Ceropegia stenoloba*** **Hochst. ex Werdermann var. *stenoloba*** *6072*
I *6087* Ethiopia *6087*
R *6072* Ghana *6072*
R *20273* Rwanda *20273*
[distribution possibly incomplete]

Cactaceae

Number of genera: 30-200
Number of species: 1,000-2,000
Recorded threatened species: 577 (38%)

American deserts.

? II ***Acanthocereus tetragonus*** **(L.) Hummelinck** *15964*
? U.S. - Florida *10747*
? U.S. - Texas *10747*
? Cuba *15964*
? Dominica *8767*
? Guadeloupe *8767*
? Grenada *8767*
? Martinique *8767*
? Netherlands Antilles *15964*
? St Lucia *8767*
? Trinidad & Tobago *15964*
? Belize *15964*
? Costa Rica *10747*
? El Salvador *15964*
? Guatemala *15964*
? Honduras *15964*
V *14255* Mexico - Hidalgo *14255*
V *14255* Mexico - Puebla *14255*
? Nicaragua *15964*
V *16317* Panama *15964*
? Venezuela *15964*

? II ***Acanthocereus undulosus*** *15964*
I *5642* Dominican Republic (Yaso) *5642*
? Haiti (Saint Domingue) *21408*

? I ***Ariocarpus fissuratus*** **(Engelm.) K. Schum.** *21384*
? U.S. - Texas *21384*
I *21424* Mexico *21384*

? II ***Arthrocereus melanurus*** **ssp. *magnus*** *21426*
I *21426* Brazil *21426*

? II ***Austrocactus patagonicus*** **(Web.) Backeb.** *15964*
? Argentina *15964*
V *19034* Chile *19034*

? II ***Cereus stenogonus*** **K. Schum** *20883, 15964*
I *20883* Argentina *20883*
? Bolivia *15964*
V *20883* Paraguay *20883*

? II ***Coryphantha strobiliformis*** **(Poselg.) Orcutt** *19002*
R *19002* U.S. - Arizona *19002*
? U.S. - Texas *19002*

? II ***Disocactus amazonicus*** **(K.Schumann) D.R.Hunt** *15964*
? Costa Rica *15964*
V *16317* Panama *10747*
? Colombia *15964*
? Ecuador *15964*
? Peru *15964*
? Venezuela *15964*

? II ***Disocactus nelsonii*** **(Britton & Rose) Lindinger** *15964*
? Guatemala *15964*
R *15964* Honduras *15964*
R *14247* Mexico - Chiapas *14247*

? II ***Echinocactus polycephalus*** **Engelm. & Bigelow** *15964*
? U.S. - Arizona *19002*
Ex *19002* U.S. - Utah *19002*
Σ *19002* Mexico - Sonora *19002*

? II ***Echinocactus texensis*** **Hopffer** *15964*
I *19002* U.S. - New Mexico *19002*
V *19002* U.S. - Oklahoma *19002*
? U.S. - Texas *19002*
? Mexico *15964*

? II ***Echinocereus chisoensis*** **W. Marshall var. *fobeanus*** **(Oehme) N.P. Taylor** *12107*
V *12107* Mexico - Coahuila (south-west) *12107*
? Mexico - Durango (east) *12107*

? II ***Echinocereus dasyacanthus*** **Engelm.** *15964*
V *12437* U.S. - New Mexico *12437*
V *12437* U.S. - Texas *12107*
V *12437* Mexico - Chihuahua (north) *12107*
V *12529* Mexico - Coahuila (north) *12107*
? Mexico - Sonora (north) *12107*

? II ***Echinocereus engelmannii*** **(Parry ex Engelm.) Lemaire var. *acicularis*** **L. Benson** *12107*
I *15964* U.S. - Arizona (south & west) *12107*
I *15964* U.S. - California (E. Riverside Co.) *12107*
I *15964* Mexico - Baja California Peninsula *12107*
? Mexico - Sonora (north-west) *12107*

Magnoliopsida (dicots): Cactaceae: *Echinocereus*

? II ***Echinocereus engelmannii*** (Parry ex Engelm.) Lemaire var. ***engelmannii*** *12107*
- R *12107* U.S. - Arizona (south & west) *12107*
- I *15964* U.S. - California (south & east) *12107*
- I *15964* U.S. - Nevada (south) *12107*
- ? Mexico - Baja California Peninsula (east coast) *12107*
- ? Mexico - Sonora (north-west) *12107*

? II ***Echinocereus longisetus*** (Engelm.) Lemaire var. ***longisetus*** *12469*
- R *19850* Mexico - Coahuila (central & north) *12496*

? II ***Echinocereus poselgeri*** Lemaire *15964, 12107*
- ? U.S. - Texas (south) *12107*
- *21424* Mexico *21424*
- I *19848* Mexico - Coahuila (east) *12107*
- I *19848* Mexico - Nuevo Leon (north) *12107*
- I *19848* Mexico - Tamaulipas (north & south-west) *12107*

? II ***Echinocereus rigidissimus*** (Engelm.) Hort.Haage var. ***rigidissimus*** *12107*
- ? U.S. - Arizona (south-east) *12107*
- R *19002* U.S. - New Mexico (south-west) *12107*
- ? Mexico - Sonora (north & east) *12107*

? II ***Echinopsis atacamensis*** (Philippi) Friedrich & G.D. Rowley *15964*
- E *15964* Chile *19034*

? II ***Echinopsis hertrichiana*** (Backeb.) D. Hunt *15964*
- ? Bolivia *15964*
- E *12468* Peru *15964*

? II ***Epiphyllum crenatum*** (Lindley) G. Don *15964*
- ? Belize *15964*
- ? Guatemala *10747*
- ? Honduras *10747*
- ? Mexico *10747*
- V *16317* Panama *10747*

? II ***Epiphyllum lepidocarpum*** (A. Weber) Britton & Rose *15964*
- ? Costa Rica *10747*
- V *16317* Panama *10747*

? II ***Epiphyllum phyllanthus*** (L.) Haw. *21408*
- I *21408* Brazil *21408*

? II ***Epiphyllum phyllanthus*** (L.) Haw. var. ***columbiense*** (A. Weber) Kimnach *10747*
- ? Costa Rica *10747*
- ? Mexico *10747*
- V *16317* Panama *10747*
- ? Colombia *10747*
- ? Ecuador *15964*
- ? Venezuela *15964*

? II ***Epiphyllum phyllanthus*** (L.) Haw. var. ***hookeri*** (Haw.) Kimnach *10747*
- ? Cuba *15964*
- Ex *15964* Haiti *15964*
- ? Trinidad & Tobago *15964*
- ? Belize *15964*
- ? Costa Rica *10747*
- ? El Salvador *15964*
- ? Guatemala *15964*
- ? Honduras *15964*
- V *15964* Mexico *15964*
- ? Nicaragua *15964*
- V *16317* Panama *10747*
- ? Venezuela *15964*

? II ***Epiphyllum phyllanthus*** (Weber) Kimn. var. ***pittieri*** (A. Weber) Kimnach *20883, 10747*
- ? Costa Rica *10747*
- ? Nicaragua *15964*
- V *20883* Panama *20883*

? II ***Epiphyllum phyllanthus*** (L.) Haw. var. ***rubrocoronatum*** Kimnach *10747*
- ? Costa Rica *10747*
- V *16317* Panama *10747*
- ? Colombia *10747*
- ? Ecuador *10747*

? II ***Epiphyllum thomasianum*** (Schumann) Britton & Rose var. ***costaricensis*** (A. Weber) Kimnach *14260*
- ? Costa Rica *14260*
- R *14260* Mexico - Quintana Roo *14260*
- ? Panama *14260*

? II ***Epiphyllum sp.*** *15964*
- ? Costa Rica *10747*
- V *16317* Panama *10747*

? II ***Epithelantha micromeris*** (Engelm.) A. Weber ex Britt. & Rose var. ***micromeris*** *12469*
- R *19002* U.S. - Arizona *19002*
- ? U.S. - New Mexico *19002*
- R *19850* Mexico *15964*

? II ***Facheiroa cephalimelana*** ssp. ***cephalimelana*** *21426*
- I *21426* Brazil *21426*

? II ***Frailea pumila*** Britton & Rose *15964*
- ? Brazil *15964*
- I *19352* Colombia *19352*
- ? Paraguay *15964*
- ? Uruguay *15964*

? II ***Gymnocalycium gibbosum*** (Haw.) Pfeiffer *15964*
- ? Argentina *15964*
- R *20137* Argentina - Buenos Aires *20137*

? II ***Gymnocalycium platense*** (Speg.) Britton et Rose *15964*
- ? Argentina *15964*
- R *20137* Argentina - Buenos Aires *20137*

? II ***Gymnocalycium schroederianum*** Osten *15964*
- ? Argentina *15964*
- E *20137* Argentina - Buenos Aires *20137*
- ? Uruguay *15964*

? II ***Harrisia brookii*** Britton *15964*
- V *21425* Bahamas *21408*

? II ***Harrisia hurstii*** Marshall *15964*
- I *5642* Dominican Republic *15964*

? II ***Heliocereus aurantiacus*** Kimnach *14256*
- ? Honduras *15964*
- ? Mexico *15964*
- I *14256* Nicaragua *14256*

? II ***Hylocereus costaricensis*** Britton & Rose *15964*
- ? Costa Rica *10747*
- ? Nicaragua *15964*
- V *16317* Panama *10747*

? II ***Hylocereus guatemalensis*** (Eichlam) Britton & Rose *15964*
- ? El Salvador *15964*
- R *14255* Guatemala *16385*

? II ***Hylocereus minutiflorus*** Britton & Rose *15964*
- ? Belize *15964*
- ? Guatemala *15964*
- ? Honduras *15964*
- R *16385* Mexico *16385*

? II ***Hylocereus monacanthus*** (Lem.) Britt. & Rose *20883, 15964*
- ? Costa Rica *15964*
- V *20883* Panama (Canal area; Chiriquí; Panamá; Darién; Veraguas) *20883*
- ? Colombia *14255*

Magnoliopsida (dicots): Cactaceae: *Hylocereus*

II ***Hylocereus polyrhizus*** **(A. Weber) Britton & Rose** *15964*
- ? Costa Rica *15964*
- ? Nicaragua *10747*
- V *16385* Panama (Chiriquí; Panamá; Veraguas) *10747*
- ? Colombia *10747*
- ? Ecuador *15964*

II ***Lepismium houlletianum*** *15964*
- ? Argentina *15964*
- I *21426* Brazil *15964*

II ***Lepismium lumbricoides*** *15964*
- ? Argentina *15964*
- I *21426* Brazil *15964*
- ? Paraguay *15964*
- ? Uruguay *15964*

II ***Lepismium warmingianum*** *15964*
- I *21408* Brazil *21408*

II ***Leptocereus carinatus*** **Areces** *21408*
- V *21425* Cuba (east) *21408*

II ***Leptocereus leonii*** **Britton & Rose** *15964*
- ? Cayman Is. (Cayman Brac) *19712*
- E *19105* Cuba (Holguin) *5607*

II ***Lobivia walteri*** **Kiesling** *20176*
- Ex *20176* Argentina - Salta (Barranca Cachipampa) *20176*
  [distribution possibly incomplete]

II ***Mammillaria columbiana*** **Salm-Dyck** *15964*
- R *19221* Jamaica *15964*
- ? Colombia *15964*
- ? Venezuela *15964*

II ***Mammillaria deherdtiana*** **Farwig var. *dodsonii* (H. Bravo) C. Glass & R. Foster** *1058*
- I *21424* Mexico *21424*
- K *20067* Mexico - Oaxaca *14271*

II ***Mammillaria gaumeri*** **(Britton & Rose) Orcutt** *9114*
- ? Belize *16321*
- *21424* Mexico *21424*
- R *9114* Mexico - Yucatan *9114*

II ***Mammillaria heyderi*** **Muhlenpfordt** *19002*
- ? U.S. - New Mexico *19002*
- I *19002* U.S. - Oklahoma *19002*

II ***Mammillaria longimamma*** **G. Lindsay** *14267*
- ? *19002* U.S. - Texas *19002*
- *21424* Mexico *21424*
- V *14267* Mexico - Hidalgo *14267*

II ***Mammillaria nivosa*** **Link ex Pfeiffer** *15964*
- ? Antigua & Barbuda *8767*
- ? Bahamas (Great & Little Inagua) *8766*
- ? Puerto Rico (Mona; Culebra; Desecheo) *15964*
- ? St Martin & St Barthelemy *8767*
- I *13468* Turks & Caicos Is. *8766*
- E *15964* British Virgin Is. (Norman Island, Tortola; Guana) *19826*
- E *15964* USA - Virgin Is. (St John; Buck; St Thomas) *15964*

II ***Mammillaria prolifera*** **(Mill.) Haw. var. *prolifera***
- ? United States of America *15964*
- V *19105* Cuba *19105*
- ? Dominican Republic *15964*
- ? Haiti
- ? Mexico *15964*

II ***Mammillaria ruestii*** *15964*
- ? Guatemala *15964*
- ? Honduras *15964*
- *21424* Mexico *21424*
- ? Nicaragua *15964*

? II ***Mammillaria thornberi*** **Orcutt** *9114*
- *21408* U.S. - Arizona (Mexico also) *21408*
- ? Mexico - Sonora *9114*

? II ***Melocactus azureus*** **ssp. *azureus*** *21426*
- I *21426* Brazil *21426*

? II ***Melocactus curvispinus*** **Pfeiffer** *15964*
- E *5607* Cuba *15964*
- ? Trinidad & Tobago *12469*
- ? Costa Rica *15964*
- ? Guatemala *15964*
- ? Honduras *15964*
- ? Mexico *15964*
- E *9114* Mexico - Veracruz *12469*
- ? Colombia *12469*
- ? Venezuela *12469*

? II ***Melocactus pachyacanthus*** **ssp. *pachyacanthus*** *21426*
- I *21426* Brazil *21426*

? II ***Melocactus perezassoi*** **Areces** *21408*
- V *21425* Cuba (central) *21425*

? II ***Melocactus peruvianus*** *15964*
- Ex *15964* Ecuador *15964*
- ? Peru *15964*

? II ***Melocactus violaceus*** **ssp. *margaritaceus*** *21426*
- I *21426* Brazil *21426*

? II ***Melocactus violaceus*** **ssp. *ritteri*** *21426*
- I *21426* Brazil *21426*

? II ***Melocactus violaceus*** **ssp. *violaceus*** *21426*
- I *21426* Brazil *21426*

? II ***Neoporteria clavata*** **(Soehr.) Werdermann var. *clavata*** *19034*
- E *15964* Chile *19034*
- ? Peru *15964*

? II ***Neoporteria subgibbosa*** **Britton & Rose** *15964*
- V *15964* Chile *15964*
- ? Peru *15964*

? II ***Neoporteria villosa*** **(Monville) Berg.** *15964*
- E *15964* Chile *19034*
- ? Peru *15964*

? II ***Neowerdermannia chilensis*** **Backeb.** *15964*
- V *19034* Chile *19034*
- ? Peru *15964*

? II ***Notocactus submammulosus*** **(Lehmann) Backeberg** *20137*
- R *20137* Argentina - Buenos Aires *20137*
  [distribution possibly incomplete]

? II ***Opuntia antillana*** **Britton & Rose** *15964*
- ? Islands of the Caribbean (Lesser Antilles) *15964*
- ? Dominican Republic *15964*
- *21408* Haiti (Saint Domingue, Puerto Rico, Petites Antilles.) *21408*
- ? Puerto Rico *15964*
- ? British Virgin Is. *15964*
- ? USA - Virgin Is. *15964*

? II ***Opuntia atrispina*** **Griffiths** *14662*
- I *19002* U.S. - Texas *14662*
- ? Mexico *15964*

? II ***Opuntia auberi*** **Pfeiffer** *15964*
- R *19105* Cuba *19105*
- ? Mexico *15964*

? II ***Opuntia corallicola*** *21425*
- E *21425* U.S. - Florida (cays) *21425*

Magnoliopsida (dicots): Cactaceae: *Opuntia*

? II ***Opuntia davisii*** **Engelm. & Bigelow** *15964*
- I *19002* U.S. - New Mexico *14662*
- ? U.S. - Oklahoma *19002*

? II ***Opuntia ekmanii*** **Werderm.** *15964*
- V *21425* Haiti *21408*

? II ***Opuntia elatior*** **Mill.** *10747*
- ? Antigua & Barbuda (Redonda) *8767*
- ? Montserrat *8767*
- ? Netherlands Antilles (Curacao) *8767*
- ? St Kitts - Nevis (Saba) *8767*
- ? Costa Rica *10747*
- V *16317* Panama *10747*
- ? Colombia *10747*
- ? Venezuela *15964*

? II ***Opuntia falcata*** **Ekm. & Werderm.** *15964*
- ? Dominican Republic *15964*
- V *21425* Haiti *21408*

? II ***Opuntia glomerata*** **Haw.** *15964*
- ? Argentina *15964*
- ? Bolivia *15964*
- R *19535* Chile *15964*

? II ***Opuntia humifusa*** **Raf.** *15964, 20171*
- E *13967* Canada - Ontario *13967*
- V *13967* U.S. - Connecticut *14662*
- ? U.S. - Illinois *14662*
- ? U.S. - Iowa *14662*
- R *13967* U.S. - Massachusetts *14662*
- ? *13967* U.S. - Minnesota *14662*
- ? U.S. - North Carolina *14662*
- ? *13967* U.S. - Ohio (5) *13967*
- R *13967* U.S. - Pennsylvania *14662*
- ? Cuba *15964*
- ? Mexico *15964*

? II ***Opuntia longiareolata*** *15964*
- ? United States of America *15964*
- *21408* U.S. - Arizona ((Coconino Co.)) *21408*

? II ***Opuntia lucayana*** **Britton** *15964*
- V *21425* Bahamas *21408*
- ? Turks & Caicos Is. *8766*

? II ***Opuntia millspaughii*** **Britton** *15964*
- ? *21408* Bahamas (Cuba; iles Calmanes) *21408*
- V *19105* Cuba (Can. Tun. Holg. Cu) *19105*

? II ***Opuntia mojavensis*** *15964*
- ? United States of America *15964*
- *21408* U.S. - Arizona (California) *21408*

? II ***Opuntia parryi*** **Engelm. var. *serpentina*** **(Engelm.) L. Benson** *20883, 20850, 8058*
- E *20850* U.S. - California *20850*
- I *20883* Mexico *20883*
- R *8058* Mexico - Baja California Peninsula *8058*
- ? Mexico - Chihuahua *14662*

? II ***Opuntia penicilligera*** **Speg.** *15964*
- R *20137* Argentina - Buenos Aires (south) *20137* [distribution possibly incomplete]

? II ***Opuntia polyacantha*** **Haw.** *15964*
- ? Canada *15964*
- ? U.S. - Arizona *14662*
- I *14662* U.S. - New Mexico *8058*
- I *14662* U.S. - Texas *8058*
- R *9114* Mexico - Chihuahua *9114*

? II ***Opuntia pulchella*** **Engelm.** *15964*
- ? *19002* U.S. - Arizona *14662*
- ? *19002* U.S. - California *14662*
- ? *19002* U.S. - Nevada *14662*
- R *19002* U.S. - Utah *14662*

? II ***Opuntia repens*** **Bello** *15964*
- V Puerto Rico *15964*
- ? British Virgin Is. (Tortola; Virgin Gorda; Norman Island) *19826*
- ? USA - Virgin Is. *15107*

? II ***Opuntia rufida*** **Engelm.** *15964, 14662*
- ? U.S. - Texas *14662*
- V *15964* Mexico *12469*

? II ***Opuntia serpentina*** *15964*
- I *15964* United States of America *15964*
- ? Mexico *15964*

? II ***Opuntia stricta*** **(Haw.) Haw.** *15964, 20171*
- ? United States of America *15964*
- ? Anguilla *8767*
- ? *21408* Bahamas *21408*
- ? Bermuda
- ? Cayman Is. *15964*
- ? Cuba *15964*
- ? Dominican Republic *15964*
- ? Jamaica *15964*
- ? Montserrat *8767*
- ? Netherlands Antilles *15964*
- ? Puerto Rico *15964*
- ? Turks & Caicos Is. *8766*
- ? British Virgin Is. *15964*
- ? USA - Virgin Is. *15964*
- ? Mexico *15964*
- ? Ecuador *15964*
- R *15964* Suriname *15964*
- ? Uruguay *15964*

? II ***Opuntia tunicata*** **(Lehm.) Link & Otto** *14662*
- I *19002* U.S. - Oklahoma *14662*
- ? Cuba *15964*
- ? Mexico *15964*

? II ***Opuntia urbaniana*** **Werderm.** *5642*
- I *19408* Dominican Republic *5642*
- ? Haiti *15964*

? II ***Pereskia bleo*** **(Kunth & Bonpland) DC.** *10747*
- ? Nicaragua *10747*
- V *16317* Panama *10747*
- ? Colombia *10747*

? II ***Pereskia guamacho*** **Web.** *15964*
- ? Netherlands Antilles *15964*
- V *16317* Panama *16317*
- ? Colombia *15964*
- ? Venezuela *15964*

? II ***Pereskia lychnidiflora*** **DC.** *15964*
- R *15964* Costa Rica *15964*
- ? El Salvador *15964*
- ? Guatemala *15964*
- ? Honduras *15964*
- V *15964* Mexico *15964*
- ? Nicaragua *16826*

? II ***Pereskia marcanoi*** **Areces** *21408*
- *21408* Haiti (Saint Domingue) *21408*
- V *21425* Hispaniola *21425*

K II ***Pilosocereus cometes*** **(Schweidw.) Byles & Rowl.** *15964*
- *21424* Mexico *21424*
- K *15964* Mexico - San Luis Potosi *12787*

? II ***Pilosocereus polygonus*** *15964*
- E *21408* Cuba (Haiti, Saint Domingue) *21408*
- ? Dominican Republic *15964*
- ? Haiti *15964*

? II ***Pilosocereus royenii*** **(L.) Byles & Rowley** *20883, 15964*
- ? Anguilla *8767*
- I *20883* Antigua & Barbuda *20883*
- ? Bahamas *15964*
- ? Barbados *8767*
- ? Cayman Is. (Grand Cayman) *19712*
- ? Cuba *15964*

Magnoliopsida (dicots): Cactaceae: *Pilosocereus*

? Dominica *8767*
? St Vincent & The Grenadines
? Guadeloupe (including La Désirade & Les Saintes) *8767*
? Grenada *8767*
? Jamaica *15964*
? Martinique *8767*
? Montserrat *8767*
20883 Netherlands Antilles *20883*
I *20883* Puerto Rico *20883*
? St Kitts - Nevis (Incl. Saba & St. Eustatius) *8767*
? St Lucia *8767*
? St Martin & St Barthelemy *8767*
? St Vincent *8767*
? Turks & Caicos Is. *8766*
I *20883* British Virgin Is. (Green Cay, Norman Is.) *20883*
I *20883* USA - Virgin Is. *20883*

