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

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THE ALOES AND EUPHORBIAS OF CITES APPENDIX I AND THE GENUS *PACHYPODIUM*

1. This document has been prepared by the Management Authority of Switzerland.

2. Identification is a basic element of CITES enforcement. In document PC16 Doc. 23.1 the Secretariat provides a report on the progress made with the production of the Identification Manual.

3. We would like to add the following information:

   a) Succulent plants other than Cactaceae, the so-called "other succulents", represent a mayor group of ornamental plants in the appendices, besides of orchids and cycads. The CITES Management Authority of Switzerland (the federal veterinary office), upon an agreement with the CITES Secretariat, decided to cover part of the "other succulents" with ID sheets and this project was initiated in 1999. The genera *Pachypodium*, *Euphorbia* and *Aloe* are the most popular of the "CITES-succulents" among collectors and amateurs and were therefore selected. However, there are simply too many species of succulent euphorbias and of aloes to cover them all in this frame and moreover, only a limited number are relevant in international trade. Consequently, as done already with Cactaceae, only the species of succulent euphorbias and of the genus *Aloe* that are listed in CITES Appendix I were covered, together with the whole genus *Pachypodium*.

   b) For convenience of the user, the 57 ID sheets of „THE ALOES AND EUPHORBIAS OF CITES APPENDIX I & THE GENUS PACHYPODIUM" are published in book-form and on CD-ROM with the hope, that this publication will help to improve and facilitate CITES enforcement in the field of "other succulents". The identification sheets are arranged by genus and then, within genera, alphabetically. It was refrained from subdividing the genera *Aloe* and *Pachypodium* geographically into Madagascan and continental African species. A purely alphabetical order is probably more practical. *Pachypodium* names are treated in a separate chapter, as there is a considerable number of synonyms, partly resulting from various attempts to re-arrange taxa. A key for identification of pachypodiums is provided. The book covers 17 Madagascan and 4 continental African aloes, further 10 Madagascan euphorbias, as well as 21 Madagascan and 5 continental African pachypodiums. It is in production and should be available at the end of 2006.

   c) In the meantime (2003) the CITES Scientific Authority of the United States provided ID sheets for a number of succulent plants: *Agave arizonica* Gentry & J. H. Weber, *A. parviflora* Torrey, *A. victoriae-reginae* T. Moore, *Nolina interrata* Gentry, *Dudleya stolonifera* Moran, *D. traskiae* (Rose) Moran, *Fouquieria columnaris* (Kellog) Kellog ex Curran, *F. fasciculata* Willdenow ex Roemer & Schultes, *F. purpusii* T. S. Brandegee, *Lewisia maguirei* A. H. Holmgren (non-CITES) and *L. serrata* Heckard & Stebbins. Together with the volume on "The Cacti of CITES Appendix I", published in 2002, a considerable portion of "CITES-cacti & other succulents" is now covered in the CITES Identification Manual.

4. In the frame of this project, the following problems were identified and we would like to bring them to the attention of the Plants Committee:

   Look-alike problems with *Aloe* spp. and succulent *Euphorbia* spp.

5. Some of the newly described Madagascan species, automatically included in Appendix II under *Aloe* spp., and succulent *Euphorbia* spp. respectively, especially if without flowers, are quite close look-alikes of species listed in Appendix I, thus creating considerable problems for enforcement (Table 1, below).

6. *Aloe droseroides* Lavranos & McCoy and *A. pseudoparvula* Castillon closely resemble *A. parvula* Berger, *A. inexpectata* Lavranos & McCoy is very similar to *A. calcairophila* Reynolds, *A. hoffmannii* Lavranos is quite similar to *A. parallelifolia* Perrier and *A. florenceae* Lavranos & McCoy is very similar to *A. haworthioides* Baker.

7. *Euphorbia suzannae-marnierae* Rauh & H. Pétignat belongs to the group of dwarf, tuberous species from southernmost Madagascar that includes *E. ambovombensis* Rauh & Razafindratsira, *E. cap-saintemariensis* Rauh, *E. cylindrifolia* Marnier-Lapostolle & Rauh, *E. decaryi* Guillaumin, *E. parvicyathophora* Rauh and *E. tulearensis* (Rauh) Rauh; it only differs by some quantitative characters. Further, *E. itremensis* Kimnach & Lavranos is very similar to *E. quartziticola* Léandri, if not flowering.

8. Apart from difficulties with identification, it is quite probable that novelties like *Aloe droseroides* and *A. inexpectata* need the same protection as their look-alikes from Appendix I, not only for enforcement reasons, but also because of biological and trade criteria, i. e. potential detrimental harvest for export. Both are only known so far from a single, restricted population.

9. From the data gathered for this manual it seems that the dwarf succulent euphorbias of southernmost Madagascar that are included in CITES Appendix I are in need of a taxonomic revision. Possibly there are more species names than good species in the field. This task could however not be undertaken in the frame of the ID manual project, as some fieldwork is required.

10. *Aloe* spp. of Appendix I from Madagascar and the succulent *Euphorbia* spp. of Appendix I are both presently under review by a Working Group of the Plants Committee. Their status will be analysed up to the 15th meeting of the Conference of the Parties, if voluntary experts for this task can be identified. Possibly some adjustments will be required, once this review is completed and in this frame, the look-alike problem should be considered as well.

Table 1

Appendix I species	**Appendix II look-alikes**
Aloe calcairophila Reynolds	*Aloe inexpectata* Lavranos & McCoy
Aloe haworthioides Baker	*Aloe florenceae* Lavranos & McCoy
Aloe parallelifolia Perrier	*Aloe hoffmannii* Lavranos
Aloe parvula Berger	*Aloe droseroides* Lavranos & McCoy
	Aloe pseudoparvula Castillon
Euphorbia ambovombensis Rauh & Razafindratsira	*Euphorbia suzannae-marnierae* Rauh & H. Pétignat
Euphorbia cap-saintemariensis Rauh	
Euphorbia cylindrifolia Marnier-Lapostolle & Rauh	
Euphorbia decaryi Guillaumin	
Euphorbia parvicyathophora Rauh	
Euphorbia tulearensis (Rauh) Rauh	
Euphorbia quartziticola Léandri	*Euphorbia itremensis* Kimnach & Lavranos

Pachypodium

11. Listings of higher taxa in the CITES appendices create space for interpretation, especially if, as for the genus *Euphorbia*, difficult morphological characters are used for delimitation. Fortunately, CITES checklists are available for succulent euphorbias as well as for the genera *Aloe* and *Pachypodium*. However, the checklist for *Pachypodium* was not entirely followed in the ID manual, as it is not complete and partly in contradiction with the most recent results of field research and taxonomic studies. Therefore, differences are showed here (Table 2).

Table 2

CITES checklist	**ID manual**
P. baronii var. *windsorii*	recognized as a separate species
P. densiflorum var. *brevicalyx*	not recognized
P. lamerei, incl. *P. menabeum*	*P. menabeum* recognized as a separate species
unknown	*P. mikea*
P. rosulatum var. *rosulatum*, incl. *P. cactipes*	*P. rosulatum* ssp. *cactipes* recognized as a separate subsp.
P. rosulatum forma *bicolor*	classified as a subspecies
P. rosulatum var. *eburneum*	recognized as a separate species
P. rosulatum var. *gracilius*	classified as a subspecies
P. rosulatum var. *inopinatum*	recognized as a separate species
P. rutenbergianum var. *meridionale*	not recognized
P. rutenbergianum var. *sofiense*	recognized as a separate species
unknown	*P. rosulatum* ssp. *makayense*