AMENDMENTS TO APPENDICES I AND II OF THE CONVENTION

Other Proposals

A. PROPOSAL

Transfer of Turbinicarpus spp. from Appendix II to Appendix I.

B. PROPONENT

The United States of America.

C. SUPPORTING STATEMENT

1. Taxonomy

10. Division: Magnoliophyta (angiosperms; flowering plants)

11. Class: Magnoliopsida (dicotyledons)

12. Order: Cactales

13. Family: Cactaceae

14. Genus: Turbinicarpus F. Buxbaum & Backeberg, 1937

This proposal recognizes Turbinicarpus in the inclusive concept of John & Říha (1981) and Zimmerman (1991); nomenclatural details are in § 7. Natural biological characteristics thought to define a smaller group of species as the genus Turbinicarpus (Glass & Foster, 1977) have become less clear. Current understanding of Turbinicarpus includes all Gymnocactus (John & Říha, 1981, 1983; Zimmerman, 1991; note Glass & Foster, 1986 and Eggli, 1984a, 1984b; Taylor com. USFWS, 1991; Brack com. USWFS, 1991). Some treat all these cacti more broadly, in Neolloydia Britton & Rose (Anderson, 1986; Taylor, 1989; IOS in Hunt & Taylor, 1990).

One purpose of this proposal is to rectify possible problems with the previous proposal of turbinicarpi (CITES, 1984) at the 4th meeting of the Conference of the Parties (COP4), in order to ensure that the cacti will benefit from the Appendix I provisions of CITES as intended. Another necessary purpose is to bring the generic concept into accord with recent study; doing so also will help minimize confusion that has arisen from the generic overlap in names among these cacti (see names in Anderson, 1986). Taxa of Turbinicarpus newly discovered would be in Appendix I based on this amendment, as is normal practice for higher taxon listings.

15: Common Names: English: turbinicacti, turbinicarpi
French:
Spanish:

16. Code Numbers:

2. Biological Data

21. Distribution: (* = now in Appendix I p.p.); Turbinicarpus: Mexican endemic; most taxa mapped by Anderson (1986).

a.	T. gautii:	Coahuila; Nuevo León; San Luis Potosí?
b.	T. gielsdorfianus:	Tamaulipas.
c.	T. hoferi:	Nuevo León.
d.	T. horripilus:	Hidalgo.
e.	T. knuthianus:	San Luis Potosí.
f. *	T. krainzianus forma minimus:	Hidalgo.
g.	T. mandragora:	Coahuila.
h. *	T. pseudomacrochele var. lausseri	
i. o	T. roseiflorus:	known only in cultivation, first: Saint-Pie collection, Asson, Basses-Pyrénées, France.
j.	T. saueri:	Tamaulipas.
k.	T. schmiedickeanus var. dickisoniae:	Nuevo León.
l.	T. subterraneus:	Nuevo León.
m.	T. swobodae:	Nuevo León.
n.	T. viereckii var. major:	Nuevo León; San Luis Potosí.
o.	T. viereckii var. viereckii:	Tamaulipas.
p. ■	T. ysabelae var. brevispinus [? ≈ synonym]	
q.	T. ysabelae [var. ysabelae]:	San Luis Potosí?; Tamaulipas.

22. Population: (also note § 7)

a.	T. gautii:	common: widespread, abundant
b.	T. gielsdorfianus:	very local
c.	T. hoferi:	local & rare
d.	T. horripilus:	regionally abundant
e.	T. knuthianus:	regionally scattered, not rare
App. I	T. laui:	local & rare
App. I	T. lophophoroides:	locally abundant
f.	T. mandragora:	local & rare
g. *	T. pseudomacrochele var. lausseri:	
App. I	T. pseudomacrochele var. pseudomacrochele:	regionally scattered, not rare
	[syn. = T. krainzianus]:	very rare
h. *	T. krainzianus forma minimus: ? ≈	very local & rare
App. I	T. pseudopectinatus:	quite widespread, scattered, locally abundant
i. o	T. roseiflorus:	ex cultivation only
j.	T. saueri:	local & rare
k.	T. schmiedickeanus var. dickisoniae:	local & rare
App. I	T. schmiedickeanus var. flaviflorus:	very local & rare
App. I	T. schmiedickeanus var. gracilis:	local & rare
App. I	T. schmiedickeanus var. klinkerianus:	regionally abundant
App. I	T. schmiedickeanus var. macrochele:	regionally abundant
App. I	T. schmiedickeanus var. schmiedickeanus:	regionally scattered, not rare
App. I	T. schmiedickeanus var. schwarzii:	regionally abundant
	[syn. = T. polaskii (invalid)]:	regionally abundant
l.	T. subterraneus:	scattered, rare
	Neolloydia subterranea var. zaragosae:	locally abundant, yet vulnerable
m.	T. swobodae:	local & rare