? II ***Pseudorhipsalis himantoclada*** (Roland-Gosselin) Britt. & Rose *20883, 10747*
? Costa Rica *10747*
E *20883* Panama *20883*

? II ***Pseudorhipsalis ramulosa*** *15964*
Ex *15964* Haiti *15964*
? Jamaica *15964*
? Belize *15964*
? Costa Rica *15964*
? El Salvador *15964*
? Guatemala *15964*
? Honduras *15964*
? Mexico *15964*
? Nicaragua *15964*
? Bolivia *15964*
? Brazil *15964*
? Colombia *15964*
? Ecuador *15964*
? Peru *15964*
? Venezuela *15964*

? II ***Rhipsalis lumbricoides*** (Lem.) *20176*
E *20176* Argentina - Cordoba *20176* [distribution possibly incomplete]

? II ***Rhipsalis pentaptera*** *15964*
? Argentina *15964*
? Bolivia *15964*
I *21426* Brazil *21426*

? II ***Sclerocactus intertextus*** (Engelm.) N.P.Taylor *15964*
? U.S. - New Mexico *19002*
? U.S. - Texas *19002*
V *21424* Mexico *21424*
V *15964* Mexico - Chihuahua *15964*

? II ***Sclerocactus uncinatus*** (Gal.) N.P. Taylor *15964*
? U.S. - Texas *14662*
V *19850* Mexico *15964*

? II ***Selenicereus pteranthus*** (Link & Otto) Britton & Rose *10747*
? Mexico *10747*
V *16317* Panama *10747*

? II ***Selenicereus urbanianus*** *15964*
K *21408* Cuba (Haiti: Saint Domingue) *21408*
? Dominican Republic *15964*
? Haiti *15964*
I *19934* British Virgin Is. (Guana) *19934*

? II ***Thelocactus conothelos*** (Regel & Klein) Knuth var. ***conothelos*** *14281*
? *14281* Mexico - Nuevo Leon *14281*
R *14281* Mexico - San Luis Potosi *14281*
R *14281* Mexico - Tamaulipas *14281*

? I ***Turbinicarpus schmiedickeanus*** (Bödeker) F. Buxb. & Backeb. *21384*
I *21424* Mexico *21384*

? I ***Turbinicarpus subterraneus*** (Backeb.) A. Zimmerman *21384*
I *21424* Mexico *21384*

K I ***Turbinicarpus viereckii*** (Werdm.) John & Riha *15964*
21424 Mexico *21424*
K *20067* Mexico - Tamaulipas *14263*

? II ***Weberbauerocereus weberbaueri*** *15964*
R *15964* Chile *15964*
? Peru *15964*

? II ***Weberocereus biolleyi*** (A. Weber) Britton & Rose *14255*
R *14255* Costa Rica *14255*
? Nicaragua *15964*

? II ***Weberocereus glaber*** (Eichlam) Hunt var. ***mirandae*** (H. Bravo-Holl.) U. Eliasson *15964*
? Costa Rica
R *14253* Guatemala *14253*
R Mexico - Chiapas

? II ***Weberocereus panamensis*** Britt. & Rose *20883, 14255*
? Costa Rica *14255*
? Nicaragua *14255*
E *20883* Panama *20883*

Euphorbiaceae

Number of genera: 300
Number of species: 7,500
Recorded threatened species: 927 (12%)

Cosmopolitan, especially tropical and subtropical.

? II ***Euphorbia abyssinica*** Gmelin *15940*
V Ethiopia
? Kenya *20057*
V *17672* Somalia *17672*
V *17672* Sudan *17672*
? Zimbabwe *15940*

? II ***Euphorbia alfredii*** W. Rauh *19976*
R *21418* Madagascar (Antsiranana (DS:21418)) *19976* [distribution possibly incomplete]

? II ***Euphorbia angularis*** Klotzsch *15926*
V *17672* India - Goa, Daman & Diu *15926*
? Mozambique (southern) *15926*

? II ***Euphorbia atoto*** Forster *15213*
? Indonesia - Java (Ujung Kulon) *15213*
R *20099* Singapore *20099*
? Pacific Is. *21391* [distribution possibly incomplete]

? II ***Euphorbia borenensis*** M.G. Gilbert *20057*
? Ethiopia *19976*
I *21416* Kenya *20057* [distribution possibly incomplete]

? II ***Euphorbia cameronii*** N.E. Br. *17672*
? Djibouti *19035*
E *17672* Somalia *17672*

K II ***Euphorbia corymbosa*** N.E.Br. *20604, 17672*
R *17672* South Africa *17672*
K *20604* South Africa - Cape Province *20604*

? II ***Euphorbia dendroides*** L. *16168, 20171*
R *20178* Albania *20178*
? Greece *16168*
? Spain *16168*
V *16168* Egypt (Marmarica district) *16168*
R *20618* Turkey *20618* [distribution incomplete]

? II ***Euphorbia gariepina*** Boiss. ssp. ***balsamea*** (Welw.) Leach *17672*
- I Angola
- ? Namibia

? II ***Euphorbia guerichiana*** Pax *17672*
- I *21420* Zimbabwe *21420*
- ? Namibia
- ? South Africa

? II ***Euphorbia hottentota*** Marloth *20604, 15926*
- ? Namibia *15926*
- R *20604* South Africa - Cape Province *20604*

? II ***Euphorbia kaokoensis*** (A.C.White, R.A.Dyer & B.Sloane) L.C.Leach *20604, 20064*
- R *20604* Namibia *20604*

K II ***Euphorbia keithii*** R.A.Dyer *20604, 15926*
- E *20604* Swaziland *20604*

? II ***Euphorbia khandallensis*** Blatter & Hallberg *21391*
- ? India *21391*
- *21421* India - Maharashtra (restricted to small area in Khandala and Lonavala) *21421*

K II ***Euphorbia knobelii*** Letty *20604, 15922*
- K *20604* Swaziland *20604*
- R *20604* South Africa - Transvaal *20604*

? II ***Euphorbia lavrani*** L.C.Leach *20604, 20064*
- R *20604* Namibia *20604* [distribution possibly incomplete]

? II ***Euphorbia lividiflora*** L.C.Leach *19525, 20556*
- ? Malawi *19525*
- V *17672* Mozambique *19525*
- R *17672* Tanzania (Mikindani) *19525*
- V *21420* Zimbabwe *6088*

? II ***Euphorbia longituberculosa*** Boiss. *21391, 15926*
- K *20146* Oman (Dhofar) *20146*
- R *17672* Saudi Arabia *15926*
- ? Yemen, Democratic *20146*
- ? Ethiopia *15926*
- R Kenya *15926*
- V *17672* Somalia *15926*

? II ***Euphorbia magnicapsula*** S. Carter var. ***lacertosa*** S.Carter *20556*
- ? Kenya *20556*
- I *20733* Uganda *20556*

? II ***Euphorbia namuskluftensis*** L.C.Leach *20604, 20064*
- R *20604* Namibia *20604* [distribution possibly incomplete]

? II ***Euphorbia otjipembana*** L.C.Leach *20604, 17672*
- R *20604* Namibia *20604* [distribution possibly incomplete]

? II ***Euphorbia paganorum*** A. Chev. *17672*
- ? Burkina Faso *17672*
- R *17672* Mali *17672*
- ? Nigeria *17672*
- ? Senegal *17672*

K II ***Euphorbia pentops*** A.C.White, R.A.Dyer & B.Sloane *20604, 15932*
- I *15932* South Africa (little Namaqualand) *15932*
- K *20604* South Africa - Cape Province *20604*

? II ***Euphorbia pyrifolia*** Lam. *17672*
- ? Reunion *17672*
- K *10368* Madagascar *17672*
- R *17672* Mauritius *10936*
- R *19182* Seychelles (granitic) *14296*
- R *19182* Seychelles - Coralline Is. *17672* [distribution possibly incomplete]

? II ***Euphorbia ramulosa*** Leach *17672*
- R *17672* Mozambique *17672*

? II ***Euphorbia rugosiflora*** Leach *20064*
- I *21420* Zimbabwe *19976* [distribution possibly incomplete]

? II ***Euphorbia sapinii*** De Wild. *17672*
- R *17672* Cameroon *17672*
- ? Central African Republic *17672*
- I *17672* DR of Congo *17672*

? II ***Euphorbia septentrionalis*** Bally & S. Carter *17672*
- ? Ethiopia *17672*
- V *17672* Kenya *17672*

? II ***Euphorbia sereti*** De Wild. ssp. ***variantissima*** Leach *17672*
- V *17672* Zambia *17672* [distribution possibly incomplete]

? II ***Euphorbia taruensis*** S. Carter *20064*
- I *21416* Kenya *19976* [distribution possibly incomplete]

? I ***Euphorbia tulearensis*** (Rauh) Rauh *21391 15658*
- E *17672* Madagascar *17672*

? II ***Euphorbia venenifica*** Trem. ex Kotschy *17672*
- ? Ethiopia (Benishangul) *20924*
- ? Sudan *17672*
- R *19007* Uganda (R) *17672*

? II ***Euphorbia versicolores*** G.Williamson *21391*
- R *21419* South Africa *21391*

K II ***Euphorbia woodii*** N.E.Br. *20604, 15013*
- V *17672* South Africa *17672*
- K *20604* South Africa - Cape Province *20604*
- R *20604* South Africa - Natal *20604*

Orchidaceae

Number of genera:	800	
Number of species:	25,000-35,000	
Recorded threatened species:	1779	(5%)

Cosmopolitan.

? II ***Vanilla pleei*** *21425*
- V *21425* Martinique *21425*

? II ***Vanilla rubra*** *21425*
- V *21425* Haiti *21425*

Portulacaceae

Number of genera:	20	
Number of species:	500	
Recorded threatened species:	52	(10%)

Cosmopolitan, especially western North America and Andes.

? II ***Anacampseros bayeriana*** S.A.Hammer *20604, 20306*
- R *20604* Namibia *20604*
- R *20604* South Africa - Cape Province *20604*

? II ***Anacampseros filamentosa*** (Haw.) Sims ssp. ***tomentosa*** (A.Berger) *21419*
- R *21419* Southern Africa *21419*

? II ***Lewisia cotyledon*** (S.Watson) Robinson var. ***purdyi*** Jepson
- ? *19002* U.S. - California *19002*
- I *19002* U.S. - Oregon *19002*

1058 **Hunt, D.R. (1982).** The conservation status of Mexican mammillarias: a preliminary assessment. *Cact. Succ. J.*(U.K.) 44(4):87-88.

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5642 **Jiménez, J.J. (1978).** Lista tentativa de plantas de la República Dominicana que deben protegerse para evitar su extinción. Santo Domingo: Coloquio Internacional sobre la practica de la conservación. CIBIMA/UASD. Lists 133 species of threatened flowering plants, of which 49 are endemic.

5908 **Wickens, G.E. (1979).** Sudan. Part of Appendix to: Possibilities and needs for conservation of plant species and vegetation in Africa. pp. 85-88 *In* Hedberg, I. (ed.). Systematic botany, plant utilization and biosphere conservation. Stockholm: Almqvist & Wiksell International. Contains 258 species and infraspecific taxa.

5914 **Kemp, E.S. (1979).** Swaziland. Part of appendix to: Possibilities and needs for conservation of plant species and vegetation in Africa. pp. 101-103 *In* Hedberg. I. (ed.). Systematic botany, plant utilization and biosphere conservation. Stockholm. Almqvist & Wiksell International. Stockholm: Almqvist & Wiksell International. Contains 155 species and infraspecific taxa: E:2, V:16, R:137.

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6072 **Hall, J.B. (1979).** Ghana. Part of appendix to: Possibilities and needs for conservation of plant species and vegetation in Africa. pp. 88-91 *In* Hedberg. I. (ed.). Systematic botany, plant utilization and biosphere conservation. Stockholm: Almqvist and Wiksell. Contains 210 species and infraspecific taxa.

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6088 **Wild, H. & Müller, T. (1979).** Rhodesia. Part of appendix to: Possibilities and needs for conservation of plant species and vegetation in Africa. pp. 99-100 *In* Hedberg, I. (ed.). Systematic botany, plant utilization and biosphere conservation. Stockholm: Almqvist & Wiksell International. Contains 84 species and infraspecific taxa: E:18, V:26, R:40.

7731 **Hara, H., Stearn, W.T., & Williams, L.H.J. (1978-1982).** An enumeration of the flowering plants of Nepal. London. British Museum (Natural History). 3 vols.

7754 **Wild, H. (1964).** The endemic species of the Chimanimani Mountains and their significance. *Kirkia* 4:125-157. lists species endemic to Mozambique and Zimbabwe, with appendix of species endemic on Mount Mulanje, Nyasaland (Malawi).

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9114 **Vovides, A.P. (1986).** Relación de plantas Mexicanas raras o en peligro de extinción. 7 pp. Veracruz: INIREB.

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and checklist. Part 2: Index of 7345 species.

10936 **Strahm, W. (1987).** Annotations to: Full list of species in the WCMC database for Mauritius and Rodrigues.

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16826 **Stevens, W.D. (no date).** Flora de Nicaragua (in preparation).

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18341 **Balakrishna, P. (1993).** Annotations to WCMC printout entitled "Unresolved India - 534 records". Includes letter to Kerry S. Walter dated 9 Aug 1993 and annotations to list dated 21 Sep 93.

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19007 **Katende, A.B. (1993).** Annotations to: TPU conservation status report for Uganda dated 29 Jun 1993 Attached to letter from Derek Pomeroy to Kerry S. Walter. Includes additional taxa to add to TPU database

19034 **Hoffmann, A.E. (1989).** Cactaceas. En la flora silvestre de Chile. Una guia para la identificacion de los cactos que crecen en el país. Santiago, Chile: Ediciones Fundación Claudio Gay. 272 pp.

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19182 **Friedmann, F. (1991).** Annotations to Threatened Plant Unit printout for the Seychelles (granitic islands) dated 12 Sep 1991. 6 pp.

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20212 **Bruyns, P.V. (1989).** The genus *Ceropegia* in Arabia. *Notes Roy. Bot. Gard. Edinburgh* 45:287-326.

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21419 **Hilton-Taylor, C. (1997).** Threatened succulents recorded for the flora of southern Africa (FSA) region. pp. 179-184 in Status Survey and Conservation Action Plan: Cactus and Succulent Plants (Comp. S.Oldfield).

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21421 **Babu, C.R., Singh, M., & Karthikeyan, S. (1997).** Threatened succulents of India. pp. 186-188 in Status Survey and Conservation Action Plan: Cactus and Succulent Plants (Comp. S.Oldfield).

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Annex T. Non-CITES Listed Globally Threatened Succulent Plants

Agavaceae

Number of genera: 18
Number of species: 350-410
Recorded threatened species: 68 (17%)

Warm, mostly arid regions of New and Old Worlds; a few in distinctly temperate climates.

E ***Agave acicularis*** **Trel.** *11840*
E *21425* Cuba (Cienfuegos) *11840*

I ***Agave acklinicola*** **Trel.**
V *21425* Bahamas (Acklin Islands (DS:21425)) *19889*

R ***Agave angustifolia*** **Haw. var.** ***nivea*** **(Trel.) Gentry** *19889*
R *19753* Guatemala *19889*

V ***Agave bracteosa*** **Watson** *19848*
V *19848* Mexico - Nuevo Leon *19889*

I ***Agave cacozela*** **Trel.**
V *21425* Bahamas *19889*

V ***Agave chrysantha*** **Peebles** *20850*
I *20850* U.S. - Arizona *20850*

R ***Agave congesta*** **H.S. Gentry** *19788*
R *19850* Mexico - Chiapas *19788*

V ***Agave dasylirioides*** **Jacobi & Bouche** *19850*
V *19850* Mexico - Morelos *19889*

V ***Agave delamateri*** *19002*
V *19002* U.S. - Arizona *19002*

V ***Agave eggersiana*** **Trel.** *20883, 15106*
I *20883* USA - Virgin Is. (St Croix, St Thomas) *20883*

R ***Agave glomerulifera*** **Engelm.** *19002*
R *19002* U.S. - Texas *19002*

V ***Agave glomeruliflora*** **(Engelm.) Berger** *20883, 20850, 19889*
V *20850* U.S. - Texas *20850*
E *20883* Mexico *20883*
? Mexico - Coahuila *19889*

E ***Agave grisea*** **Trel.** *11840*
E *21425* Cuba (Cienfuegos) *11840*

V ***Agave guiengola*** **H.S. Gentry** *9079*
V *19848* Mexico - Oaxaca *19889*

R ***Agave harrisii*** **Trelease** *20883*
R *20883* Jamaica *20883*

I ***Agave havardiana*** **Trel.** *19002*
I *19002* U.S. - Texas *19002*

V ***Agave impressa*** **H.S. Gentry** *19850*
V *19848* Mexico - Sinaloa *19889*

I ***Agave indagatorum*** **Trel.**
I *4650* Bahamas *19889*

E ***Agave intermixta*** **Trel.** *5642*
E Dominican Republic (Santiago) *19889*

R ***Agave kewensis*** **Jacobi** *19788*
R *19850* Mexico - Chiapas *19788*

R ***Agave lagunae*** **Trel.** *9004*
R *19753* Guatemala *9004*

R ***Agave longipes*** **Trelease** *20883, 13336*
V *21425* Jamaica *20883*

E ***Agave lurida*** **Ait.** *19850*
E *19848* Mexico - Oaxaca *19889*

I ***Agave millspaughii*** **Trel.**
V *21425* Bahamas *19889*

V ***Agave murpheyi*** **F. Gibson** *20883, 20850, 19889*
V *20850* U.S. - Arizona *20850*
E *20883* Mexico *20883*

I ***Agave nashii*** **Trel.**
I *4650* Bahamas *19889*

V ***Agave neglecta*** **Small** *20850, 19889*
I *20850* U.S. - Florida *20850*

E ***Agave nizandensis*** **Cutak** *19850*
E *19848* Mexico - Oaxaca *19889*

E ***Agave papyrocarpa*** **Trel.** *11840*
E *19105* Cuba (Isla de la Juventud) *11840*

R ***Agave parrasana*** **Berger** *19889*
R *19848* Mexico - Coahuila *19889*

R ***Agave parviflora*** **Torr.** *20883, 20850*
V *20850* U.S. - Arizona *20850*
I *20883* Mexico *20883*

R ***Agave peacockii*** **Croucher** *19850*
R *19848* Mexico - Puebla (Tehuacán) *19889*

E ***Agave schottii*** **Engelm. var.** ***treleasei*** **(Toumey) Kearney & Peebles** *20850, 19889*
E *20850* U.S. - Arizona *20850*

R ***Agave shawii*** **Engelm.** *20850*
E *20850* U.S. - California *20850*

R ***Agave tecta*** **Trel.** *9004*
R *19753* Guatemala *9004*

R ***Agave thomasae*** **Trel.** *9004*
R *19753* Guatemala *9004*

R ***Agave titanota*** **H.S. Gentry** *19850*
R *19850* Mexico - Oaxaca *19889*

R ***Agave utahensis*** **Engelm.** *20850*
R *20850* U.S. - Arizona *20850*
V *20850* U.S. - California *20850*
R *20850* U.S. - Nevada *20850*
V *20850* U.S. - Utah *20850*

V ***Agave utahensis*** **Engelm. var.** ***eborispina*** **(Hester) Breitung** *20850*
V *20850* U.S. - California *20850*
V *20850* U.S. - Nevada *20850*

I ***Agave utahensis*** **(McKelvey) Breitung var.** ***kaibabensis*** *19002*
I *19002* U.S. - Arizona *19002*

R ***Agave utahensis*** **Engelm. var.** ***nevadensis*** **Engelm. ex Greenman & Roush** *20850*
R *20850* U.S. - California *20850*
R *20850* U.S. - Nevada *20850*

R ***Agave vizcainoensis*** **H.S. Gentry** *19889*
R *19848* Mexico - Baja California Sur *19889*

E ***Agave wercklei*** **Weber ex Werckle** *19788*
E *9426* Costa Rica *9037*

R ***Beschorneria albiflora*** **Matuda** *9054*
R *19850* Mexico *9054*

R ***Beschorneria albiflora*** **Matuda** *21414*

R ***Beschorneria calcicola*** **A. Garcia-Mendoza** *19850*
R *19850* Mexico *19850*

R ***Beschorneria wrightii*** **Hook. f.** *19850*
R *19850* Mexico *19850*

Liliopsida (monocots): Agavaceae: *Beschorneria*

R *Cordyline congesta* (Sweet) Steudel *20681*
I *20681* Australia - New South Wales *20681*
I *20681* Australia - Queensland *20681*

R *Cordyline obtecta* Baker *19108*
R *19108* Australia - Norfolk Is. *14288*

V *Furcraea bedinghausii* K. Koch *9055*
V *19850* Mexico *9055*

I *Furcraea macdougallii* Matuda *19850*
I *19850* Mexico *19850*

R *Furcraea stratiotes* Boye Petersen *19788*
R *16826* Nicaragua *19788*

R *Hesperaloe funifera* (K. Koch) Trel. *20850*
E *20850* U.S. - Texas *20850*

R *Manfreda guerrerensis* Matuda *19850*
R *19850* Mexico *19850*

V *Manfreda longiflora* (Rose) Verhoek-Williams *20850*
V *20850* U.S. - Texas *20850*
V *19850* Mexico *19850*

I *Manfreda maculosa* (Hook.) Rose *19002*
I *19002* U.S. - Texas *19002*

V *Manfreda nanchititlensis* Matuda *9054*
V *19850* Mexico *9054*

R *Manfreda planifolia* (Watson) Rose *19850*
R *19850* Mexico *19850*

R *Manfreda potosina* (Rob. & Greenman) Rose *19850*
R *19850* Mexico *19850*

R *Polianthes densiflora* (B.L. Robinson & Fern.) Shiners *19850*
R *19850* Mexico *19850*

R *Polianthes howardii* S. Verhoek *19850*
R *19850* Mexico *19850*

R *Polianthes longiflora* Rose *19850*
R *19850* Mexico *19850*

R *Polianthes palustris* Rose *19850*
R *19850* Mexico *19850*

R *Polianthes platyphylla* Rose *19850*
R *19850* Mexico *19850*

R *Polianthes runyonii* Shinn. *19002*
R *19002* U.S. - Texas *19002*

E *Yucca angustissima* (Welsh) Reveal var. *toftiae* (Welsh) Reveal *20850*
E *20850* U.S. - Utah *20850*

I *Yucca campestris* McKelvey *19002*
I *19002* U.S. - Texas *19002*

R *Yucca endlichiana* Trel. *9055*
R *19850* Mexico *9055*

R *Yucca glauca* Nutt. var. *glauca* *13153*
E *13967* Canada - Alberta *13967*
R *13967* U.S. - Missouri *13967*

R *Yucca grandiflora* Gentry *19850*
R *19850* Mexico *19850*

V *Yucca jaliscensis* Trel. *9055*
V *21204* Mexico - Jalisco *21204*
V *21204* Mexico - Nayarit *21204*

V *Yucca lacandonica* Gómez Pompa & Valdes *9057*
V *9425* Mexico *9057*

R *Yucca madrensis* H. Gentry *9055*
R *21222* Mexico - Sonora *21222*

E *Yucca necopina* Shinners *20850*
E *20850* U.S. - Texas *20850*

R *Yucca pallida* McKelvey *20850*
R *20850* U.S. - Texas *20850*

R *Yucca reverchonii* Trel. *20850*
R *20850* U.S. - Texas *20850*

I *Yucca rostrata* Engelm. ex Trel. *19002*
I *19002* U.S. - Texas *19002*

E *Yucca tenuistyla* Trel. *20850*
E *20850* U.S. - Texas *20850*

V *Yucca toftiae* Welsh *19002*
V *19002* U.S. - Utah *19002*

Aizoaceae

Number of genera:	12-128	
Number of species:	2,500	
Recorded threatened species:	163	(6%)

South Africa; Australia.

R *Aizoon kochii* Wagner
R Australia - South Australia

R *Caryotophora skiatophytoides* Leistner *20604*
R *20604* South Africa - Cape Province *20604*

R *Conophytum auriflorum* Tischer ssp. *auriflorum* *20604*
R *20604* South Africa - Cape Province *20604*

R *Conophytum ernstii* S.A.Hammer ssp. *ernstii* *20604*
R *20604* South Africa - Cape Province *20604*

R *Conophytum herreanthus* S.A.Hammer ssp. *herreanthus* *20604*
R *20604* Namibia *20604*
E *20604* South Africa - Cape Province *20604*

R *Conophytum klinghardtense* Rawe ssp. *baradii* (Rawe) S.A.Hammer *20604*
R *20604* Namibia *20604*

R *Conophytum ricardianum* Loesch & Tischer ssp. *ricardianum* *20604*
R *20604* Mozambique *20604*

Ex *Conophytum ricardianum* Loesch & Tischer ssp. *rubriflorum* Tischer *20604*
Ex *20604* Namibia *20604*

R *Conophytum rugosum* S.A.Hammer ssp. *rugosum* *20604*
R *20604* South Africa - Cape Province *20604*

E *Conophytum smorenskaduense* De Boer ssp. *hermarium* S.A.Hammer *20604*
E *20604* South Africa - Cape Province *20604*

R *Conophytum swanepoelianum* Rawe ssp. *swanepoelianum* *20604*
R *20604* South Africa - Cape Province *20604*

R *Conophytum taylorianum* (Dinter & Schwantes) N.E.Br. ssp. *tayloricnum* *20604*
R *20604* Namibia *20604*

V *Conophytum uviforme* (Haw.) N.E.Br. ssp. *subincanum* (Tischer) S.A.Hammer *20604*
V *20604* South Africa - Cape Province *20604*

R *Conophytum velutinum* Schwantes ssp. *velutinum* *20604*

Magnoliopsida (dicots): Aizoaceae: ***Conophytum***

R *20604* South Africa - Cape Province *20604*

I ***Delosperma abyssinicum*** (Regel) Schwantes *21416*

R ***Delosperma oehleri*** (Engl.) Herre *19498*

R *5926* Tanzania (Masai district) *5926*

I ***Delosperma steytlerae*** L. Bolus *7749*

I Zimbabwe *7749*

V ***Didymaotus lapidiformis*** (Marloth) N.E.Br. *20604*

V *20604* South Africa - Cape Province *20604*

R ***Dinteranthus microspermus*** (Dinter & Derenb.) Schwantes ssp. ***microspermus*** *20604*

R *20604* Namibia *20604*

V ***Dinteranthus vanzylii*** (L.Bolus) Schwantes *20604*

V *20604* South Africa - Cape Province *20604*

R ***Dinteranthus wilmotianus*** L. Bolus ssp. ***impunctatus*** N. Sauer *20604*

R *20604* South Africa - Cape Province *20604*

E ***Diplosoma retroversum*** (Kensit) Schwantes *20604*

E *20604* South Africa - Cape Province *20604*

R ***Fenestraria rhopalophylla*** (Schltr. & Diels) N.E.Br ssp. ***aurantiaca*** (N.E.Br) H.E.H.Hartmann *20604*

R *20604* Namibia *20604*

R *20604* South Africa - Cape Province *20604*

R ***Frithia pulchra*** N.E.Br. var. ***pulchra*** *20604*

R *20803* South Africa - Transvaal *20604*

Ex ***Gibbaeum esterhuyseniae*** L.Bolus *20604, 3774*

Ex *20604* South Africa - Cape Province *20604*

E ***Hydrodea cryptantha*** (Hook.f.) N.E. Br. *18996*

E *18996* St Helena *18996*

R ***Lampranthus algoensis*** L.Bolus *20604*

R *20604* South Africa - Cape Province *20604*

R ***Lampranthus fugitans*** L.Bolus *20604*

R *20604* South Africa - Cape Province (Transkei) *20604*

K *20604* South Africa - Natal *20604*

R ***Lampranthus rustii*** (A.Berger) N.E.Br. *20604*

R *20604* South Africa - Cape Province *20604*

R ***Lithops aucampiae*** L.Bolus ssp. ***euniciae*** (De Boer) D.T.Cole var. ***euniciae*** *20604*

R *20604* South Africa - Cape Province *20604*

R ***Lithops aucampiae*** L.Bolus ssp. ***euniciae*** (De Boer) D.T.Cole var. ***fluminalis*** D.T.Cole *20604*

R *20604* South Africa - Cape Province *20604*

I ***Lithops bromfieldii*** L.Bolus var. ***glaudinae*** (De Boer) D.T.Cole *20604*

I *20604* South Africa - Cape Province *20604*

E ***Lithops comptonii*** L. Bolus var. ***comptonii*** *20604*

E *20604* South Africa - Cape Province *20604*

R ***Lithops comptonii*** L.Bolus var. ***weberi*** (L.Bolus) B.Fearn *20604*

R *20604* South Africa - Cape Province *20604*

I ***Lithops divergens*** L. Bolus var. ***amethystina*** De Boer *20604*

I *20604* South Africa - Cape Province *20604*

V ***Lithops divergens*** L. Bolus var. ***divergens*** *20604*

V *20604* South Africa - Cape Province *20604*

R ***Lithops fulviceps*** (N.E.Br.) N.E.Br. var. ***lactinea*** D.T.Cole *20604*

R *20604* Namibia *20604*

I ***Lithops gesineae*** De Boer var. ***annae*** (De Boer) D.T.Cole *20604*

I *20604* Namibia *20604*

E ***Lithops gesineae*** De Boer var. ***gesineae*** *20604*

E *20604* Namibia *20604*

R ***Lithops gracilidelineata*** Dinter ssp. ***brandbergensis*** (De Boer) D.T.Cole *20604*

R *20604* Namibia *20604*

R ***Lithops hookeri*** (A.Berger) Schwantes var. ***susannae*** (D.T.Cole) D.T.Cole *20604*

R *20604* South Africa - Cape Province *20604*

R ***Lithops lesliei*** (N.E.Br.) N.E.Br. ssp. ***burchellii*** D.T.Cole *20604*

R *20604* Lesotho *20604*

R ***Lithops olivacea*** L.Bolus var. ***nebrownii*** D.T.Cole *20604*

R *20604* South Africa - Cape Province *20604*

R ***Lithops pseudotruncatella*** (A.Berger) N.E.Br. ssp. ***pseudotruncatella*** var. ***elisabethae*** (Dinter) de Boer & Boom *20604*

R *20604* Namibia *20604*

R ***Lithops pseudotruncatella*** (A.Berger) N.E.Br. ssp. ***pseudotruncatella*** var. ***riehmerae*** D.T.Cole *20604*

R *20604* Namibia *20604*

R ***Lithops pseudotruncatella*** (A.Berger) N.E.Br. ssp. ***volkii*** (Schwantes ex de Boer & Boom) D.T.Cole *20604*

R *20604* Namibia *20604*

V ***Lithops salicola*** N.E.Br. *20604*

V *20604* South Africa - Cape Province *20604*

V *20604* South Africa - Orange Free State *20604*

R ***Lithops schwantesii*** Dinter ssp. ***schwantessi*** var. ***rugosa*** (Dinter) de Boer & Boom *20604*

R *20604* Namibia *20604*

I ***Maughaniella luckhoffii*** (L. Bolus) L. Bolus *20604*

I Southern Africa

E ***Mesembryanthemum gaussenii*** Leredde *10488*

E *14958* Algeria *10488*

R ***Mossia intervallaris*** (L.Bolus) N.E.Br. *20604*

R *20604* South Africa - Transvaal *20604*

E ***Muiria hortenseae*** N.E.Br. *20604*

E *20604* South Africa - Cape Province *20604*

I ***Nelia pillansii*** (N.E.Br.) Schwantes *20604*

I *20604* South Africa - Cape Province *20604*

R ***Nelia schlechteri*** Schwantes *20604*

R *20604* South Africa - Cape Province *20604*

R ***Ophthalmophyllum villetii*** L.Bolus *20604*

R *20604* South Africa - Cape Province *20604*

R ***Pleiospilos compactus*** (Aiton) Schwantes ssp. ***minor*** (L.Bolus) H.E.K.Hartmann & Leide *20604*

R *20604* South Africa - Cape Province *20604*

I ***Rabiea jamesii*** (L.Bolus) L.Bolus *20604*

I *20604* South Africa - Cape Province *20604*

E ***Ruschia leipoldtii*** L.Bolus *20604*

E *20604* South Africa - Cape Province *20604*

E ***Saphesia flaccida*** (Jacq.) N.E.Br. *20604*

E *20604* South Africa - Cape Province *20604*

I ***Schwantesia acutipetala*** L.Bolus *20604*

I *20604* South Africa - Cape Province *20604*

Magnoliopsida (dicots): Aizoaceae: *Schwantesia*

I ***Schwantesia triebneri*** **L.Bolus** *20604*
I *20604* South Africa - Cape Province *20604*

R ***Sesuvium ayresii*** **Marais** *10082*
R *5852* Mauritius *10082*
R *5852* Mauritius - Rodrigues *5852*

E ***Sesuvium trianthemoides*** **Correll** *20850, 14662*
E *20850* U.S. - Texas *20850*

I ***Stomatium geoffreyi*** **L.Bolus** *20604*
I *20604* South Africa - Cape Province *20604*

I ***Stomatium ronaldii*** **L.Bolus** *20604*
I *20604* South Africa - Cape Province *20604*

R ***Trichodiadema burgeri*** **L.Bolus** *20604*
R *20604* South Africa - Cape Province *20604*

R ***Trichodiadema hallii*** **L.Bolus** *20604*
R *20604* South Africa - Cape Province *20604*

I ***Trichodiadema obliquum*** **L.Bolus** *20604*
I *20604* South Africa - Cape Province *20604*

I ***Trichodiadema peersii*** **L.Bolus** *20604*
I *20604* South Africa - Cape Province *20604*

R ***Trichodiadema pygmaeum*** **L.Bolus** *20604*
R *20604* South Africa - Cape Province *20604*

I ***Trichodiadema rogersiae*** **L.Bolus** *20604*
I *20604* South Africa - Cape Province *20604*

I ***Trichodiadema rupicolum*** **L.Bolus** *20604*
I *20604* South Africa - Cape Province *20604*

Aloaceae

Number of genera:	5	
Number of species:	700	
Recorded threatened species:	206	(29%)

Arabia, Africa, Madagascar.

E ***Gasteria baylissiana*** **Rauh** *20604, 19170*
E *19170* South Africa (four plants at one site) *19170*
E *20604* South Africa - Cape Province *20604*

R ***Gasteria bicolor*** **Haw. var.** ***liliputana*** **(Poelln.)** *20604*
R *20604* South Africa - Cape Province *20604*

V ***Haworthia archeri*** **W.F.Barker ex M.B.Bayer var.** ***archeri*** *20604*
V *20604* South Africa - Cape Province *20604*

E ***Haworthia archeri*** **W.F.Barker ex M.B.Bayer var.** ***dimorpha*** **M.B.Bayer** *20604*
E *20604* South Africa - Cape Province *20604*

R ***Haworthia blackburniae*** **W.F.Barker** *20604*
R *20604* South Africa - Cape Province *20604*

V ***Haworthia emelyae*** **Poelln. var.** ***emelyae*** *20604*
V *20604* South Africa - Cape Province *20604*

E ***Haworthia emelyae*** **Poelln. var.** ***multifolia*** **M.B.Bayer** *20604*
E *20604* South Africa - Cape Province *20604*

V ***Haworthia koelmaniorum*** **Oberm. & D.S.Hardy** *20604*
V *20604* South Africa - Transvaal *20604*

V ***Haworthia limifolia*** **Marloth var.** ***gigantea*** **M.B.Bayer** *20604*
V *20604* South Africa - Natal *20604*

I ***Haworthia limifolia*** **Marloth var.** ***ubomboensis*** **(Verdoorn) G.G. Sm.** *20039*
I *20039* Swaziland *20039*

E ***Haworthia magnifica*** **Poelln. var.** ***major*** **(G.G.Sm.) M.B.Bayer** *20604*
E *20604* South Africa - Cape Province *20604*

E ***Haworthia magnifica*** **Poelln. var.** ***ubomboensis*** **(I.Verd.) G.G.Sm.** *20604*
E *20604* South Africa - Cape Province *20604*

E ***Haworthia marginata*** **(Lam.) Stearn** *20604*
E *20604* South Africa - Cape Province *20604*

V ***Haworthia maughanii*** **Poelln.** *20604*
V *20604* South Africa - Cape Province *20604*

E ***Haworthia mirabilis*** **(Haw.) Haw. ssp.** ***badia*** **(Poelln.) M.B.Bayer** *20604*
E *20604* South Africa - Cape Province *20604*

E ***Haworthia mirabilis*** **(Haw.) Haw. ssp.** ***mundula*** **(G.G.Sm.) M.B.Bayer** *20604*
E *20604* South Africa - Cape Province *20604*

V ***Haworthia nortieri*** **G.G.Sm. var.** ***globosiflora*** **(G.G.Sm.) M.B.Bayer** *20604*
V *20604* South Africa - Cape Province *20604*

E ***Haworthia retusa*** **(L.) Duval var.** ***dekanahii*** **(G.G.Sm.) M.B.Bayer** *20604*
E *20604* South Africa - Cape Province *20604*

I ***Haworthia rubriflora*** **(L. Bolus) C.A.E. Parr** *20604*
I Southern Africa

V ***Haworthia springbokvlakensis*** **C.L.Scott** *20604*
V *20604* South Africa - Cape Province *20604*

E ***Haworthia starkiana*** **Poelln. var.** ***lateganiae*** **(Poelln.) M.B.Bayer** *20604, 20604*
E *20604* South Africa - Cape Province *20604*

V ***Haworthia truncata*** **Schönland** *20604*
V *20604* South Africa - Cape Province *20604*

R ***Lomatophyllum antsingyense*** **Leandri** *10368*
R *20578* Madagascar (Mahajunga) *20578*

R ***Lomatophyllum belavenokense*** **Rauh & R. Gerold** *20578*
R *20578* Madagascar (Toliara) *20578*
[distribution possibly incomplete]

E ***Lomatophyllum lomatophylloides*** **(Balf.f.) Marais** *10082*
E *5852* Mauritius - Rodrigues (Grande Mt) *5852*

V ***Lomatophyllum macrum*** **(Haw.) Salm-Dyck** *14234*
V *14234* Réunion *14234*

R ***Lomatophyllum occidentale*** **H. Perrier** *10368*
R *20578* Madagascar (Mahajunga) *20578*

R ***Lomatophyllum orientale*** **H. Perrier** *10368*
R *20578* Madagascar (Fianarantsoa) *20578*

R ***Lomatophyllum prostratum*** **H. Perrier** *10368*
R *20578* Madagascar (Mahajunga) *20578*

V ***Lomatophyllum purpureum*** **(Lam.) T. Durand & Schinz** *10082*
V *20771* Mauritius *10082*

R ***Lomatophyllum roseum*** **H. Perrier** *10368*
R *20578* Madagascar (Mahajunga) *20578*

R ***Lomatophyllum sociale*** **H. Perrier** *10368*
R *20578* Madagascar (Mahajunga) *20578*

E ***Lomatophyllum tormentorii*** **Marais** *10082*
E *20771* Mauritius (Round I & Gunner's Quoin) *10936*

Liliopsida (monocots): Aloaceae: *Lomatophyllum*

R *Lomatophyllum viviparum* H. Perrier *10368*
R *20578* Madagascar (Antsiranana) *20578*

Asclepiadaceae

Number of genera: 250-315
Number of species: 2,000
Recorded threatened species: 420 (21%)

Tropical and subtropical, especially Africa, with relatively few species in temperate regions.

R *Asclepias leptophis* *21424*
Mexico *21424*

R *Brachystelma alpinum* R.A.Dyer *20604*
I *20604* Lesotho *20604*
[distribution possibly incomplete]

R *Brachystelma arenarium* S. Moore *21415*

R *Brachystelma asmarensis* Chiov. *6087*
R *6087* Ethiopia *6087*

R *Brachystelma attenuatum* (Wight) Hook. *21415*

R *Brachystelma australe* R.A.Dyer *20604*
I *20604* South Africa - Cape Province *20604*
I *20604* South Africa - Natal *20604*

R *Brachystelma blepharanthera* Huber *21415*

I *Brachystelma bournea* Gamble
I India - Tamil Nadu (Madurai)

R *Brachystelma brevipedicellatum* Turrill *21415*

I *Brachystelma brevitubulatum* (Bedd.) Gamble *21415*
21421 India - Tamil Nadu *21421*

R *Brachystelma buchananii* N.E.Br. *21415*

R *Brachystelma caffrum* (Schltr.) N.E.Br. *20604*
I *20604* South Africa - Cape Province *20604*

R *Brachystelma campanulatum* N.E.Br. *21415*

E *Brachystelma cathcartense* R.A.Dyer *20604*
I *20604* South Africa - Cape Province *20604*

R *Brachystelma caudatum* (Thunb.) N.E.Br. *21415*

R *Brachystelma chlorozonum* E.A.Bruce *21415*

R *Brachystelma constrictum* J. Hall *6072*
R Chad (Bediol)
E *6072* Ghana *6072*

R *Brachystelma decipiens* N.E.Br. *21415*

I *Brachystelma delicatum* R.A.Dyer *20604*
I *20604* South Africa - Cape Province *20604*

I *Brachystelma dimorphum* R.A.Dyer ssp. *dimorphum* *20604*
I *20604* South Africa - Cape Province *20604*
I *20604* South Africa - Orange Free State *20604*

I *Brachystelma dimorphum* R.A.Dyer ssp. *gratum* R.A.Dyer *20604*
I *20604* South Africa - Orange Free State *20604*

R *Brachystelma edulis* Coll. & Hemsl. *21415*

R *Brachystelma elegantulum* S.Moore *21415*

R *Brachystelma elenanduensis* M.Char *21415*

E *Brachystelma elongatum* (Schltr.) N.E.Br. *21415*

E *Brachystelma exile* Bull. *21415*

R *Brachystelma festucifolium* E.A.Bruce *21415*

R *Brachystelma furcatum* Boele *21415*

E *Brachystelma gemmeum* R.A.Dyer *20604, 20039*
R *20039* Southern Africa *20039*
K *20604* Swaziland *20604*
R *20604* South Africa - Transvaal *20604*

R *Brachystelma gerrardii* Harv. *18023*
I *18023* Swaziland *18023*
[distribution incomplete]

R *Brachystelma glabriflorum* (F.Muell.) Schltr. *21415*

E *Brachystelma glabrum* Hook.f.
? India - Andhra Pradesh (Cuddapah Hills)

Ex *Brachystelma glenense* R.A.Dyer *20604*
I *20604* South Africa - Orange Free State *20604*

E *Brachystelma gracillimum* R.A.Dyer *20604*
R *20604* South Africa - Transvaal *20604*

R *Brachystelma huttonii* (Harv.) N.E.Br. *21415*

E *Brachystelma incanum* R.A.Dyer *20604*
I *20604* South Africa - Transvaal *20604*

E *Brachystelma keniense* Schweinf. *6073*
E *6073* Kenya *6073*

R *Brachystelma kerrii* Craib *21415*

R *Brachystelma laevigatum* (Wight) Hook.f. *21415*

R *Brachystelma lancasteri* Boele *21415*

R *Brachystelma lankana* Dassan. & Jayas. *8021*
I *16162* Sri Lanka (Dikpatana, Matale) *8021*

E *Brachystelma letestui* Peller. *21415*

I *Brachystelma linearis* A. Rich. *6087*
I *6087* Ethiopia *6087*

R *Brachystelma longifolium* (Schltr.) N.E.Br. *20604*
R *20604* South Africa - Transvaal *20604*

I *Brachystelma maculatum* Hook.f. *21415*
21421 India - Karnataka *21421*
21421 India - Tamil Nadu *21421*

R *Brachystelma medusanthemum* Lebrun & Stork *11751*
? Mali *11751*

R *Brachystelma merrillii* Schltr. *21415*

R *Brachystelma meyerianum* Schltr. *20604*
R *20604* South Africa - Cape Province *20604*

R *Brachystelma minor* E.A.Bruce *20604, 17458*
R *20604* South Africa - Transvaal *20604*

R *Brachystelma modestum* R.A.Dyer *21415*

E *Brachystelma montanum* R.A.Dyer *20604*
I *20604* South Africa - Cape Province *20604*

R *Brachystelma mortonii* Walker *21415*

I *Brachystelma occidentale* Schltr. *20604*
Ex *20604* South Africa - Cape Province *20604*

I *Brachystelma pachypodium* *17458*
? South Africa - Transvaal *17458*

I *Brachystelma parvulum* R.A.Dyer *20604, 17458*
I *20604* South Africa - Transvaal *20604*

E *Brachystelma praelongum* S. Moore *21415*

R *Brachystelma protsratum* E.A.Bruce *21415*

R *Brachystelma ramosissimum* (Schltr.)n.E.Br. *21415*

R *Brachystelma rangacharii* Gamble *21415*
21421 India (Coimbatore) *21421*

R *Brachystelma sandersonii* (Oliv.) N.E.Br. *21415*

E *Brachystelma schizoglossoides* (Schltr.) N.E.Br. *21415*

R *Brachystelma simplex* Schltr. *21415*

R *Brachystelma subaphyllum* K.Schum. *21415*

R *Brachystelma tavalla* K.Schum. *21415*

I *Brachystelma tenue* R.A.Dyer *20604*
I *20604* South Africa - Natal *20604*

R *Brachystelma thunbergii* N.E.Br. *21415*

R *Brachystelma tuberosum* R.Br. *21415*

Magnoliopsida (dicots): Asclepiadaceae: ***Brachystelma***

R ***Brachystelma villosum*** (Schltr.) N.E.Br. *21415*

Ex ***Caralluma arenicola*** N.E. Brown *6180*
Ex *6180* South Africa - Cape Province *6180*

V ***Caralluma aucheriana*** (Decne) N.E. Br. *20146*
V *20146* Oman (northern) *20146*

R ***Caralluma baradii*** Lavranos *21415*

R ***Caralluma beviloba*** (P.R.O.Bally) M.G.Gilbert *21415*

R ***Caralluma bhupinderana*** Sarkaria *21415*

V ***Caralluma burchardii*** N.E. Brown *17891*
V *21413* Morocco *21413*
V *15105* Spain - Canary Is. (Confined to lanzarote and fuerteventura.) *21417*

R ***Caralluma congestiflora*** P.R.O.Bally *20064*
? Somalia

R ***Caralluma crenulata*** Wall. *21415*

R ***Caralluma dicapuae*** (Chiov.)chiov. var. ***dicapuae*** *21415*

I ***Caralluma diffusa*** (Wight) N.E. Br.
I India - Kerala (Travancore Hills)
I India - Tamil Nadu (Coimbatore Hills)

E ***Caralluma distincta*** E.A. Bruce
E Kenya
E Tanzania

V ***Caralluma dodsoniana*** Lavr. *20146*
E *20146* Oman *20146*
V *20146* Yemen, Democratic *20146*
V *20146* Somalia *20146*

R ***Caralluma edwardsae*** (M.G.Gilbert) M.G.Gilbert *21415*

V ***Caralluma hexagona*** Lavranos *20146*
E *20146* Oman (foothills of Jabal al Samhan) *20146*
V *20146* Saudi Arabia *20146*
V *20146* Yemen, Democratic (southeast) *20146*

E ***Caralluma joannis*** Maire
I *21413* Morocco *21413*

R ***Caralluma laticorona*** (M.G.Gilbert) M.G.Gilbert *21415*

R ***Caralluma lavrani*** Rauh & Wertel *21415*

R ***Caralluma longiflora*** M.G.Gilbert *21415*

R ***Caralluma mireillae*** Lavranos *6087*
E *6087* Ethiopia *6087*
? Somalia

R ***Caralluma moniliformis*** Bally *20064*
? Somalia

R ***Caralluma munbyana*** (Decne.) N.E.Br. *20171*
R *20692* Spain (Murcia and Valencia provinces) *20692*
? Algeria *10763*
? Tunisia *20690*

R ***Caralluma munbyana*** (Decne)N.E.Br. var. ***munbyana*** *21415*

R ***Caralluma nilagiriana*** Kumani & Rao *21415*
21421 India *21421*

R ***Caralluma nilagiriana*** Kumani & Rao *21415*

R ***Caralluma peckii*** Bally *20064*
? Kenya

R ***Caralluma peschii*** Nel *21415*

R ***Caralluma priogonium*** K.Schum *21415*

R ***Caralluma sacculata*** N.E. Br. *6087*
R *6087* Ethiopia *6087*

R ***Caralluma sarkariae*** Lavranos & Frandsen *21415*

R ***Caralluma sinaica*** (Decne.) A. Berger
E Egypt
R Israel
I Jordan

R ***Caralluma socrotrana*** (Balf.F.)N.E.Br. *21415*

R ***Caralluma solenophora*** Lavranos *21415*

R ***Caralluma staintonii*** Hara *7738*
? Nepal *7738*

E ***Caralluma tubiformis*** E.A. Bruce & Bally
E Kenya

R ***Caralluma umbellata*** Haworth *16162*
I *16162* Sri Lanka *16162*
[distribution possibly incomplete]

V ***Caralluma venenosa*** Maire *10488*
V *14958* Algeria *10488*

I ***Caralluma vibratilis*** Bruce & Bally *21416*

R ***Cynanchum compactum*** Choux *21415*

R ***Cynanchum compactum*** Choux var. ***compactum*** *10368*
R *20578* Madagascar (Fianarantsoa) *20578*

R ***Cynanchum descii*** Rauh *21415*

R ***Cynanchum descoingsii*** Rauh *20578. 20578*
R *20578* Madagascar (Toliara) *20578*
[distribution possibly incomplete]

R ***Cynanchum macrolobum*** Jum. & H. Perrier *10368*
R *20578* Madagascar (Toliara) *20578*

R ***Cynanchum marnieranum*** Rauh *10368*
R *20578* Madagascar (Toliara) *20578*

R ***Cynanchum pachylobum*** Choux *10368*
R *20578* Madagascar (Toliara) *20578*

R ***Cynanchum rauhianum*** Descoings *10368*
R *20578* Madagascar (Fianarantsoa) *20578*

E ***Cynanchum rossii*** Rauh *10368*
E *20578* Madagascar (Toliara) *20578*

R ***Cynanchum sp.*** *10082*
R *5852* Mauritius - Rodrigues *10082*

E ***Duvalia anemoniflora*** (Deflers) R.A.Dyer & Lavranos *21415*

R ***Duvalia parviflora*** N.E.Br. *20604*
R *20604* South Africa - Cape Province *20604*

R ***Echidnopsis angustiloba*** Bruce & P.R.O.Bally *6087*
I *21416* Kenya *21416*
[distribution possibly incomplete]

R ***Echidnopsis archeri*** Bally *20064*
? Kenya *19109*

E ***Echidnopsis ballyi*** (Marnier-lap.)P.R.O.Bally *21415*

E ***Echidnopsis bihendulensis*** P.R.O.Bally *21415*

E ***Echidnopsis ciliata*** P.R.O.Bally *21415*

E ***Echidnopsis ericiflora*** Lavranos *21415*

I ***Echidnopsis insularis*** Lavranos *15534*
I *15534* Yemen - Socotra *15534*

E ***Echidnopsis leachii*** Lavranos *21415*

R ***Echidnopsis malum*** (Lavronos) Bruyns *21415*

I ***Echidnopsis mariae*** Lavranos *21416*

R ***Echidnopsis mijerteina*** Lavr. *20064*
? Somalia

R ***Echidnopsis milleri*** Lavranos. *21415*

R ***Echidnopsis montana*** (R.A.Dyer & Bruce) P.R.O.Bally *21415*

I ***Echidnopsis radians*** Bleck *21416*

R ***Echidnopsis repens*** R.A.Dyer & I.Verd *21415*

E ***Echidnopsis seibanica*** Lavranos *21415*

R ***Echidnopsis socotrana*** Lavranos *21415*

R ***Echidnopsis sp. nov.*** A. Miller *15534*

Magnoliopsida (dicots): Asclepiadaceae: ***Echidnopsis***

R *15534* Yemen - Socotra *15534*

R ***Echidnopsis squamulata*** (Decne.) P.R.O.Bally *21415*

R ***Echidnopsis urceolata*** Bally *6087*
I *6087* Ethiopia *6087*
I *21416* Kenya *6087*

R ***Echidnopsis virchowii*** K.Schum *21415*

R ***Hoodia dregei*** N.E.Br. *20604*
R *20604* South Africa - Cape Province *20604*

I ***Hoodia mossamedensis*** (Leach) Plowes *21415*

R ***Hoodia officinalis*** (N.E.Br.) Plowes ssp. ***delaetiana*** (Dinter) Bruyns *20604*
R *20604* Namibia *20604*

R ***Hoodia pilifera*** (L.f.) Plowes ssp. ***annulata*** (N.E.Br.) Bruyns *20604*
R *20604* South Africa - Cape Province *20604*

R ***Hoodia pilifera*** (L.f.) Plowes ssp. ***pilifera*** *20604*
R *20604* South Africa - Cape Province *20604*

V ***Hoodia pilifera*** (L.f.) Plowes ssp. ***piilansii*** (N.E.Br.) Bruyns *20604*
V *20604* South Africa - Cape Province *20604*

I ***Huernia andreaeana*** (Rauh) Leach *21416*

R ***Huernia andreaeana*** (Rauh) Leach *21415*

R ***Huernia arabica*** N.E.Br. *21415*

I ***Huernia archeri*** Leach *21416*

E ***Huernia archeri*** Leach *21415*

E ***Huernia bayeri*** Leach *21415*

E ***Huernia boleana*** M. Gilbert *6087*
I *6087* Ethiopia *6087*

R ***Huernia coninna*** N.E.Br. *21415*

I ***Huernia erectiloba*** Leach & Lavranos *7920*
? Mozambique *7920*

R ***Huernia erinacea*** Bally
? Kenya

E ***Huernia hadhramautica*** Lavranos *21415*

R ***Huernia hislopii*** Turrill ssp. ***robusta*** Leach & Plowes *7889*
R Zimbabwe *7889*

R ***Huernia humilis*** (Masson) Haw. *20604*
R *20604* South Africa - Cape Province *20604*

V ***Huernia hystrix*** N.E. Br. *5914*
I *20039* Swaziland *5914*
[distribution possibly incomplete]

V ***Huernia hystrix*** (Hook.f.) N.E.Br. var. ***parvula*** L.C.Leach *20604*
V *20604* South Africa - Natal *20604*

I ***Huernia keniensis*** R.E.Fries var. ***molonyae*** White & Sloane *21416*

V ***Huernia kennedyana*** Lavranos *21415*

V ***Huernia kennedyana*** Lavranos *20604*
V *20604* South Africa - Cape Province *20604*

R ***Huernia leachii*** Lavranos
? Mozambique

R ***Huernia lodarensis*** Lavranos *21415*

R ***Huernia longii*** Pillans *20604*
R *20604* South Africa - Cape Province *20604*

I ***Huernia longituba*** N.E. Br. ssp. ***cashelensis*** Leach & Plowes *7889*
I *21420* Zimbabwe *7889*

R ***Huernia marnieriana*** Lavranos *21415*

V ***Huernia nouhuysii*** I.Verd. *20604*
E *20604* South Africa - Transvaal *20604*

I ***Huernia occulta*** Leach & Plowes *7889*
I *21420* Zimbabwe *7889*

R ***Huernia piersii*** N.E.Br. *21415*

R ***Huernia praestans*** N.E.Br. *20604*
R *20604* South Africa - Cape Province *20604*

R ***Huernia procumbens*** (R.A.Dyer) Leach *21415*

R ***Huernia quinta*** (Phillips) A.C.White & B.Sloane *21415*

R ***Huernia recondita*** M.G.Gilbert *21415*

I ***Huernia schneideriana*** Berger *21415*

I ***Huernia similis*** N.E.Br *21415*

R ***Huernia tanganyikensis*** Bruce & P.R.O.Bally *21415*

R ***Huernia urceolata*** Leach *21415*

R ***Huernia whitesloaneana*** Nel *21415*

Ex ***Huernia witzenbergensis*** C.A.Lückh. *20604*
Ex *20604* South Africa - Cape Province *20604*

R ***Huerniopsis atrosanguinea*** (N.E.Br.) A.C. White &b.Sloane *21415*

E ***Karimbolea verrucosa*** Descoings *10368*
E *20578* Madagascar (Toliara) *20578*

R ***Orbea ciliata*** (Thunb.) Leach *21415*

V ***Orbea paradoxa*** (I.Verd.) L.C.Leach *20604, 20039*
V *20039* Southern Africa *20039*
K *20604* Swaziland *20604*
V *20604* South Africa - Transvaal *20604*

I ***Orbea prognatha*** (P.R.O.Bally) Leach *21415*

I ***Orbea semota*** (N.E.Br.) Leach *21416*

R ***Orbea umbracula*** (M.D. Henderson) Leach *7749*
R *21420* Zimbabwe *7749*

V ***Orbeanthus conjunctus*** (A.C.White & B.Sloane) L.C.Leach *20604*
V *20604* South Africa - Transvaal *20604*

R ***Orbeanthus gerstneri*** (Letty) Leach ssp. ***elongata*** (R.A. Dyer) Leach *20803*
R South Africa - Transvaal

R ***Orbeanthus gerstneri*** (Letty) Leach ssp. ***gerstneri*** *20803*
R South Africa - Natal

R ***Orbeanthus paradoxa*** (Verdoorn) Leach *20803*
R South Africa - Transvaal
R South Africa - Natal

R ***Orbeopsis albocastanea*** (Marloth) L.C.Leach *20604*
K *20604* Namibia *20604*
[distribution possibly incomplete]

V ***Orbeopsis gerstneri*** (Letty) L.C.Leach ssp. ***elongata*** (R.A.Dyer) L.C.Leach *20604*
R *20604* South Africa - Transvaal *20604*

R ***Orbeopsis tsumebensis*** (Oberm.) L.C.Leach *20604*
K *20604* Namibia *20604*
[distribution possibly incomplete]

R ***Pachycymbium abayense*** (M.G.Gilbert) M.G.Gilbert *21415*

R ***Pachycymbium araysianum*** (Lavranos & Bilaidi) M.G.Gilbert *21415*

R ***Pachycymbium denboefii*** (Lavranos) M.G.Gilbert *21415*

R ***Pachycymbium distinctum*** (E.A.Bruce) M.G.Gilbert *21415*

R ***Pachycymbium eremastrum*** (Schwartz) M.G.Gilbert *21415*

R ***Pachycymbium gemugofanum*** (M.G.Gilbert) M.G.Gilbert *21415*

R ***Pachycymbium huernioides*** (P.R.O.Bally)

Magnoliopsida (dicots): Asclepiadaceae: ***Pachycymbium***

M.G.Gilbert *21415*

R ***Pachycymbium kochii*** (Lavranos) M.G.Gilbert *21415*

R ***Pachycymbium laikipiense*** M.G.Gilbert *21415*

R ***Pachycymbium lancasteri*** Lavranos *21415*

V ***Pachycymbium luntii*** (N.E. Br.) Gilbert *20146*

E *20146* Oman (Dhofar) *20146*
V *20146* Yemen, Democratic *20146*

R ***Pachycymbium meintjestianum*** (Lavranos) M.G.Gilbert *21415*

R ***Pachycymbium rogersii*** (L.Bolus) M.G.Gilbert *21415*

R ***Pachycymbium sacculatum*** (N.E.Br.) M.G.Gilbert *21415*

E ***Pachycymbium spengeri*** (M.G.Gilbert) M.G.Gilbert var. ***ogadense*** *21415*

R ***Pachycymbium tubiforme*** (Bruce & P.R.O.Bally) M.G.Gilbert *21415*

V ***Pachycymbium ubomboense*** (I.Verd.) M.G.Gilbert *20803, 20039*

? Zimbabwe *20604*
V *20039* Southern Africa *20039*
K *20604* Swaziland *20604*
V *20604* South Africa - Natal *20604*

E ***Pachycymbium wilsonii*** (P.R.O.Bally) M.G.Gilbert *21415*

R ***Pectinaria articulata*** (Aiton) Haw. ssp. ***articulata*** *20604*

R *20604* South Africa - Cape Province *20604*

R ***Pectinaria articulata*** (Aiton) Haw. ssp. ***borealis*** Bruyns *20604*

R *20604* South Africa - Cape Province *20604*

R ***Pectinaria longipes*** (N.E.Br.) Bruyns *20604*

R *20604* South Africa - Cape Province *20604*

R ***Piaranthus framesii*** Pillans *21415*

I ***Pseudolithos caput-viperae*** Lavranos *21415*

I ***Pseudolithos cubiformis*** (P.R.O.Bally) P.R.O.Bally *21415*

I ***Pseudolithos horwoodii*** Bally & Lavr. *20064*

? Somalia

I ***Pseudolithos migiurtinus*** (Chiov.) P.R.O.Bally *21415*

R ***Quaqua armata*** (N.E.Br.) Bruyns ssp. ***arenicola*** (N.E.Br.) Bruyns *20604*

E *20604* South Africa - Cape Province *20604*

R ***Quaqua armata*** (N.E.Br.) Bruyns ssp. ***maritima*** Bruyns *20604*

R *20604* South Africa - Cape Province *20604*

R ***Quaqua parviflora*** (Masson) Bruyns ssp. ***bayeriana*** Bruyns *20604*

R *20604* South Africa - Cape Province *20604*

E ***Rhytidocaulon fulleri*** Lavranos & Mortimer *20146*

E *20146* Oman (Dhofar) *20146*

E ***Rhytidocaulon paradoxum*** Bally *6087*

I *6087* Ethiopia *6087*
I *21416* Kenya *21416*

E ***Rhytidocaulon richardianum*** Lavranos *21415*

R ***Rhytidocaulon sheilae*** Field *21415*

E ***Rhytidocaulon subscandens*** Bally *20064*

R *6087* Ethiopia *6087*
? Somalia

E ***Rhytidocaulon tortum*** (N.R.Br.) M.G.Gilbert *21415*

R ***Riocreuxia aberrans*** R.A.Dyer *20604*

K *20604* South Africa - Transvaal *20604* [distribution possibly incomplete]

E ***Riocreuxia bolusii*** N.E.Br. *20604*

I *20604* South Africa - Cape Province *20604*

R ***Riocreuxia chrysochroma*** (Huber) A.C.Smith *21415*

I ***Sarcostemma socotranum*** Lavranos *15534*

I *15534* Yemen - Socotra *15534*

E ***Stapelia cedrimontana*** Frandsen *21415*

V ***Stapelia clavicorona*** I.Verd. *20604*

V *20604* South Africa - Transvaal *20604*

V ***Stapelia divaricata*** Masson *20604*

V *20604* South Africa - Cape Province *20604*

V ***Stapelia immelmaniae*** Pillans *20604*

V *20604* South Africa - Cape Province *20604*

R ***Stapelia kougabergensis*** Leach *21415*

E ***Stapelia parvula*** Kers *20064*

? Angola

R ***Stapelia pillanii*** N.E.Br. var. ***pillasii*** *21415*

R ***Stapelia remota*** R.A.Dyer *20604*

K *20604* Namibia *20604* [distribution possibly incomplete]

R ***Stapelia rubiginosa*** Nel *20604*

20604 South Africa - Cape Province *20604*

E ***Stapelia scitula*** L.C.Leach *20604*

V *20604* South Africa - Cape Province *20604*

I ***Stapelia villetiae*** Lückh. *20803*

I South Africa - Cape Province

R ***Stapelianthus arenarius*** Bosser & Morat *10368*

R *20578* Madagascar (Toliara) *20578*

R ***Stapelianthus decaryi*** Choux *10368*

R *20578* Madagascar (Toliara) *20578*

R ***Stapelianthus hardyi*** Lavranos *10368*

R *20578* Madagascar (Toliara) *20578*

R ***Stapelianthus insignis*** Descoings var. ***insignis*** *10368*

R *20578* Madagascar (Toliara) *20578*

R ***Stapelianthus insignis*** Descoings var. ***tangoboryensis*** Rauh *20578*

R *20578* Madagascar (Toliara) *20578* [distribution possibly incomplete]

R ***Stapelianthus keraudreniae*** Bosser & Morat *20578*

R *20578* Madagascar (Toliara) *20578*

R ***Stapelianthus madagascariensis*** (Choux) Choux *10368*

R *20578* Madagascar (Toliara) *20578*

R ***Stapelianthus montagnacii*** (Boiteau) Boiteau & A.Bertrand *10368*

R *20578* Madagascar (Toliara) *20578*

R ***Stapelianthus pilosus*** (Choux) Lavranos & Hardy *10368*

R *20578* Madagascar (Toliara) *20578*

E ***Stapeliopsis neronis*** Pillans *20604*

E *20604* Namibia *20604*
E *20604* South Africa - Cape Province *20604*

V ***Stapeliopsis saxatilis*** (N.E.Br.) Bruyns ssp. ***stayneri*** (M.B.Bayer) Bruyns *20604*

V *20604* South Africa - Cape Province *20604*

R ***Tavaresia angoloensis*** Welw. *21415*

R ***Tavaresia schultzei*** (Schltr.) Phillips *21415*

R ***Tridentea baylisii*** (Leach) var. ***baylisii*** *21415*

R ***Tridentea baylisii*** (Leach) var. ***ciliata*** *21415*

R ***Tridentea choanantha*** (Lavranos & Hall) Leach *20064*

Magnoliopsida (dicots): Asclepiadaceae: *Tridentea*

I Southern Africa

R ***Tridentea herrei*** (Nel) Leach *21415*

R ***Tridentea marientalensis*** (Giess) Leach ssp. ***albipilosa*** *21415*

R ***Tridentea pachyrrhiza*** (Dinter) L.C.Leach *20604*
I *20604* Namibia *20604*
I *20604* South Africa - Cape Province *20604*

R ***Tridentea parvipuncta*** (C.A.Luckh.) Leach ssp. ***truncata*** *21415*

R ***Tridentea peculiaris*** (C.A.Luckh.) Leach *21415*

R ***Tridentea ruschiana*** (Dinter) Leach *21415*

R ***Tromotriche engleriana*** (Schltr.) Leach *21415*

E ***Tromotriche revoluta*** (Masson) Haw. *21415*

Balsaminaceae

Number of genera:	2	
Number of species:	450	
Recorded threatened species:	69	(15%)

Tropical Asia and Africa, some in temperate regions; India to Java.

R ***Impatiens tuberosa*** H. Perrier *10368*
R *20578* Madagascar (Antsiranana) *20578*

Compositae

Number of genera:	1,100-1,509	
Number of species:	20,000	
Recorded threatened species:	2551	(12%)

Cosmopolitan, especially temperate and subtropical regions.

V ***Kleinia saginata*** P. Halliday *20146*
V *20146* Oman (Dhofar) *20146*

R ***Senecio canaliculatus*** Bojer ex DC. *10368*
R *20578* Madagascar (Antananarivo) *20578*

R ***Senecio cedrorum*** Raynal *10368*
R *20578* Madagascar (Toliara) *20578*

R ***Senecio meuselii*** Rauh *10368*
R *20578* Madagascar (Fianarantsoa) *20578*

Crassulaceae

Number of genera:	25	
Number of species:	900	
Recorded threatened species:	227	(25%)

Cosmopolitan, except Australia and Polynesia.

R ***Adromischus schuldtianus*** (Poelln.) Poelln. ssp. ***juttae*** (Poelln.) Toelken *20604*
R *20604* Namibia *20604*

V ***Aeonium balsamiferum*** Webb & Berthel. *20750*
V *20750* Spain - Canary Is. *20750*

R ***Aeonium castello-paivae*** Bolle
R Spain - Canary Is.

V ***Aeonium ciliatum*** (Willd.) Webb & Berthel. *20750*
V *20750* Spain - Canary Is. *20750*

V ***Aeonium cuneatum*** Webb & Berthel.
V *20750* Spain - Canary Is. *20750*

V ***Aeonium gomeraense*** Praeger *14166*
V *20750* Spain - Canary Is. *19174*

R ***Aeonium goochiae*** Webb & Berthel. *20750*
R *20750* Spain - Canary Is. *20750*

R ***Aeonium haworthii*** Salm-Dyck ex Webb & Berthel. *20750*
R *20750* Spain - Canary Is. *20750*

E ***Aeonium mascaense*** Bram. *20750*
E *20750* Spain - Canary Is. *20750*

V ***Aeonium nobile*** Praeger *20750*
V *20750* Spain - Canary Is. *20750*

V ***Aeonium rubrolineatum*** Svent. *20750*
V *20750* Spain - Canary Is. *20750*

V ***Aeonium saundersii*** Bolle *14166*
V *20750* Spain - Canary Is. *20750*

V ***Aeonium sedifolium*** (Webb ex Bolle) Pit. & Proust *20750*
V *20750* Spain - Canary Is. *20750*

V ***Aeonium smithii*** (Sims) Webb & Berthel. *20750*
V *20750* Spain - Canary Is. *20750*

R ***Aeonium tabulaeforme*** (Haw.) Webb. & Berth. *10260*
R *20750* Spain - Canary Is. *20750*

V ***Aeonium valverdense*** Praeger *20750*
V *20750* Spain - Canary Is. *20750*

R ***Aeonium vestitum*** Svent. *20064*
V *21417* Spain - Canary Is. (Occurs only in the north east of La Palma) *21417*

R ***Aeonium virgineum*** Webb ex Christ
R Spain - Canary Is.

V ***Afrovivella simensis*** A. Berger *6087*
V Ethiopia (Mt. Buahit) *6087*

E ***Aichryson bethencourtianum*** Bolle *20750*
E *20750* Spain - Canary Is. *20750*

R ***Aichryson bollei*** Webb ex Bolle *20750*
R *20750* Spain - Canary Is. *20750*

V ***Aichryson brevipetalum*** Praeger *20750*
V *21417* Spain - Canary Is. *20750*

V ***Aichryson dumosum*** (Lowe) Praeger *17891*
V Portugal - Madeira *17891*

E/V ***Aichryson pachycaulon*** David Bramwell *21417*
E/V *21417* Spain - Canary Is. *21417*

E ***Aichryson pachycaulon*** Bolle ssp. ***gonzalezhernandezii*** (Kunkel) Bramwell *20064*
E Spain - Canary Is.

V ***Aichryson pachycaulon*** Bolle. ssp. ***immaculatum*** (Webb ex Christ) Bram. *20064*
V Spain - Canary Is.

E ***Aichryson pachycaulon*** Bolle ssp. ***pachycaulon*** *20064*
E Spain - Canary Is.

V ***Aichryson pachycaulon*** Bolle ssp. ***parviflorum*** (Bolle) Bram. *20064*
V Spain - Canary Is.

V ***Aichryson pachycaulon*** Bolle ssp. ***praetermisum*** Bram. *20064*
V Spain - Canary Is.

R ***Aichryson palmense*** Webb ex Bolle *19174*
R *20750* Spain - Canary Is. *19174*

R ***Aichryson porphyrogennetos*** Bolle *20750*
R *21417* Spain - Canary Is. *19174*

R ***Aichryson tortuosum*** (Aiton) Webb & Berthel. *20750*
R *20750* Spain - Canary Is. *20750*

R ***Aichryson villosum*** (Aiton) Webb & Berthel. *20171*
R Portugal - Azores
R Portugal - Madeira

Ex ***Crassula alcicornis*** Schönland *20604, 6180*

Magnoliopsida (dicots): Crassulaceae: *Crassula*

Ex *20604* South Africa - Cape Province *20604*

R ***Crassula arborescens*** (Mill.) Willd. ssp. ***undulatifolia*** Toelken *20803*
R *20803* South Africa - Cape Province *20803*

R ***Crassula ausensis*** Hutchison ssp. ***giessii*** (Friedrich) Toelken *20604*
R *20604* Namibia *20604*

R ***Crassula cordifolia*** Baker *10368*
R *20578* Madagascar (Antananarivo) *20578*

R ***Crassula erecta*** (hook. & Arn.) Berger *10701*
R *20137* Argentina - Buenos Aires *20137*

R ***Crassula exillis*** Harv. ssp. ***exillis*** *20604*
R *20604* South Africa - Cape Province *20604*

R ***Crassula garibina*** Marloth & Schönland ssp. ***glabra*** Toelken *20604*
R *20604* South Africa - Cape Province *20604*

R ***Crassula humbertii*** Descoings *10368*
R *20578* Madagascar (Toliara) *20578*

V ***Crassula hunua*** Druce *19305*
V *19305* New Zealand - North Is. *19305*
V *19305* New Zealand - South Is. *19305*

R ***Crassula multiceps*** Harv. *20604*
R *20604* South Africa - Cape Province *20604*

R ***Crassula namaquensis*** Schonl. & E.G. Baker ssp. ***comptonii*** (Hutch. & Pillans) Toelken *20604*
R *20604* South Africa - Cape Province *20604*

V ***Crassula planifolia*** Schönland *20604*
V *20604* South Africa - Cape Province (Transkei) *20604*

R ***Crassula roggeveldii*** Schönland *20604*
R *20604* South Africa - Cape Province *20604*

R ***Crassula ruamahanga*** Druce *19305*
R *19305* New Zealand - North Is. *19305*
R *19305* New Zealand - South Is. *19305*

R ***Crassula rupestris*** Thunb. ssp. ***marnieriana*** (H.E.Huber & H.Jacobsen) Toelken *20604*
R *20604* South Africa - Cape Province *20604*

R ***Crassula sericea*** Schönland var. ***velutina*** (Friedr.) Toelken *20604*
R *20604* Namibia *20604*
R *20604* South Africa - Cape Province *20604*

R ***Crassula socialis*** Schönland *20604*
R *20604* South Africa - Cape Province *20604*

R ***Crassula subacaulis*** Schönland & Baker f. ssp. ***subacaulis*** *20604*
R *20604* South Africa - Cape Province *20604*

I ***Crassula susannae*** Rauh & Friedrich *20604*
I *20604* South Africa - Cape Province *20604*

R ***Crassula vestita*** Thunb. *20604*
R *20604* South Africa - Cape Province *20604*

R ***Dudleya abramsii*** Rose *20850*
I *20850* U.S. - California *20850*

E ***Dudleya abramsii*** Rose ssp. ***affinis*** K. Nakai *20850*
E *20850* U.S. - California *20850*

V ***Dudleya abramsii*** Rose ssp. ***murina*** (Eastw.) Moran *20850*
V *20850* U.S. - California *20850*

V ***Dudleya attenuata*** (Rose) Moran ssp. ***orcuttii*** (Rose) Moran *20850*
E *20850* U.S. - California *20850*

V ***Dudleya bettinae*** Hoover *19002*
V *19002* U.S. - California *19002*

R ***Dudleya blochmaniae*** (Eastw.) Moran *20850*
I *20850* U.S. - California *20850*

V ***Dudleya blochmaniae*** (Eastw.) Moran ssp. ***blochmaniae*** *20850*
V *20850* U.S. - California *20850*

E ***Dudleya blochmaniae*** (Eastw.) Moran ssp. ***insularis*** (Moran) Moran *20850*
E *20850* U.S. - California *20850*

E ***Dudleya brevifolia*** (Moran) Moran *20850*
E *20850* U.S. - California *20850*

R ***Dudleya candelabrum*** Rose *20850*
V *20850* U.S. - California *20850*

R ***Dudleya cespitosa*** (Haw.) Britt. & Rose *20850*
I *20850* U.S. - California *20850*

E ***Dudleya cymosa*** (Lem.) Britt. & Rose ssp. ***crebrifolia*** K. Nakai & Verity *20850*
E *20850* U.S. - California *20850*

V ***Dudleya cymosa*** (Lemaire) Britton & Rose ssp. ***marcescens*** Moran *20850*
V *20850* U.S. - California *20850*

E ***Dudleya densiflora*** (Rose) Moran *20850*
E *20850* U.S. - California *20850*

R ***Dudleya edulis*** (Nutt.) Moran *20850*
I *20850* U.S. - California *20850*

R ***Dudleya greenei*** Rose *20850*
R *20850* U.S. - California *20850*

E ***Dudleya hassei*** (Rose) Moran *20850*
I *20850* U.S. - California *20850*

R ***Dudleya lanceolata*** (Nutt.) Britt. & Rose *20850*
I *20850* U.S. - California *20850*

V ***Dudleya multicaulis*** (Rose) Moran *20850*
V *20850* U.S. - California *20850*

E ***Dudleya nesiotica*** (Moran) Moran *20850*
E *20850* U.S. - California *20850*

R ***Dudleya parva*** Rose & Davidson *19002*
R *19002* U.S. - California *19002*

R ***Dudleya pulverulenta*** (Nutt.) Britt. & Rose *20850*
I *20850* U.S. - California *20850*
R *20850* U.S. - Nevada *20850*

V ***Dudleya saxosa*** (M.E. Jones) Britton & Rose ssp. ***saxosa*** *20850*
I *20850* U.S. - California *20850*

V ***Dudleya variegata*** (S.Watson) Moran *20883, 20850, 8058*
V *20850* U.S. - California *20850*
I *20883* Mexico *20883*

E ***Dudleya verityi*** K. Nakai *20850*
E *20850* U.S. - California *20850*

E ***Dudleya virens*** (Rose) Moran *20850*
E *20850* U.S. - California *20850*

V ***Dudleya viscida*** (S.Watson) Moran *20850*
V *20850* U.S. - California *20850*

R ***Echeveria amphoralis*** Walth. *19850*
R *19850* Mexico *19850*

I ***Echeveria elegans*** Rose *19850*
I *21424* Mexico *19850*

Magnoliopsida (dicots): Crassulaceae: *Echeveria*

I ***Echeveria laui*** Moran & Meyrán *9019*
21424 Mexico *21424*
I *19850* Mexico - Oaxaca *9019*

V ***Echeveria longissima*** Walth. var. ***aztatlensis*** J. Meyrán *19850*
V *19850* Mexico *19850*

V ***Echeveria longissima*** Walth. var. ***longissima*** *19850*
V *19850* Mexico *19850*

R ***Echeveria moranii*** E. Walther *19850*
R *19850* Mexico *19850*

I ***Echeveria purpusorum*** Berger *19850*
I *21424* Mexico *19850*

I ***Echeveria setosa*** Rose & Purpus var. ***ciliata*** Moran *19850*
I *21424* Mexico *19850*

I ***Echeveria setosa*** Rose & Purpus var. ***deminuta*** J. Meyrán *19850*
I *21424* Mexico *19850*

I ***Echeveria setosa*** Rose & Purpus var. ***minor*** Berger *19850*
I *21424* Mexico *19850*

I ***Echeveria setosa*** Rose & Purpus var. ***oteroi*** *19850*
I *21424* Mexico *19850*

R ***Echeveria setosa*** Rose & Purpus var. ***setosa*** *19850*
R *21424* Mexico *19850*

E ***Graptopetalum bellum*** (Moran & Meyran) D.R. Hunt *9662*
E *9662* Mexico - Chihuahua *9662*

I ***Graptopetalum macdougallii*** Alexander *19850*
I *21424* Mexico *19850*

V ***Greenovia aizoon*** Bolle *17534*
V Spain - Canary Is. *17534*

V ***Greenovia dodrentalis*** (Willd.) Webb & Berthel. *17534*
V *20750* Spain - Canary Is. *17534*

R ***Jovibarba allionii*** (Jord. & Fourr.) D.A.Webb *20171*
R France
R Italy

I ***Jovibarba hirta*** (L.) Opiz ssp. ***glabrescens*** (Sabr.) Holub *8000, 20171*
I *19321* Slovakia *19321*

I ***Jovibarba hirta*** (L.) Opiz ssp. ***tatrensis*** (Domin) A. Love et D. Love *8000*
I *19321* Slovakia *19321*

Ex/E ***Kalanchoe angustifolia*** A. Rich *19704*

R ***Kalanchoe beharensis*** Drake var. ***aureo-aeneus*** H.J. Jacobsen *10368*
R Madagascar

R ***Kalanchoe beharensis*** Drake var. ***subnuda*** H.J. Jacobsen *10368*
R Madagascar

I ***Kalanchoe bitteri*** Raym.-Hamet *10368*
I Madagascar

R ***Kalanchoe crundallii*** I.Verd. *20604*
R *20604* South Africa - Transvaal *20604*

I ***Kalanchoe fadenorum*** Raadts *20064*
I Kenya

R ***Kalanchoe faustii*** Font Quer
R Morocco

R ***Kalanchoe olivacea*** Dalz. & Gibson *14782*
R *14782* India - Tamil Nadu *14782*

R ***Kalanchoe robusta*** Balf. f. *15534*
R *15534* Yemen - Socotra *15534*

E ***Kalanchoe roseus*** Clarke *14782*
E *14782* India - Manipur *14782*
E *14782* India - Nagaland *14782*

R ***Kalanchoe schimperiana*** A. Rich. *19704*
R *19704* Ethiopia (West Eritrea, Tigray Upland, Gamo Gofa, Shev Upland, Bale) *19704*

R ***Kalanchoe stenosiphon*** Britten *19704*
R *19704* Ethiopia (West Eritrea, Tigray Upland) *19704*

R ***Kalanchoe viguieri*** Raym.-Hamet & H. Perrier *10368*
R *10368* Madagascar *10368*

E ***Monanthes adenoscepes*** Svent. *20750*
E *20750* Spain - Canary Is. (a few scattered populations in the south of tenerife.) *21417*

R ***Monanthes amydros*** Svent.
R Spain - Canary Is.

V ***Monanthes anagensis*** Praeger
V *20750* Spain - Canary Is. *20750*

E ***Monanthes dasyphylla*** Svent.
E Spain - Canary Is.

R ***Monanthes lowei*** (Paiva) D. Bramwell in press *20064*
R Portugal - Salvage Is.

V ***Monanthes minima*** Bolle *20750*
V *20750* Spain - Canary Is. *20750*

R ***Monanthes muralis*** (Webb ex Bolle) Christ
R Spain - Canary Is.

E ***Monanthes niphophila*** Svent. *17530*
E *20750* Spain - Canary Is. *20750*

R ***Monanthes pallens*** Webb ex Christ
R Spain - Canary Is.

R ***Monanthes polyphylla*** Haw. *20064*
R Spain - Canary Is.

V ***Monanthes praegeri*** D. Bramwell *20750*
V *21417* Spain - Canary Is. (Single locality on the north coast of Tenerife.) *21417*

R ***Monanthes silensis*** (Praeger) Svent. *20064*
R Spain - Canary Is.

E ***Monanthes wildpretii*** *17891*
E *20750* Spain - Canary Is. (Tenerife) *21417*

R ***Orostachys iwarenge*** Makino var. ***boehmeri*** Ohwi *10572*
R *10572* Japan *10572*

I ***Rosularia aizoon*** (Fenzl) A. Berger *5942*
I *5942* Armenia *5942*

R ***Rosularia davisii*** Muirhead *12840*
R *12840* Turkey *12840*

R ***Rosularia haussknechtii*** Boiss. & Reuter *12840*
R *12840* Turkey *12840*

R ***Rosularia jaccardiana*** *21413*
R ***Rosularia kesrouanensis*** *21413*

E ***Rosularia semiensis*** (A. Rich) Ohba *19704*
E *19704* Ethiopia (Gonder) *19704*

R ***Rosularia serpentinica*** (Werdermann) Muirhead *12840*
R *12840* Turkey *12840*

V ***Sedum albomarginatum*** Clausen *20850*

Magnoliopsida (dicots): Crassulaceae: *Sedum*

V *20850* U.S. - California *20850*

V ***Sedum assyriacum*** *21413*

E ***Sedum baleensis*** **M. Gilbert** *19704*
E *19704* Ethiopia (Bale) *19704*

R ***Sedum barcense*** **Maire & M. Weiller**
R Libya

V ***Sedum boninense*** **Tuy.** *8038*
V *19134* Japan - Ogasawara-shoto *8038*

V ***Sedum borissovae*** **Balk.** *20171*
V former European USSR

R ***Sedum borschii*** **(Clausen) Clausen** *20850*
V *20850* U.S. - Idaho *20850*
I *20850* U.S. - Montana *20850*
I *20850* U.S. - Oregon *20850*
I *20850* U.S. - Washington *20850*

R ***Sedum bracteatum*** **Viv.**
R Libya

R ***Sedum brissemoretii*** **Raymond-Hamet** *17891*
R Portugal - Madeira *17891*

R ***Sedum campanulatum*** **(Willk.) Fern.Gonz. &**
Cantó *15846, 20171*
R *15846* Spain *15846*

R ***Sedum caroli-henrici*** **Kit Tan** *12840*
R *12840* Turkey *12840*

R ***Sedum cilicicum*** **Kit Tan & Vural** *12840*
R *12840* Turkey *12840*

V ***Sedum creticum*** **var. *creticum*** *21413*

R ***Sedum creticum*** **var. *monocarpicum*** *21413*

R ***Sedum cyprium*** **A.K. Jackson & Turrill** *14230*
R *19164* Cyprus (Troodos) *14230*

R ***Sedum cyrenaicum*** **Brullo & Furnari**
R Libya

E ***Sedum drymarioides*** **Hance var. *toyamae***
Hara *10572*
E *10572* Japan *10572*

I ***Sedum duthie*** **Frod.**
I India - Uttar Pradesh (Kumaun)

V ***Sedum epidendron*** **A. Rich.** *19704*
V *19704* Ethiopia (Gonder, Gojam, Shewa Upland, Arsi.)
19704

R ***Sedum farinosum*** **Lowe**
R Portugal - Madeira

I ***Sedum frutescens*** **Rose** *19850*
I *21424* Mexico *19850*

R ***Sedum gattefossei*** **Battand.**
R Morocco

V ***Sedum glomerifolium*** **M. Gilbert** *19704*
V *19704* Ethiopia (Bale) *19704*

V ***Sedum havardii*** **Rose** *20850*
V *20850* U.S. - Texas *20850*

R ***Sedum hewittii*** **Chamb.** *12840*
R *12840* Turkey *12840*

R ***Sedum hierapetrae*** **Rech.f.** *20171*
R *20731* Greece - Crete *20731*

R ***Sedum hillebrandtii*** **Fenzl** *2050, 20171*
E *2050* Czech Republic *2050*
R *20686* Hungary *20686*

R ***Sedum hispanicum*** **L. var. *planifolium***
Chamb. *12840*
R *12840* Turkey *12840*

E ***Sedum integrifolium*** **(Raf.) Nels. ssp. *leedyi***
(Rosendahl & Moore) Clausen *20850, 14774*
E *20850* U.S. - Minnesota (Fillmore & Olmsted Co.)
20850
E *20850* U.S. - New York (Yates County) *20850*

R ***Sedum kostovii*** **Stef.** *5204, 20171*
R *5204* Bulgaria (south) *5204*

V ***Sedum lagascae*** **Pau** *20171*
V Spain

R ***Sedum lampusae*** **(Kotschy) Boiss.** *14230*
nt *18271* Cyprus (Northern Range) *14230*

R ***Sedum lancerottense*** **R.P. Murray** *20750*
R *20750* Spain - Canary Is. (Famara cliffs of
Lanzarote.) *21417*

E ***Sedum laxum*** **(Britton) A. Berger ssp. *eastwoodiae***
(Britt.) Clausen *20850*
E *20850* U.S. - California *20850*

R ***Sedum laxum*** **(Britton) A. Berger ssp. *flavidum***
Denton *20850*
R *20850* U.S. - California *20850*

R ***Sedum laxum*** **(Britton) A. Berger ssp. *heckneri***
(M.E. Peck) Clausen *20850*
V *20850* U.S. - California *20850*
R *20850* U.S. - Oregon *20850*

R ***Sedum lydium*** **Boiss.** *12840*
nt *12840* Turkey *12840*

R ***Sedum maurum*** **Humbert & Maire**
R Morocco

R ***Sedum microstachyum*** **(Kotschy) Boiss.** *14230*
R *19164* Cyprus (Troodos, Chionistra) *14230*

E ***Sedum mooneyi*** **M. Gilbert** *19704*
E *19704* Ethiopia (Arsi, Bale.) *19704*

E ***Sedum moranii*** **Clausen** *20850*
E *20850* U.S. - Oregon *20850*

R ***Sedum multiceps*** **Coss. & Durieu** *10488*
R *19174* Algeria *10488*
[distribution possibly incomplete]

V ***Sedum nanum*** *21413*

V ***Sedum nevii*** **Gray** *20850*
V *20850* U.S. - Alabama *20850*
E *20850* U.S. - Georgia *20850*
I *20850* U.S. - North Carolina *20850*
E *20850* U.S. - Tennessee *20850*

E ***Sedum nudum*** **Aiton ssp. *lancerottense*** **(Murray) A.**
Hansen & Sunding
E Spain - Canary Is.

R ***Sedum oblanceolatum*** **Clausen** *20850*
E *20850* U.S. - California *20850*
V *20850* U.S. - Oregon *20850*

E ***Sedum obtusatum*** **A. Gray ssp. *paradisum***
Denton *20850*
E *20850* U.S. - California *20850*

R ***Sedum pedicellatum*** **Boiss. & Reut. ssp. *lusitanicum***
(Mariz) M.Lainz *20171*

R ***Sedum pedicellatum*** **Boiss. & Reut. ssp.**
pedicellatum *20171*

Ex ***Sedum pinetorum*** **Brandegee** *14662*
Ex *14662* U.S. - California *19002*

R ***Sedum platyphyllum*** **Alexander** *19850*
R *21424* Mexico *19850*

Ex ***Sedum polystriatum*** **R.T. Clausen** *12840*

Magnoliopsida (dicots): Crassulaceae: *Sedum*

Ex *12840* Turkey *12840*

R ***Sedum pruinatum*** Link ex Brot. *19174, 20171*
R *19174* Portugal *19174*

R ***Sedum pusillum*** Michx. *20850*
I *20850* U.S. - Alabama *20850*
R *20850* U.S. - Georgia *20850*
E *20850* U.S. - North Carolina *20850*
V *20850* U.S. - South Carolina *20850*

R ***Sedum radiatum*** Clausen ssp. ***depauperatum*** Clausen *20850*
I *20850* U.S. - California *20850*
R *20850* U.S. - Oregon *20850*

V ***Sedum robertsianum*** Alexander *19002*
V *19002* U.S. - Texas *19002*

E ***Sedum satsumense*** Hatus. *10572*
E *10572* Japan *10572*

R ***Sedum serpentini*** Janch. *20178, 20171*
R *20178* Albania *20178*
R *21091* Bosnia & Herzegovina *21091*
R Greece *20178*

R ***Sedum sikokianum*** Maxim. *10572*
R *10572* Japan *10572*

R ***Sedum sorgerae*** Kit Tan & Chamberlain *12840*
R *12840* Turkey *12840*

E ***Sedum suaveolens*** Kimnach *9019*
21424 Mexico *21424*
E *11119* Mexico - Durango *9019*

R ***Sedum surculosum*** *21413*

R ***Sedum torulosum*** R.T. Clausen *19850*
R *21424* Mexico *19850*

V ***Sedum tosaense*** Makino *10572*
V *10572* Japan *10572*

R ***Sedum tuberosum*** *21413*

R ***Sedum tymphaeum*** *20171*
R Greece

R ***Sedum wilczekianum*** Font Quer
R Morocco

R ***Sedum willkommianum*** R.Fern. *20171*
R *8322* Portugal *8322*

R ***Sempervivum andreanum*** Wale *20171*
R Spain

I ***Sempervivum arboreum*** L. *20171*
I Morocco

R ***Sempervivum armenum*** Boiss. & Huet var. ***insigne*** Muirhead *12840*
R *12840* Turkey *12840*

R ***Sempervivum ballsii*** Wale *20171*
R Greece

R ***Sempervivum brevipetalum*** Kit Tan & Sorger *12840*
R *12840* Turkey *12840*

R ***Sempervivum ciliosum*** Craib *5204, 20171*
R *20178* Albania *20178*
R *5204* Bulgaria (south-west) *5204*
R Greece *20852*
R (former) Yugoslavia
[distribution possibly incomplete]

R ***Sempervivum dolomiticum*** Facchini *18264, 20171*
R *18264* Italy *18264*

R ***Sempervivum furseorum*** Muirhead *12840*
R *12840* Turkey *12840*

R ***Sempervivum gillianii*** Muirhead *12840*
R *12840* Turkey *12840*

R ***Sempervivum giuseppii*** Wale *20171*
R Spain

R ***Sempervivum glabrifolium*** Boiss. *12840*
R *12840* Turkey *12840*

R ***Sempervivum globiferum*** L. ssp. ***cghricum*** Kit Tan & Sorger *12840*
R *12840* Turkey *12840*

R ***Sempervivum ispartae*** Muirhead *12840*
R *12840* Turkey *12840*

V ***Sempervivum juvanii*** Strgar *13662, 20171*
V *13662* Slovenia (eastern) *13662*

R ***Sempervivum kindingeri*** Adamovic *20171*
R Greece
R (former) Yugoslavia

R ***Sempervivum kosaninii*** Praeger *20171*
R (former) Yugoslavia

R ***Sempervivum macedonicum*** Praeger *20171*
R (former) Yugoslavia

R ***Sempervivum minus*** Turrill s.l. *12840*
R *12840* Turkey *12840*

R ***Sempervivum octopodes*** Turrill *20171*
R (former) Yugoslavia

R ***Sempervivum pisidicum*** H. Pesmen & A. Guner *12840*
R *12840* Turkey *12840*

R ***Sempervivum pittonii*** Schott, Nyman & Kotschy *20171*
R Austria

R ***Sempervivum staintonii*** Muirhead *12840*
R *12840* Turkey *12840*

R ***Sempervivum thompsonianum*** Wale *20171*
R (former) Yugoslavia

Ex ***Tacitus bellus*** Moran & J.Meyrán *9114*
Ex *9114* Mexico - Chihuahua *9114*

V ***Tylecodon fragilis*** (R.A.Dyer) Toelken *20604*
V *20604* South Africa - Cape Province *20604*

Cucurbitaceae

Number of genera:	90	
Number of species:	700	
Recorded threatened species:	74	(10%)

Tropical and subtropical; rarely temperate or cool temperate.

I ***Corallocarpus epigaeus*** *21421*
21421 India *21421*

Didiereaceae

Number of genera:	4	
Number of species:	11	
Recorded threatened species:	3	(27%)

Dry parts of Madagascar.

R ***Alluaudiopsis fiherenensis*** Humbert & Choux *10368*
R *19878* Madagascar *10368*

R ***Alluaudiopsis marnieriana*** Rauh *10368*
R *19878* Madagascar *10368*

Liliopsida (monocots)

Dracaenaceae

Number of genera:	6	
Number of species:	156	
Recorded threatened species:	20	(12%)

Tropics and subtropics, to south-west USA.

I ***Calibanus hookeri*** (Lem.) Trel. *21414*

Euphorbiaceae

Number of genera:	300	
Number of species:	7,500	
Recorded threatened species:	927	(12%)

Cosmopolitan, especially tropical and subtropical.

E ***Euphorbia aaron-rossii*** A.& N. Holmgren *20850*
E *20850* U.S. - Arizona *20850*

R ***Euphorbia anacampseros*** Boiss. var. ***tmolea*** M.S. Khan *12840*
R *12840* Turkey *12840*

V ***Euphorbia apocynoides*** Klotzsch *10747*
V *16317* Panama *10747*

I ***Euphorbia aristata*** Schmalh. *5942*
I *5942* Russia - North Caucasus *5942*

R ***Euphorbia austroanatolica*** Hub.-Mor. & M.S. Khan *12840*
R *12840* Turkey *12840*

V ***Euphorbia azorica*** Hochst *10260, 20171*
V *17672* Portugal - Azores *17672*

E ***Euphorbia betulicortex*** M. Gilbert *19704*
E *19704* Ethiopia (Sidamo) *19704*

R ***Euphorbia briquetii*** Emberger & Maire *17672*
R *17672* Morocco *17672*

I ***Euphorbia brittonii*** Millsp. *17672*
I *17672* Bahamas *17672*

R ***Euphorbia commutata*** Engelm. *14352*
E *13967* Canada - Ontario *13967*
I *13967* U.S. - Florida *13967*
I *13967* U.S. - Georgia *13967*
R *13967* U.S. - Michigan *13967*
I *13967* U.S. - Oklahoma *13967*
E *13967* U.S. - Wisconsin *13967*

V ***Euphorbia corsica*** Req. *17672, 20171*
V *15080* France - Corsica *15080*

V ***Euphorbia cubensis*** Boiss. *5607*
V *19105* Cuba (Pinar del Rio) *5607*

Ex ***Euphorbia daphnoides*** Balf.f. *10082*
Ex *5852* Mauritius - Rodrigues *5852*

R ***Euphorbia davisii*** M.S. Khan *12840*
R *12840* Turkey *12840*

E ***Euphorbia deltoidea*** Engelm. ex Chapman ssp. ***deltoidea*** *17672*
E U.S. - Florida

R ***Euphorbia deltoidea*** Engelm. ex Champ. var. ***deltoidea*** *19002*
R *19002* U.S. - Florida *19002*

E ***Euphorbia doloensis*** M.Gilbert *19704*
E *19704* Ethiopia (Sidamo) *19704*

R ***Euphorbia duvalii*** Lecoq & Lamotte *17672, 20171*
R France (south)

V ***Euphorbia dwyeri*** Burch *9006*
V *16317* Panama *9006*

V ***Euphorbia fendleri*** Torrey & A.Gray var. ***triligulata*** Wheeler *17672*
V *19002* U.S. - Texas *19002*

V ***Euphorbia flavicoma*** DC. ssp. ***costeana*** (Rouy) P. Fourn. *20528*
V *20528* France (Aveyron) *20528*

V ***Euphorbia fontquerana*** Greuter *17672*
V *11496* Spain - Balearic Is. *11496*

E ***Euphorbia gaditana*** Coss. *17672, 20171*
E *19174* Spain (Cádiz, Sevilla) *20661*

R ***Euphorbia gasparrinii*** Boiss. *17672, 20171*
R *20804* Italy (Calabria, Abruzzi) *20804*
R Italy - Sicily

V ***Euphorbia geyeri*** Engelm. & Group. var. ***wheeleriana*** *19002*
V *19002* U.S. - Texas *19002*

R ***Euphorbia gibelliana*** Peola *17672, 20171*
R *20804* Italy (Piedmont) *20804*

V ***Euphorbia glauca*** Forst.f. *17672*
V *19305* New Zealand - Chatham Is. *19106*
V *19305* New Zealand - North Is. *19305*
V *19305* New Zealand - South Is. *19305*

R ***Euphorbia gregersenii*** K.Maly ex Beck *17672, 20171*
R *21091* Bosnia & Herzegovina *21091*
R (former) Yugoslavia

E ***Euphorbia haeleeleana*** Herbst *20850, 14209, 21354*
E *20850* U.S. - Hawaii *20850*

R ***Euphorbia hajirensis*** A.R. Smith *15534*
R *15534* Yemen - Socotra *15534*

R ***Euphorbia heleniana*** Thell. & Stapf *17672*
R *18996* St Helena *18996*

R ***Euphorbia helleri*** Millsp. *19002*
R *19002* U.S. - Texas *19002*

V ***Euphorbia hieroglyphica*** Coss. & Durieu *10488*
V *14958* Algeria *10488*

I ***Euphorbia hooveri*** Wheeler *17672*
I U.S. - California

V ***Euphorbia hyberna*** L. ssp. ***insularis*** (Boiss.) Briq. *18264, 20171*
V *18264* Italy (Liguria, Tuscany) *18264*
V *18264* Italy - Sardinia *18264*

R ***Euphorbia innocua*** L.C. Wheeler *20850, 17672*
R *20850* U.S. - Texas *20850*

R ***Euphorbia isaurica*** M.S. Khan *12840*
R *12840* Turkey *12840*

R ***Euphorbia katrajensis*** Gage *14782*
R *14782* India - Maharashtra *14782*

R ***Euphorbia kischenensis*** Vierh. *15534*
R *15534* Yemen - Socotra *15534*

I ***Euphorbia leptoclada*** Balf. f. *15534*
I *15534* Yemen - Socotra *15534*

R ***Euphorbia malvana*** Maire *17672*
R Morocco

R ***Euphorbia maresii*** Knoche *17672, 20171*
R *19174* Spain - Balearic Is. *19174*

Magnoliopsida (dicots): Euphorbiaceae: *Euphorbia*

E ***Euphorbia margalidiana*** Kuhbier & Lewejohann *17672*
E *11496* Spain - Balearic Is. (Ibiza) *17891*

R ***Euphorbia mazicum*** Emberger & Maire *17672*
R Morocco

V ***Euphorbia monchiquensis*** Franco & P.Silva *17672, 20171*
V *20076* Portugal *20076*

V ***Euphorbia munizii*** Borh. *5607*
V *19105* Cuba (Holguin) *5607*

V ***Euphorbia nephradenia*** Barneby *20850*
V *20850* U.S. - Utah *20850*

I ***Euphorbia nereidum*** Jahand. & Maire *17672*
I Morocco

R ***Euphorbia nevadensis*** Boiss. & Reut. *17672, 20171*
R *11496* Spain (Sierra Nevada and Levante) *20692*

E ***Euphorbia norfolkiana*** Boiss. *11649*
E *11649* Australia - Norfolk Is. *11649*

I ***Euphorbia obcordata*** Balf. f. *15534*
I *15534* Yemen - Socotra *15534*

I ***Euphorbia oblanceolata*** Balf. f. *15534*
I *15534* Yemen - Socotra *15534*

E ***Euphorbia obovata*** Decne. *17672*
E *16168* Egypt (Sinai) *17672*

E ***Euphorbia obtusata*** Pursh *14352*
E *13967* Canada - Ontario *13967*
E *13967* U.S. - Iowa *13967*
Ex *13967* U.S. - Maryland *13967*
Ex *13967* U.S. - Pennsylvania *13967*
E *13967* U.S. - Wisconsin *13967*

E ***Euphorbia omariana*** M. Gilbert *19704*
E *19704* Ethiopia (Bale) *19704*

R ***Euphorbia origanoides*** L. *3204*
R *3204* Ascension Is. *3204*

R ***Euphorbia orphanidis*** Boiss. *17672, 20171*
R *17672* Greece *17672*

V ***Euphorbia papillaris*** (Boiss.) Raffaelli & Ricceri *18264*
V *18264* Italy - Sicily *18264*

R ***Euphorbia parvula*** Del. *17672*
R *17672* Egypt *17672*
R *17672* Libya *17672*

R ***Euphorbia peplidion*** Engelm. *20850*
R *20850* U.S. - Texas *20850*

I ***Euphorbia perennans*** (Shinn.) Warm. & M. Johnston *17672*
I *17672* U.S. - Texas *17672*

R ***Euphorbia pestalozzae*** Boiss. *12840*
R *17672* Turkey *12840*

R ***Euphorbia petrophila*** C.A. Meyer var. ***armena*** Boiss. *12840*
R *17672* Turkey *12840*

V ***Euphorbia pinetorum*** (Small) G.L. Webster *20850*
V *20850* U.S. - Florida *20850*

R ***Euphorbia pisidica*** Hub.-Mor. & M.S. Khan *12840*
R *17672* Turkey *12840*

V ***Euphorbia plumerioides*** Teijsm. & Binnend. *17672*
V *17672* Australia - Queensland *17672*

I ***Euphorbia porterana*** (Small) R.C.H.M. Oudejans var. ***keyensis*** *17672*
I *17672* U.S. - Florida *17672*

I ***Euphorbia porterana*** (Small) R.C.H.M. Oudejans var. ***porterana*** *17672*
I *17672* U.S. - Florida *17672*

I ***Euphorbia porterana*** (Small) R.C.H.M. Oudejans var. ***scoparia*** *17672*
I *17672* U.S. - Florida *17672*

I ***Euphorbia proctorii*** (Burch) Correll *17672*
I *17672* Bahamas *17672*

V ***Euphorbia pseudo-apios*** Maire & M. Weiller *17672*
V *17672* Libya *17672*

R ***Euphorbia punctata*** Del. *17672*
R *17672* Egypt *17672*

R ***Euphorbia purpurea*** (Raf.) Fern. *20850, 17672*
Ex *20850* U.S. - Delaware *20850*
E *20850* U.S. - Maryland *20850*
E *20850* U.S. - New Jersey *20850*
I *20850* U.S. - New York *20850*
V *20850* U.S. - North Carolina *20850*
E *20850* U.S. - Ohio *20850*
E *20850* U.S. - Pennsylvania *20850*
V *20850* U.S. - Virginia *20850*
V *20850* U.S. - West Virginia *20850*

V ***Euphorbia rechingeri*** Greuter *17672, 20171*
V *20730* Greece - Crete *17672*

E ***Euphorbia repetita*** A. Rich. *19704*
E *19704* Ethiopia (Tigray, Gonder, Wello, Shewa) *19704*

R ***Euphorbia rhytidosperma*** Boiss. & Bal. *12840*
R *17672* Turkey *12840*

I ***Euphorbia roemeriana*** Scheele *19002*
I *19002* U.S. - Texas *19002*

E ***Euphorbia ruiziana*** (Klotzsch & Garcke) Boiss. *17672*
E *17672* Peru *17672*

R ***Euphorbia sanasunitensis*** Hand.-Mazz. *12840*
R *17672* Turkey *12840*

R ***Euphorbia sclerocyathium*** Korovin & Popov *17672*
R *17672* former USSR *6930*

V ***Euphorbia seguieriana*** Necker ssp. ***loiseleurii*** (Rouy) P. Fourn. *20528*
V *20528* France *20528*
E *13892* Netherlands *13892*

V ***Euphorbia sp. 1*** *19002*
V *19002* U.S. - New Mexico *19002*

R ***Euphorbia strictior*** Holz. *20850, 17672*
R *20850* U.S. - New Mexico *20850*
R *20850* U.S. - Texas *20850*

V ***Euphorbia sultan-hassei*** Strid *20730*
V *20730* Greece - Crete *20730*

E ***Euphorbia tacnensis*** F. Philippi *17672*
E *17672* Peru *17672*

E ***Euphorbia telephioides*** Chapman *20850, 15914*
E *20850* U.S. - Florida (coastal lowlands in Bay, Gulf, & Franklin Cos. (22 sites)) *20850*

R ***Euphorbia thulinii*** S.Carter *20884*
R *20884* Somalia (north-east) *20884*

V ***Euphorbia transtagana*** Boiss. *17672, 20171*
V *20076* Portugal *20076*

V ***Euphorbia trichotoma*** Kunth *19002*
I *20850* U.S. - Florida *20850*

R ***Euphorbia veneris*** Khan *14230*
R *17672* Cyprus (Troodos) *14230*

R *Euphorbia yaroslavii* Poljakov *17672*
R *17672* former USSR *6930*

R *Euphorbia zhiguliensis* Prokh. *17672, 20171*
R *11552* Russian Federation (western) *11552*

R *Monadenium arborescens* Bally *19525*
R *19035* Tanzania (Kilosa) *19525*

R *Monadenium coccineum* Pax *19525*
R *19035* Tanzania (Masai, Tabora, Dodoma) *19525*

R *Monadenium ellenbeckii* N.E. Br. *15926*
R *19035* Ethiopia (southern) *15926*
R *19035* Kenya (northern) *15926*
I *19035* Somalia (northern; isolated colonies) *15926*

I *Monadenium guentheri* Pax var. *guentheri* *19035*
I *19035* Kenya *19035*

I *Monadenium heteropodum* (Pax) N.E. Br. var. *heteropodum* *19525*
I *19035* Tanzania (Lushoto) *19525*

I *Monadenium magnificum* E.A. Bruce *19525*
I *19035* Tanzania (Mpwapwa) *19525*

R *Monadenium majus* N.E. Brown *15926*
R *19035* Ethiopia *15926*

I *Monadenium montanum* Bally var. *rubellum* Bally *19035*
I *19035* Kenya *19035*

R *Monadenium reflexum* Chiov. *19035*
R *6087* Ethiopia *6087*
I *19035* Kenya *19035*

I *Monadenium stellatum* Bally *19035*
I *19035* Somalia *19035*

I *Omphalea megacarpa* Hemsl. *5932*
I *5932* Trinidad & Tobago *5932*

Geraniaceae

Number of genera:	11	
Number of species:	700	
Recorded threatened species:	85	(12%)

Mainly temperate and subtropical.

E *Pelargonium cotyledonis* L'Her. *10260*
E *18996* St Helena *18996*

Molluginaceae

Number of genera:	13	
Number of species:	100	
Recorded threatened species:	12	(12%)

Tropical and subtropical, especially Africa.

V *Hypertelis acida* (Hook.f.) K. Muller *18996*
V *18996* St Helena *18996*

R *Macarthuria ephedroides* C.White *20681*
R *20681* Australia - Queensland *20681*

Portulacaceae

Number of genera:	20	
Number of species:	500	
Recorded threatened species:	52	(10%)

Cosmopolitan, especially western North America and Andes.

V *Cistanthe tweedyi* (Gray) Hershkovitz *20850*
E *20850* Canada - British Columbia *20850*
I *20850* U.S. - Washington *20850*

V *Lewisia cantelovii* J.T. Howell *20850*
V *20850* U.S. - California *20850*

V *Lewisia columbiana* (T.J. Howell) B.J. Robins var. *columbiana* *10701*
E *13967* Canada - British Columbia *13967*
V *13967* U.S. - Oregon *13967*

V *Lewisia congdonii* (Rydb.) S. Clay *20850*
V *20850* U.S. - California *20850*

V *Lewisia disepala* Rydb. *20850*
I *20850* U.S. - California *20850*

R *Lewisia pygmaea* (A.Gray) Robinson ssp. *longipetala* (Piper) Ferris *19002*
R *19002* U.S. - California *19002*

V *Lewisia pygmaea* (Gray) B.L. Robins ssp. *pygmaea* *1034*
E *13967* Canada - Alberta *13967*
V *13967* Canada - British Columbia *13967*
E *13967* Canada - Yukon Territory *13967*

R *Lewisia sierrae* Ferris *20850*
I *20850* U.S. - California *20850*
I *20850* U.S. - Nevada *20850*

E *Lewisia stebbinsii* Gankin & Hildreth *20850*
E *20850* U.S. - California *20850*

Scrophulariaceae

Number of genera:	190	
Number of species:	4,000	
Recorded threatened species:	969	(24%)

Cosmopolitan, especially temperate regions and tropical mountains.

V *Acanthorrhinum rivas-martinezii* (Schez-Mata) Fdez-Casas & Schez-Mata *19174*
V *19174* Spain *19174*

1034 **Douglas, G.W., Argus, G.W., Dickson, H.L., & Brunton, D.F. (1981).** Les plantes vasculaires rares du Yukon. [The rare vascular plants of the Yukon.]. *Syllogeus* 61(35):28-64. Maps. Contribution to Unesco Program on Man and the Biosphere.

2050 **Holub, J., Procházka, F., & Cerovsky, J. (1979).** Seznam vykynulych, endemickych a ohrozenych taxonu vyssich rostlin kveteny CSR (1. verze). [List of the extinct, endemic and threatened taxa of vascular plants of the flora of the Czech Socialist Republic (first draft)]. *Preslia* 51(3):213-237. Cz (En).

3204 **Cronk, Q.C.B. (1980).** Extinction and survival in the endemic vascular flora of Ascension Island. *Biological Conservation* 17(3):207-219. Illus., map.

3774 **Hall, A.V., de Winter, M., de Winter, B., & van Oosterhout, S.A.M. (1980).** Threatened plants of Southern Africa: a report of the Committee for Terrestrial Ecosystems National Programme for Environmental Sciences. Pretoria: South African National Scientific Programmes Report No. 45. CSIR. 244 pp.

4650 **Popenoe, J. (1984).** Threatened plants in the Bahamas. *Threatened Pl. Newsl.* 13:11.

5204 **Velchev, V., Kozuharov, S., Bondev, I., Kuzmanov, B., & Markova, M. (1984).** Chervena kniga na NR Bulgariya: izcheznali, zastrasheni ot izchezvane i redki rasteniya i zhivotni: tom 1. Rasteniya. [Red Data Book of the People's Republic of Bulgaria: v. 1. Plants]. Sofiya: Izdatelstvo na Bulgarskata Akademiya na Naukite. 447 pp. Bul (En, Rus). Illus., col. illus., maps.

5607 **Borhidi, A. & Muñiz, O. (1983).** Catálogo de plantas Cubanas amenazadas o extinguidas. La Habana: Acad. Ciencias de Cuba. 85 pp. Lists 959 species of gymnosperms and flowering plants threatened or extinct, including 832 endemics, with their distribution by provinces and assignment into categories - noncompatible with IUCN categories.

5642 **Jiménez, J.J. (1978).** Lista tentativa de plantas de la República Dominicana que deben protegerse para evitar su extinción. Santo Domingo: Coloquio Internacional sobre la practica de la conservación. CIBIMA/UASD. Lists 133 species of threatened flowering plants, of which 49 are endemic.

5852 **Strahm, W. (1989).** Plant Red Data Book for Rodrigues. Königstein: Koeltz Scientific Books. 241 pp. maps, illus. Includes detailed accounts of all endemics and threatened non-endemic species, incl. conservation categories: introduction on geography, botany and conservation problems. Illus., maps.

5914 **Kemp, E.S. (1979).** Swaziland. Part of appendix to: Possibilities and needs for conservation of plant species and vegetation in Africa. pp. 101-103 *In* Hedberg, I. (ed.). Systematic botany, plant utilization and biosphere conservation. Stockholm. Almqvist & Wiksell International. Stockholm: Almqvist & Wiksell International. Contains 155 species and infraspecific taxa: E:2, V:16, R:137.

5926 **Wingfield, R.C. (1979).** Tanzania. Part of appendix to: Possibilities and needs for conservation of plant species and vegetation in Africa. pp. 95-99 *In* Hedberg, I. (ed.). Systematic botany, plant utilization and biosphere conservation. Stockholm: Almqvist & Wilksell International. Contains about 390 endemic species and infraspecific taxa.

5932 **Adams, C.D. & Baksh, Y.S. (1981).** What is an endangered plant? *Living World*:9-14. Journal of the Trinidad and Tobago Field Naturalists Club. Includes distribution tables of 648 threatened non-endemic species and of 215 endemic species, with criteria for ranking the selected species.

5942 **Borodin, A.M., et al. (1985).** Krasnaya kniga SSSR: redkie i nakhodyashchiesya pod ugrozoi ischeznoveniya vidy zhivotnykh i rastenii. - izdanie vtoroe [2]: tom pervyi - vtoroi [1-2]. [Plant Red Data Book for the USSR]. (2nd edition). Moscow: Lesnaya Promyshlennost. Illus., col., maps. Vol. 1 - Animals; Vol. 2 - Plants.

6072 **Hall, J.B. (1979).** Ghana. Part of appendix to: Possibilities and needs for conservation of plant species and vegetation in Africa. pp. 88-91 *In* Hedberg, I. (ed.). Systematic botany, plant utilization and biosphere conservation. Stockholm: Almqvist and Wiksell. Contains 210 species and infraspecific taxa.

6073 **Gillett, J.B. (1979).** Kenya. Part of appendix to: Possibilities and needs for conservation of plant species and vegetation in Africa. pp. 93-94 *In* Hedberg, I. (ed.). Systematic botany, plant utilization and biosphere conservation. Stockholm. Almqvist & Wiksell International. Stockholm: Almqvist & Wicksell International. Examples of taxa threatened in major vegetation types, and includes E:11, V:20, R:4, I:1.

6087 **Gilbert, M. (1979).** Ethiopia. Part of appendix to: Possibilities and needs for conservation of plant species and vegetation in Africa. pp. 92-93 *In* Hedberg, I. (ed.). Systematic botany, plant utilization and biosphere conservation. Stockholm: Almqvist & Wiksell International. Contains 29 endemic succulent taxa - E:1, V:4, R:12, I:12.

6180 **Hall, A.V. & Veldhuis, H.A. (1985).** South African Red Data Book: plants - Fynbos and Karoo biomes. Pretoria: CSIR. 160 pp. South African National Scientific Programmes Report No. 117.

6930 **Takhtajan, A.L. (1981).** Rare and vanishing plants of the USSR to be protected. Leningrad: Nauka. 202 pp.

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9019 **Vovides, A.P. (1981)**. Lista preliminar de plantas Mexicanas raras o en peligro de extinción. [Preliminary list of 210 rare, threatened and endangered Mexican plant species]. *Biotica* 6(2):219-228. Sp (En).

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Annex U. Non-CITES Listed Nationally Threatened Succulent Plants

? South Africa - Cape Province *20604*
V *20604* South Africa - Orange Free State *20604*

Agavaceae

Number of genera: 18
Number of species: 350-410
Recorded threatened species: 68 (17%)

Warm, mostly arid regions of New and Old Worlds; a few in distinctly temperate climates.

? ***Agave barbadensis*** *21425*
V *21425* Barbados *21425*

? ***Agave brevipetala*** *21425*
I *21425* Haiti *21425*

? ***Agave brevispina*** *21425*
I *21425* Haiti *21425*

? ***Agave cajalbanensis*** *21425*
V *21425* Cuba (west) *21425*

? ***Agave chiapensis*** **Jacobi** *19788*
? Guatemala *19788*
R *19850* Mexico - Chiapas *19788*

? ***Agave gypsophila*** **H.S. Gentry** *19850*
R *19850* Mexico *19850*
[distribution possibly incomplete]

? ***Agave legrelliana*** *21425*
I *21425* Cuba (west) *21425*

? ***Agave ornithobroma*** **H.S. Gentry** *19850*
R *19848* Mexico - Nayarit *19889*
R *19848* Mexico - Sinaloa *19889*
[distribution possibly incomplete]

? ***Agave pendentata*** *21425*
V *21425* Cuba (east) *21425*

? ***Agave polianthiflora*** **H.S. Gentry** *19850*
V *19850* Mexico *19850*
[distribution possibly incomplete]

? ***Agave shaferi*** *21425*
V *21425* Cuba (east) *21425*

? ***Beschorneria tubiflora*** **Klotzsch** *19850*
R *19848* Mexico *19850*
[distribution possibly incomplete]

? ***Manfreda brunnea*** **(Watson) Rose** *19850*
V *19850* Mexico *19850*
[distribution possibly incomplete]

? ***Yucca queretaroensis*** **I. Pina Lujan** *19850*
R *19850* Mexico *19850*
[distribution possibly incomplete]

Aizoaceae

Number of genera: 12-128
Number of species: 2,500
Recorded threatened species: 163 (6%)

South Africa; Australia.

? ***Aizoon hispanicum*** **L.** *18264, 20171*
? Greece - Crete *8000*
R *18264* Italy (Calabria) *18264*
? Spain *8000*
R *20727* Spain - Balearic Is. (Mallorca & Pityusic Is.) *8000*
R *8790* Cyprus (Karpas Peninsula) *8790*

? ***Neohenricia sibbettii*** **(L.Bolus) L.Bolus** *20604*

Aloaceae

Number of genera: 5
Number of species: 700
Recorded threatened species: 206 (29%)

Arabia, Africa, Madagascar.

? ***Gasteria courcheri*** *15013*
I *15013* South Africa - Natal *15013*
[distribution possibly incomplete]

? ***Haworthia angolensis*** **Bak.** *20039*
? Southern Africa *20039*
I *20039* Swaziland *20039*

? ***Haworthia limifolia*** **Marloth var. *limifolia*** *20039*
? Mozambique *20604*
V *20039* Swaziland *5914*
K *20604* South Africa - Transvaal *20604*
V *15013* South Africa - Natal *15013*
[distribution incomplete]

Apocynaceae

Number of genera: 168-200
Number of species: 2,000
Recorded threatened species: 149 (7%)

Tropics, particularly rain forest regions.

? ***Adenium obesum*** **Roem. var. *multiflorum*** *6088*
V *20572* Zimbabwe *6088*
R *5914* Swaziland *5914*
[distribution possibly incomplete]

? ***Adenium swazicum*** **Stapf** *20604, 18023*
R *19879* Madagascar *19879*
? Mozambique *20604*
K *20604* Swaziland *20604*
I *20604* South Africa - Transvaal *20604*

? ***Plumeria filifolia*** *21425*
I *21425* Cuba (east) *21425*

? ***Plumeria krugii*** *21425*
I *21425* Puerto Rico (west) *21425*

Asclepiadaceae

Number of genera: 250-315
Number of species: 2,000
Recorded threatened species: 420 (21%)

Tropical and subtropical, especially Africa, with relatively few species in temperate regions.

? ***Brachystelma coddii*** **R.A. Dyer** *18023*
I *18023* Swaziland *18023*
[distribution incomplete]

? ***Brachystelma macropetalum*** **N.E. Br.** *18023*
I *18023* Swaziland *18023*
[distribution incomplete]

? ***Brachystelma pulchellum*** **(Harv.) Schltr.** *18023*
I *18023* Swaziland *18023*
[distribution incomplete]

? ***Brachystelma swazicum*** **R.A. Dyer** *18023*
I *18023* Swaziland *18023*

Magnoliopsida (dicots): Asclepiadaceae: ***Brachystelma***

[distribution incomplete]

? ***Caralluma aaronis*** **(Hart) N.E. Br.**
- R Egypt
- ? Israel
- R Jordan

? ***Caralluma adenensis*** **(Defl.) Berger** *20146*
- E *20146* Oman (Dhofar) *20146*
- V *20146* Saudi Arabia (western) *20146*
- V *20146* Yemen, Democratic *20146*

[distribution possibly incomplete]

? ***Caralluma adscendens*** **(Roxb.) Haworth** *16162*
- I *16162* Sri Lanka *16162*

[distribution possibly incomplete]

? ***Caralluma commutata*** **A. Berger** *6087*
- I *6087* Ethiopia *6087*

[distribution incomplete]

? ***Caralluma edulis*** **(Edgew.) Benth. & Hook.** *7771*
- ? North Africa & Middle East *7771*
- E *20146* Oman (Dhofar) *20146*
- ? Saudi Arabia *20146*
- ? Yemen, Democratic *20146*
- I India - Rajasthan (western) *7771*
- ? Pakistan (Baluchistan) *7771*

? ***Caralluma europaea*** **(Guss.) N.E.Br.** *18264, 20171*
- R *14155* Italy - Sicily (Island of Lampedusa) *10763*
- R *14155* Spain *10763*
- ? Algeria *10763*
- ? Egypt *10763*
- ? Israel *10763*
- ? Jordan *10763*
- ? Libya *10763*
- ? Morocco *10763*
- ? Tunisia *10763*

? ***Caralluma flava*** **N.E. Brown** *20146*
- V *20146* Oman (southern, central and northern) *20146*
- ? Yemen, Democratic *20146*

? ***Caralluma furta*** **Bally** *6087*
- V *6087* Ethiopia *6087*
- ? Somalia

? ***Caralluma gerstneri*** *5914*
- R *5914* Swaziland *5914*

[distribution possibly incomplete]

? ***Caralluma gracilipes*** **K. Schumann** *6087*
- R *6087* Ethiopia *6087*
- ? Kenya
- ? Sudan
- ? Tanzania
- I *19007* Uganda *19007*

? ***Caralluma intermedia*** **Schlechter** *20803*
- I South Africa - Cape Province

? ***Caralluma keithii*** *5914*
- R *5914* Swaziland *5914*

[distribution possibly incomplete]

? ***Caralluma lebomboensis*** *5914*
- R *5914* Swaziland *5914*

[distribution possibly incomplete]

? ***Caralluma penicillata*** **(Defl.) N.E. Br.** *20146*
- ? North Africa & Middle East (northeast Africa) *20146*
- V *20146* Oman (western Hajar mountains) *20146*
- ? Saudi Arabia (southern) *20146*

[distribution incomplete]

? ***Caralluma quadrangula*** **(Forsskal) N.E. Br.** *20146*
- V *20146* Oman (Dhofar) *20146*
- ? Saudi Arabia *20146*
- ? Yemen, Democratic *20146*

? ***Caralluma rogersii*** *5914*
- R *5914* Swaziland *5914*

[distribution possibly incomplete]

? ***Caralluma tuberculata*** **R. Br.** *20146*
- E *20146* Oman (Dhofar) *20146*
- ? Saudi Arabia *20146*
- ? Yemen, Democratic *20146*
- *21421* India (lower tracts of northern Himalayas) *21421*
- ? Pakistan (Baluchistan) *20146*

? ***Cynanchum meyeri*** **(Decne.) Schltr.** *21419*
- R *21419* Southern Africa *21419*

? ***Duvalia polita*** *5914*
- R *5914* Swaziland *5914*

[distribution possibly incomplete]

? ***Duvalia somalensis*** **Lavranos** *6087*
- V *6087* Ethiopia *6087*
- ? Somalia

? ***Echidnopsis dammaniana*** **Spreng.** *6073*
- ? Ethiopia
- V *6073* Kenya *6073*
- ? Somalia

? ***Echidnopsis ericiflora*** **Lavranos** *20064*
- I *21416* Kenya

? ***Edithcolea grandis*** **N.E. Br.** *6073*
- ? Yemen - Socotra *18209*
- V *6073* Kenya *6073*
- ? Somalia
- ? Tanzania

? ***Hoodia juttae*** **Dinter** *21419*
- R *21419* Southern Africa *21419*

? ***Hoodia officinalis*** **(N.E.Br.) Plowes ssp.** ***delaetiana*** **(Dinter) Bruyns** *21419*
- R *21419* Southern Africa *21419*

? ***Hoodia ruschii*** **Dinter** *21419*
- I *21419* Southern Africa *21419*

? ***Hoodia triebneri*** **(Nel) Bruyns** *21419*
- R *21419* Southern Africa *21419*

? ***Huernia echidnopsioides*** **(L.C.Leach) L.C. Leach** *21419*
- R *21419* Southern Africa *21419*

? ***Huernia plowesii*** **L.C. Leach** *21419*
- R *21419* Southern Africa *21419*

? ***Huernia somalica*** **N.E. Br.** *6087*
- I *6087* Ethiopia *6087*
- ? Somalia

? ***Lavrania haagnerae*** **Plowes** *21419*
- R *21419* Southern Africa *21419*

? ***Orbea maculata*** **(N.E.Br.) L.C.Leach** *20604*
- ? Botswana *20604*
- R *20604* South Africa - Transvaal (Bophuthatswana) *20604*

? ***Orbea rangeana*** **(Dinter & A.Berger) L.C.Leach** *21419*
- R *21419* Southern Africa *21419*

K ***Orbeopsis gerstneri*** **(Letty) L.C.Leach ssp.** ***gerstneri*** *20604, 20039*
- K *20604* Swaziland *20039*
- V *20604* South Africa - Natal *20604*

? ***Pachycymbium wissmannii*** **(Schwartz) M. Gilbert** *20146*
- E *20146* Oman (Dhofar) *20146*
- ? Saudi Arabia (southwest) *20146*
- ? Yemen, Democratic *20146*

? ***Raphionacme bingeri*** **(A. Chev.) Lebrun & Stork** *11734*

Magnoliopsida (dicots): Asclepiadaceae: *Raphionacme*

? Chad
? Ghana *7926*
? Mali
? Niger
R Senegal *11734*
[distribution possibly incomplete]

? ***Sarcolobus globosus*** **Wall.** *19209*
I Bangladesh
? Myanmar
? Thailand (peninsular) *19289*
? Malaysia - Peninsular Malaysia (widely distributed) *19209*
Ex *20099* Singapore *20099*
? India - Nicobar Is.
[distribution possibly incomplete]

K ***Sarcostemma viminale*** **R. Br.** *7926*
K *20578* Madagascar (Toliara) *20578*
nt *10598* Mauritius *10598*
V *6086* Benin *7926*
? Ghana
? Nigeria
[distribution incomplete]

? ***Stapelia semota*** **N.E. Br.** *6073*
V *6073* Kenya *6073*
? Tanzania

? ***Stapeliopsis urniflora*** **Lavranos** *21419*
R *21419* Southern Africa *21419*

? ***Tylophora indica*** **(Burm. f.) Merrill** *10082*
K *15012* Bangladesh *15012*
? Thailand (peninsular) *19289*
Ex *20099* Singapore *20099*
? Réunion *10082*
? Mauritius *10082*
[distribution possibly incomplete]

Asphodelaceae

Number of genera:	11
Number of species:	319
Recorded threatened species:	48 (15%)

Europe, Africa, Asia, New Zealand and Mexico.

? ***Bulbine francescae*** **G.Will. & Baijnath Ined.** *21419*
R *21419* Southern Africa *21419*

Compositae

Number of genera:	1,100-1,509
Number of species:	20,000
Recorded threatened species:	2551 (12%)

Cosmopolitan, especially temperate and subtropical regions.

? ***Borrichia cubana*** *21425*
E *21425* Cuba (west) *21425*

? ***Senecio deflersii*** **O. Schwartz** *16261*
I *16261* Yemen, Democratic *16261*
[distribution possibly incomplete]

Crassulaceae

Number of genera:	25
Number of species:	900
Recorded threatened species:	227 (25%)

Cosmopolitan, except Australia and Polynesia.

? ***Aeonium subplanum*** **Praeger**
V *20528* France (south west) *20528*
? Spain *20528*

? ***Cotyledon barbeyi*** *5914*
R *5914* Swaziland *5914*
[distribution possibly incomplete]

? ***Crassula acinaciformis*** **Schinz** *18023*
I *18023* Swaziland *18023*
[distribution incomplete]

? ***Crassula alba*** **Forssk var. *pallida***
Toelken *18023*
I *18023* Swaziland *18023*
[distribution incomplete]

? ***Crassula alba*** **Forssk. var. *parvisepala*** **(Schonl.)**
Toelken *18023*
I *18023* Swaziland *18023*
[distribution possibly incomplete]

? ***Crassula aurusbergensis*** **G.Will.** *21419*
R *21419* Southern Africa *21419*

? ***Crassula ausensis*** **Hutchison ssp. *giessii***
(Freidrich) Toelken *21419*
R *21419* Southern Africa *21419*

? ***Crassula compacta*** **Schonl** *18023*
I *18023* Swaziland *18023*
[distribution incomplete]

? ***Crassula moschata*** **G.Forster** *20681, 19942*
R *20681* Australia - Tasmania *20681*
? Falkland Is. *19942*
[distribution possibly incomplete]

? ***Crassula orbicularis*** **L.** *18023*
I *18023* Swaziland *18023*
[distribution incomplete]

? ***Crassula ovata*** *5914*
R *5914* Swaziland *5914*
[distribution possibly incomplete]

? ***Crassula peduncularis*** **(Sm.) F.Meigen** *19305, 20171*
V *19305* New Zealand - North Is. *19305*
V *19305* New Zealand - South Is. *19305*
[distribution possibly incomplete]

? ***Crassula pharnaceoides*** **Fischer & C.A. Mey.** *5908*
I *5908* Sudan *5908*
[distribution possibly incomplete]

? ***Crassula setulosa*** *5914*
R *5914* Swaziland *5914*
[distribution possibly incomplete]

? ***Crassula tillaea*** **Lester-Garl.** *5204, 20171*
V *5204* Bulgaria (south-west) *5204*
R *13351* Malta *13351*
V *13892* Netherlands *13892*
? Australia - Western Australia
[distribution possibly incomplete]

? ***Crassula tuberella*** **Toelken** *20604*
K *20604* Lesotho *20604*
R *20604* South Africa - Transvaal *20604*
? *20604* South Africa - Natal *20604*
R *20604* South Africa - Orange Free State *20604*

? ***Echeveria australis*** **Rose** *9037*
R *9426* Costa Rica *9037*
? Nicaragua *16826*
? Panama *9006*

? ***Echeveria peruviana*** **Meyen** *18200*
? Argentina
? Chile
R *12468* Peru *18200*

? ***Graptopetalum bartramii*** **Rose**

Magnoliopsida (dicots): Crassulaceae: *Graptopetalum*

I *19002* U.S. - Arizona *19002*
? Mexico - Sonora *19002*

? ***Graptopetalum grande*** **Alexander** *19850*
R *19850* Mexico *19850*
[distribution possibly incomplete]

? ***Graptopetalum rusbyi*** **(Greene) Rose**
? *19002* U.S. - Arizona *19002*
R *19002* U.S. - New Mexico *19002*
[distribution possibly incomplete]

K ***Kalanchoe alticola*** **Compton** *20604, 5914*
K *20604* Swaziland *20604*
R *20604* South Africa - Transvaal *20604*

? ***Kalanchoe aubrevillei*** **Cuf.** *19109*
I *21416* Kenya *19109*
? Tanzania (Masai) *19513*

? ***Kalanchoe boranae*** *19109*
I *21416* Kenya *19109*

? ***Kalanchoe glandulosa*** **Hochst. ex A. Rich.** *9336*
? India - Karnataka (Mysore Hills) *9336*
I India - Kerala *9336*

? ***Kalanchoe laciniata*** **(L.) Pers.** *16162*
I *16162* Sri Lanka *16162*
[distribution possibly incomplete]

? ***Kalanchoe lanceolata*** **(Forssk.) Pers.** *7926*
R *6072* Ghana *6072*
? Nigeria *7926*
[distribution incomplete]

? ***Kalanchoe luciae*** **R. Hamet ssp. *montana* (Compton) Toelken** *18023*
I *18023* Swaziland *18023*
[distribution incomplete]

? ***Orostachys malacophylla*** **Fischer** *10572*
V *10572* Japan *10572*
[distribution possibly incomplete]

? ***Orostachys sikokianus*** **Ohwi** *15923*
R *15923* Korea, South (Mt Chiri) *15923*
[distribution possibly incomplete]

? ***Orostachys spinosa*** **(L.) Sweet** *20171*
? China *8001*
? China - Xizang Zizhiqu (west)
? Mongolia *8001*
? Japan *8001*
? Asiatic U.S.S.R.
R former European USSR
[distribution incomplete]

? ***Orostachys thyrsiflora*** **(DC.) Fisch. ex Sweet** *20171*
? China - Xizang Zizhiqu
? Mongolia *8001*
? Asiatic U.S.S.R. (w. Siberia, Centr' Asia)
R former European USSR
[distribution incomplete]

? ***Rosularia lineata*** **(Boiss.) Berger**
I Egypt
? Syria
[distribution possibly incomplete]

? ***Sedum aetnense*** **Tineo** *5204, 20171*
? Albania
R *5204* Bulgaria (south) *5204*
R *18264* Italy - Sicily *18264*
V Spain
? (former) Yugoslavia
? former USSR *19164*
[distribution possibly incomplete]

? ***Sedum album*** **L.** *13351, 20171*
I *13351* Malta (Dinglii cliffs) *13351*
? United Kingdom - Gibraltar *19912*
[distribution possibly incomplete]

? ***Sedum anacampseros*** **L.** *18154, 20171*
R *18154* Switzerland *18154*
[distribution possibly incomplete]

? ***Sedum anglicum*** **Huds.** *8000, 20171*
R *18216* Sweden *18216*
[distribution possibly incomplete]

? ***Sedum annuum*** **L.** *8000, 20171*
I *19321* Slovakia *19321*
[distribution possibly incomplete]

? ***Sedum caespitosum*** **(Cav.) DC.** *13351, 20171*
R *20686* Hungary *20686*
R *13351* Malta *13351*
R *19949* Romania *17762*
R *20727* Spain - Balearic Is. *20727*
[distribution possibly incomplete]

? ***Sedum dasyphyllum*** **L.** *17762, 20171*
R *19949* Romania *17762*
[distribution possibly incomplete]

? ***Sedum glaucophyllum*** **Clausen** *19002*
V *19002* U.S. - Maryland *19002*
R *19002* U.S. - North Carolina *19002*

? ***Sedum gypsicola*** **Boiss. & Reuter** *18264, 20171*
V *18264* Italy - Sicily *18264*
[distribution possibly incomplete]

? ***Sedum litoreum*** **Guss.** *13351, 20171*
V *20528* France *20528*
V *20528* France - Corsica *20528*
R *13351* Malta *13351*
[distribution possibly incomplete]

? ***Sedum magellense*** **Ten.** *5204, 20171*
R *21091* Bosnia & Herzegovina *21091*
V *5204* Bulgaria (Southern - one site only) *5204*
[distribution possibly incomplete]

? ***Sedum maireanum*** **Sennen**
R Spain
[distribution possibly incomplete]

? ***Sedum maximum*** **(L.) Suter** *14229, 20171*
V *14229* Liechtenstein *14229*
[distribution possibly incomplete]

? ***Sedum ochroleucum*** **Chaix** *17762, 20171*
R *19947* Romania *17762*
R *18154* Switzerland *18154*
[distribution possibly incomplete]

? ***Sedum rosea*** **(L.) Scop. var. *roanensis* Britt. (Berger)** *11630*
V *19002* U.S. - North Carolina *19002*
? *19002* U.S. - Tennessee *19002*
[distribution possibly incomplete]

? ***Sedum rotundifolium*** **D. Lee** *15923*
R *15923* Korea, South *15923*
[distribution possibly incomplete]

? ***Sedum sarmentosum*** **Bunge** *20985*
R *18154* Switzerland *18154*
E *20985* Vietnam *20985*
[distribution possibly incomplete]

? ***Sedum stefco*** **Stef.** *8000, 20171*
R *5204* Bulgaria (west Rhodopi) *8000*

? ***Sedum stellatum*** **L.** *13351, 20171*
Ex *13351* Malta *13351*
[distribution possibly incomplete]

? ***Sedum subulatum*** **(C. Meyer) Boiss.** *20171*
? Asiatic U.S.S.R. (Caucasus) *8001*
V former European USSR *8001*

[distribution incomplete]

? ***Sedum telephioides*** **Michx.** *19002*
- R *19002* U.S. - Indiana *19002*
- R *19002* U.S. - Kentucky *19002*
- Ex *19002* U.S. - New Jersey *19002*
- Ex *19002* U.S. - New York *19002*
- ? U.S. - Pennsylvania *19002*

? ***Sedum telephium*** **L.** *7897, 20171*
- R *14229* Liechtenstein *14229*
- I *7897* Poland *7897*

[distribution possibly incomplete]

? ***Sedum tschernokolevii*** **Stef. ex Valev** *5204, 20171*
- R *5204* Bulgaria (Eastern - one site only) *5204*

[distribution possibly incomplete]

? ***Sedum villosum*** **L.** *14526, 20171*
- Ex/E *5622* Czech Republic *5622*
- E *14526* Finland *14526*
- Ex *19306* Poland *7897*
- R *18216* Sweden *18216*
- R *18154* Switzerland *18154*
- E *13967* Canada - Quebec *13967*

[distribution possibly incomplete]

? ***Sedum villosum*** **L. ssp.** ***nevadense*** **(Cosson) Batt.** *20528*
- Ex *20528* France (var) *20528*

[distribution incomplete]

? ***Sedum villosum*** **L. ssp.** ***villosum*** *18264*
- V *18264* Italy (Alps) *18264*

[distribution possibly incomplete]

? ***Sedum zollikoferi*** **F.Herm. & Stef.** *5204, 20171*
- V *5204* Bulgaria (south) *5204*

[distribution possibly incomplete]

? ***Sempervivum calcareum*** **Jord.** *8000, 20171*
- R France

? ***Sempervivum grandiflorum*** **Haw.** *18154, 20171*
- R *18154* Switzerland *18154*

[distribution possibly incomplete]

? ***Sempervivum velenovskyi*** **Ceschm.** *5204*
- R *5204* Bulgaria (Western and southern - nine sites and one area) *5204*

[distribution possibly incomplete]

? ***Umbilicus botryoides*** **Hochst. ex A. Rich.** *5908*
- R Egypt
- I *5908* Sudan *5908*

[distribution possibly incomplete]

? ***Umbilicus horizontalis*** **(Guss.) DC.** *10270, 20171*
- ? United Kingdom - Gibraltar *19912*
- ? Algeria *10270*
- V Egypt *10272*
- ? Israel *10270*
- ? Jordan *10270*
- ? Lebanon *10270*
- ? Libya *10270*
- ? Morocco *10270*
- ? Syria *10270*
- ? Tunisia *10270*

[distribution possibly incomplete]

Cruciferae

Number of genera:	350	
Number of species:	3,000	
Recorded threatened species:	747	(24%)

Cool temperate or warm temperate Northern or Southern Hemisphere.

? ***Cakile maritima*** **Scop. ssp.** ***euxina*** **(Pobed.) E. J. Nyárády** *17762, 20171*
- V *19949* Romania *17762*

[distribution incomplete]

Dracaenaceae

Number of genera:	6	
Number of species:	156	
Recorded threatened species:	20	(12%)

Tropics and subtropics, to south-west USA.

? ***Sansevieria sambiranensis*** **H.Perrier** *21418*
- R *21418* Madagascar (Antsiranana) *21418*

Euphorbiaceae

Number of genera:	300	
Number of species:	7,500	
Recorded threatened species:	927	(12%)

Cosmopolitan, especially tropical and subtropical.

? ***Euphorbia aleppica*** **L.** *5204, 20171*
- V *5204* Bulgaria (Central and southern - three sites and two unconfirmed sites) *5204*

[distribution possibly incomplete]

? ***Euphorbia amygdaloides*** **L.** *19035*
- I *2050* Czech Republic *2050*
- R *13892* Netherlands *13892*

[distribution possibly incomplete]

? ***Euphorbia arabica*** **T.Anderson** *10269*
- R Egypt *10269*
- ? Saudi Arabia *19035*
- ? Yemen *19035*
- ? Yemen, Democratic *19035*
- ? Djibouti *19035*
- ? Ethiopia *19035*
- ? Kenya *19035*
- ? Somalia *19035*
- ? Sudan (eastern) *19035*

[distribution possibly incomplete]

? ***Euphorbia articulata*** *19001*
- Ex/E *19001* Martinique *19001*

[distribution possibly incomplete]

? ***Euphorbia baliola*** **N.E.Br.** *21419*
- R *21419* Southern Africa *21419*

? ***Euphorbia berotica*** **N.E.Br.** *21419*
- R *21419* Southern Africa *21419*

? ***Euphorbia bessarabica*** **Klokov** *17672, 20171*
- R *17672* former European USSR *17672*

[distribution possibly incomplete]

? ***Euphorbia bivonae*** **Steud.** *17672, 20171*
- R *17672* Italy - Sicily *17672*
- I *17672* Malta *17672*
- E *16168* Egypt (Marmarica district, Isthmic Desert of Sinai) *16168*

[distribution incomplete]

? ***Euphorbia capitulata*** **Rchb.** *20171*
- R *21091* Bosnia & Herzegovina *21091*

? ***Euphorbia carniolica*** **Jacq.** *18154, 20171*
- E *18154* Switzerland *18154*

[distribution possibly incomplete]

? ***Euphorbia carpatica*** **Wol.** *17762, 20171*
- V *19949* Romania *17762*

[distribution possibly incomplete]

Magnoliopsida (dicots): Euphorbiaceae: *Euphorbia*

? ***Euphorbia chamaepeplus*** **Boiss. & Gaill.** *14230*
- K Cyprus *14230*
- R Egypt
- ? Israel
- ? Jordan
- ? Lebanon *14230*
- ? Syria *14230*
- ? Iraq *14230*

[distribution incomplete]

? ***Euphorbia characias*** **L.** *13351, 20171*
- R *13351* Malta (Buskett; Mtarfa; Gozo) *13351*

[distribution possibly incomplete]

? ***Euphorbia clavigera*** **N.E.Br.** *21419*
- V *21419* Southern Africa *21419*

? ***Euphorbia clementei*** **Boiss.** *20171*
- R *8322* Portugal *8322*
- R Spain

[distribution incomplete]

? ***Euphorbia cristata*** **Heyne ex Roth** *16162*
- I *16162* Sri Lanka *16162*

[distribution possibly incomplete]

? ***Euphorbia cyparissias*** **L.** *20171*
- R *13892* Netherlands *13892*

[distribution possibly incomplete]

? ***Euphorbia defoliata*** **Urban** *5642*
- I Dominican Republic (Barahona; Cabral) *5642*
- I *21425* Hispaniola *21425*

[distribution incomplete]

? ***Euphorbia didyma*** **Blanco** *13780*
- V *15960* Philippines *13780*

[distribution possibly incomplete]

? ***Euphorbia discolor*** **Ledeb.** *20085*
- R *20085* Russia (E.Europe) - North *20085*

[distribution possibly incomplete]

? ***Euphorbia dulcis*** **L.** *17762, 20171*
- R *19949* Romania *17762*

[distribution possibly incomplete]

? ***Euphorbia dussii*** **Krug & Urban** *8767*
- V *21425* Martinique *8767*
- V *21425* St Lucia *8767*

? ***Euphorbia ebracteolata*** **Hayata** *10572*
- V *10572* Japan *10572*

[distribution possibly incomplete]

? ***Euphorbia epithymoides*** **L.** *7897, 20171*
- V *19366* Poland *7897*

[distribution possibly incomplete]

? ***Euphorbia erinacea*** **Boiss. & Kotschy** *16168*
- I *16168* Egypt (Isthmic Desert in Sinai) *16168*
- ? Lebanon *16168*
- ? Syria (Alpine and subalpine regions) *16168*

? ***Euphorbia esula*** **L.** *10572, 20171*
- ? Europe *8751*
- ? China (Manchuria) *8751*
- ? China - Heilongjiang (Amur) *8751*
- V *10572* Japan *10572*
- ? Asiatic U.S.S.R. (Siberia) *8751*

? ***Euphorbia exserta*** **(Small) Coker** *17672*
- ? *19002* U.S. - Florida *19002*
- I *19002* U.S. - Georgia *19002*
- ? *19002* U.S. - North Carolina *19002*
- ? *19002* U.S. - South Carolina *19002*

[distribution possibly incomplete]

? ***Euphorbia fragifera*** **Jan** *20171*
- R *21091* Bosnia & Herzegovina *21091*

? ***Euphorbia friedrichiae*** **Dinter** *21419*
- I *21419* Southern Africa *21419*

? ***Euphorbia glabriflora*** **Vis.** *20171*
- R *21091* Bosnia & Herzegovina *21091*

? ***Euphorbia graminea*** **Jacq.** *20883, 9004*
- ? Belize *9004*
- ? Costa Rica *9004*
- ? Guatemala *9004*
- ? Honduras *9004*
- ? Mexico *10747*
- E *20883* Panama *20883*
- ? Colombia *10747*
- ? Peru *9417*

? ***Euphorbia hercegovina*** **G.Beck** *21091*
- R *21091* Bosnia & Herzegovina *21091*

[distribution possibly incomplete]

? ***Euphorbia humifusa*** **Willd.** *17786, 20171*
- R *20686* Hungary *20686*
- R *18154* Switzerland *18154*

[distribution possibly incomplete]

? ***Euphorbia hyberna*** **L.** *20171*
- R *20587* United Kingdom *20587*

[distribution possibly incomplete]

? ***Euphorbia jansenvillensis*** **Nel** *21419*
- E *21419* Southern Africa *21419*

? ***Euphorbia jodhpurensis*** **Blatter & Hallberg** *7771*
- I India - Rajasthan (Jodhpur; Barmer) *7771*
- ? Pakistan (Sind) *7771*

? ***Euphorbia kaokoensis*** **(A.C.White, R.A.Dyer & B.Sloane) L.C.Leach** *21419*
- R *21419* Southern Africa *21419*

? ***Euphorbia kouandenensis*** **Beille** *17672*
- ? Benin (Kouande)
- I *6072* Ghana *6072*
- R Mali
- R Senegal
- ? Togo

? ***Euphorbia lavrani*** **L.C.Leach** *21419*
- R *21419* Southern Africa *21419*

? ***Euphorbia ledebourii*** **Boiss.** *17672, 20171*
- ? Asiatic U.S.S.R. (Caucasus)
- R former European USSR

[distribution incomplete]

? ***Euphorbia leucocephala*** **Lotsy** *10747*
- ? Costa Rica *10747*
- ? El Salvador *10747*
- ? Mexico *10747*
- ? Nicaragua *10747*
- V *16317* Panama *10747*

? ***Euphorbia longinsulicola*** **S.R. Hill** *17672*
- V *21425* Bahamas (Long Island) *21425*

? ***Euphorbia lucida*** **Waldst. & Kit.** *5204, 20171*
- V *5204* Bulgaria (Central and northern - five sites) *5204*
- V *18264* Italy (Emilia-Romagna) *18264*

[distribution possibly incomplete]

? ***Euphorbia maculata*** **L.** *14229, 20171*
- R *14229* Liechtenstein *14229*

[distribution possibly incomplete]

? ***Euphorbia marilandica*** **Greene** *19002*
- ? U.S. - Maryland *19002*
- Ex *19002* U.S. - New Jersey *19002*

? ***Euphorbia mazarronensis*** **Esteve** *11496*
- V *11496* Spain (Murcia province) *11496*

[distribution possibly incomplete]

? ***Euphorbia myrsinites*** **L.** *17762, 20171*
R *19949* Romania *17762*
[distribution possibly incomplete]

? ***Euphorbia nutans*** **Lag.** *18154, 20171*
R *18154* Switzerland *18154*
[distribution possibly incomplete]

? ***Euphorbia obliqua*** **Endl.** *17672*
E *14226* Australia - Norfolk Is. *14288*
? New Caledonia *19108*
? Vanuatu *19108*

? ***Euphorbia ocymoidea*** **L.** *20883, 9004*
? Belize *9004*
? Costa Rica *9004*
? Guatemala *9004*
? Honduras *9004*
? Mexico *9004*
E *20883* Panama *20883*

? ***Euphorbia oerstediana*** **(Klotzsch & Garcke) Boiss.** *9004*
? Islands of the Caribbean (Antilles) *9004*
? Costa Rica *9004*
? Guatemala *9004*
? Mexico *9417*
? Nicaragua *9004*
V *16317* Panama *9004*
? South America (northern) *9004*

? ***Euphorbia otjipembana*** **L.C.Leach** *21419*
R *21419* Southern Africa *21419*

? ***Euphorbia pampeana*** **Speg.** *20137*
R *20137* Argentina - Buenos Aires *20137*
[distribution possibly incomplete]

? ***Euphorbia paralias*** **L.** *5204, 20171*
R *4204* Bulgaria (Eastern - area all along the border) *5204*
E *13351* Malta (Ramla l-Hamra) *13351*
R *13892* Netherlands *13892*
V *19949* Romania *17762*
? Egypt *17671*
[distribution possibly incomplete]

? ***Euphorbia peplis*** **L.** *5204, 20171*
? Europe (south-west coasts) *11495*
R *5204* Bulgaria (Eastern border - five areas) *5204*
Ex *11495* Ireland (1 site at Garrais Cove, Waterford) *11495*
E *13351* Malta (Mellieha Bay and Ramla l-Hamra) *13351*
? Portugal *20528*
V *19949* Romania *17762*
Ex *20587* United Kingdom *5387*
E *5387* United Kingdom - Channel Is. (Alderney) *5387*
? Turkey *20528*
[distribution possibly incomplete]

? ***Euphorbia platyphyllos*** **L.** *14229, 20171*
V *14229* Liechtenstein *14229*
E *13892* Netherlands *13892*
[distribution possibly incomplete]

? ***Euphorbia platysperma*** **Engelm.** *8058*
I *17672* U.S. - Arizona *8058*
? Mexico *8058*

? ***Euphorbia plummerae*** **S.Watson** *19002*
V *19002* U.S. - Arizona *19002*
? Mexico *18826*
? Mexico - Sonora *19002*

? ***Euphorbia pseudopeplus*** **Speg.** *20137*
R *20137* Argentina - Buenos Aires *20137*

[distribution possibly incomplete]

? ***Euphorbia segetalis*** **L.** *18154, 20171*
Ex *18154* Switzerland *18154*
? United Kingdom - Gibraltar *19912*
[distribution possibly incomplete]

? ***Euphorbia sendaica*** **Makino** *10572*
V *17672* Japan *10572*
[distribution possibly incomplete]

? ***Euphorbia serrulata*** **Thuill.** *20171*
V *20587* United Kingdom *20587*

? ***Euphorbia sojakii*** **(Chrtek & Krisa) Dubovik** *17672*
I *17821* Czech & Slovak Federal Republic *17821*
V *19615* Slovakia *17672*
[distribution possibly incomplete]

? ***Euphorbia soongarica*** **Boiss.** *17672, 20171*
? Mongolia *8001*
? Asiatic U.S.S.R. (w. Siberia, Centr' Asia) *8001*
R *17672* former European USSR *8001*

? ***Euphorbia squamigera*** **Loisel.** *8000, 20171*
? Spain (south & east) *8000*
R *20821* Spain - Balearic Is. (Mallorca) *20821*
? United Kingdom - Gibraltar *19912*
[distribution possibly incomplete]

? ***Euphorbia squamosa*** **Willd.** *17672, 20171*
? Asiatic U.S.S.R. (Caucasus) *17672*
R *17672* former European USSR *17672*
[distribution incomplete]

? ***Euphorbia sulcata*** **Lens ex Loisel.** *18264, 20171*
R *18264* Italy (Piedmont) *18264*
[distribution possibly incomplete]

? ***Euphorbia tarokoensis*** **Hayata** *20511*
R *20511* Taiwan *20511*

? ***Euphorbia terracina*** **L.** *13351, 20171*
V *13351* Malta (Mellieha Bay) *13351*
? United Kingdom - Gibraltar *19912*
[distribution possibly incomplete]

? ***Euphorbia trichadenia*** **Pax** *21420*
I *21420* Zimbabwe *21420*

? ***Euphorbia triflora*** **Schott, Nym. & K. ssp.** ***kerneri*** **(Huter) Poldini** *13662*
R *13662* Slovenia (western) *13662*
[distribution possibly incomplete]

? ***Euphorbia troyana*** **Urb.** *19890*
V *19890* Jamaica (Trelawny, Clarendon) *19890*
[distribution possibly incomplete]

? ***Euphorbia undulata*** **M.Bieb.** *17672, 20171*
? Asiatic U.S.S.R. (W.Siberia, Centr' Asia) *17672*
R *17672* former European USSR *17672*

? ***Euphorbia valliniana*** **Belli** *18264, 20171*
R *18264* Italy (Piedmont, Liguria) *18264*
[distribution possibly incomplete]

? ***Euphorbia villosa*** **Waldst. & Kit. ex Willd.** *20171*
Ex *20587* United Kingdom *20587*
[distribution possibly incomplete]

? ***Jatropha ellenbeckii*** **Pax** *19524*
? Ethiopia *19524*
? Kenya (Northern Frontier Province, Turkana, Masai) *19524*
? Somalia *19524*
I *15926* Tanzania (Masai, Mbulu) *19524*

? ***Jatropha hildebrandtii*** **Pax var.** ***torrentis-lugardi*** **R.-Sm.**

I *21416* Kenya

? ***Monadenium lugardae*** **N.E. Brown** *15926*
I *21420* Zimbabwe (southern) *15926*
? Botswana *15926*
R *5914* Swaziland *5914*
? South Africa *15926*

? ***Monadenium trinerve*** **Bally** *20064*
I *21416* Kenya *21416*

Geraniaceae

Number of genera: 11
Number of species: 700
Recorded threatened species: 85 (12%)

Mainly temperate and subtropical.

? ***Sarcocaulon peniculinum*** **Moffett** *21419*
R *21419* Southern Africa *21419*

Gisekiaceae

Number of genera:
Number of species:
Recorded threatened species:

? ***Gisekia pharnacioides*** **L. var. *pseudopaniculata***
Jeffrey *7771*
I India - Rajasthan (Barmer; Jodhpur) *7771*
? Tropical Africa

Moraceae

Number of genera: 40
Number of species: 1,000
Recorded threatened species: 110 (11%)

Tropical and subtropical.

? ***Dorstenia caimitensis*** *21425*
I *21425* Hispaniola *21425*

? ***Dorstenia cordifolia*** *21425*
I *21425* Hispaniola *21425*

? ***Dorstenia crassipes*** *21425*
V *21425* Cuba (east) *21425*

? ***Dorstenia flagellifera*** *21425*
I *21425* Hispaniola *21425*

? ***Dorstenia hotteana*** *21425*
I *21425* Hispaniola *21425*

? ***Dorstenia lanei*** *21425*
I *21425* Cuba (central) *21425*

? ***Dorstenia marginata*** *21425*
I *21425* Hispaniola *21425*

? ***Dorstenia multisquamea*** *21425*
I *21425* Hispaniola *21425*

? ***Dorstenia peltata*** *21425*
I *21425* Hispaniola *21425*

Passifloraceae

Number of genera: 16
Number of species: 650
Recorded threatened species: 48 (7%)

Tropical and warm temperate, especially tropical America and Africa.

? ***Adenia pechuelii*** **(Engl.) Harms** *21419*
R *21419* Southern Africa *21419*

Portulacaceae

Number of genera: 20
Number of species: 500
Recorded threatened species: 52 (10%)

Cosmopolitan, especially western North America and Andes.

? ***Lewisia oppositifolia*** **(S.Watson) Robinson** *20064*
? *19002* U.S. - California *19002*
R *19002* U.S. - Oregon *19002*

? ***Lewisia triphylla*** **(S.Watson) B.L. Robins.** *10701*
E *19002* Canada - British Columbia *13967*
? *19002* U.S. - Colorado *19002*
V *13967* U.S. - Wyoming *13967*

Vitaceae

Number of genera: 11
Number of species: 700
Recorded threatened species: 36 (5%)

Tropical and subtropical; a few in temperate regions.

? ***Cissus carnifolia*** *21425*
V *21425* Haiti *21425*

? ***Cissus haitiensis*** *21425*
E *21425* Haiti *21425*

? ***Cissus mornicola*** *21425*
E *21425* Hispaniola *21425*

? ***Cyphostemma bainesii*** **(Hook.f.) Desc.** *21419*
R *21419* Southern Africa *21419*

? ***Cyphostemma juttae*** **(Dinter & Gilg) Desc.** *21419*
R *21419* Southern Africa *21419*

? ***Cyphostemma pachypus*** **Desc.** *21418*
R *21418* Madagascar (Antsiranana) *21418*

? ***Cyphostemma uter*** **(Exell & Mendonca) Desc.** *21419*
R *21419* Southern Africa *21419*

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