App. I		T. valdezianus:	local & rare, vulnerable
n.		T. viereckii var. major:	scattered, rare
o.		T. viereckii var. viereckii:	local & rare
p.	■	T. ysabelae var. brevispinus:	[? ≈ synonym]
q.		T. ysabelae [var. ysabelae]:	very local & rare

o Turbinicarpus roseiflorus is not thoroughly understood. However, it may represent hybrid(s) of cultivated origin, instead of being an entity not relocated in the wild (cf. Anderson, 1986; Frank, 1988a; Brack com. USWFS, 1991; Eggli, 1984a, 1984b; John & Říha, 1981; Glass & Foster, 1977).

23. Habitat: Turbinicacti occur mostly in dry, rocky, often limestone hills and mountains (Anderson, 1986; Glass & Foster, 1977; Eggli, 1984b; Battaia & Zanovello, 1985).

3. Trade Data

31. National Utilization and Legal International Trade: Mexico has established comprehensive law (EUM, 1988a) to preserve natural areas, native species (especially those endemic, threatened or endangered and adequate natural habitat), and the integrity of their natural evolutionary and ecological processes (EUM, 1988b). National and international "utilization" or trade would be limited to worthwhile scientific study for the many rare Turbinicarpus. Possibly, artificial propagation of these cacti within Mexico would be encouraged, if there can be effective assurance that wild specimens would not be used (MacBryde com. SEDUE, 1990).

32. Artificial Propagation Considerations: Even the rarest turbinicarpi generally can be artificially propagated by building up propagation stocks from seed-grown plants. The taxa are available, sometimes in abundance, from such reputable growers. Trade in the artificially propagated specimens of Appendix I species is facilitated by issuance of a permit valid for multiple shipments during its 6-month limit (see CITES PC 1989, Appendix 12).

33. Illegal Trade: Illegal collection in natural populations is a significant problem. Accurate estimation of numbers of illegally removed cacti can be difficult, except for very small, well-known populations (which is the case of some of these turbinicarpi, where results of removals have been recognized by returning experts). Enforcement difficulties both of officials and residents, and continuing demand, may encourage opportunistic collection of nominally protected cacti, anticipating future sales. Regulation in CITES Appendix I is likely to improve awareness that these many rare taxa of Turbinicarpus are at risk, which can help to protect them in habitat and shift trade to the artificially propagated specimens.

4. Protection Status

41. National: In June 1940 Acuerdo Presidencial (Presidential Accord), Mexico prohibited export for commercial purposes of cacti from the wild [while for scientific purposes allowing export (under permit) of limited numbers of them]. In 5/91 regulations (SEDUE, 1991), four Turbinicarpus taxa not in App. I were among those listed by Mexico:

411. Turbinicarpus gielsfordianus: **Amenazada [Threatened]** (as Theolocactus gielsfordianus);
412. Turbinicarpus mandragora: **Amenazada** (as Thelocactus mandragora [ined.?])
413. Turbinicarpus schmiedickeanus var. dickisoniae: **Amenazada** (in listing Turbinicarpus schmiedickeanus); and
414. Turbinicarpus viereckii: **En peligro de extinción [Endangered]** (as Thelocactus viereckii).

Somewhat recently, the Mexican Government developed thorough, comprehensive law (EUM, 1988a) to preserve natural areas and appropriate native species and their natural habitats, including the natural integrity of evolutionary and ecological processes (EUM, 1988b). These cactus listings, Mexico's recent joining of CITES, and the development of conservation concerns in many segments of Mexican society, also suggest that legal principles are emerging in actual preservation of species and areas. Nevertheless, the international popularity of Turbinicarpus greatly intensifies the threats to these rare taxa.

42. International: These turbinicacti are included in CITES Appendix II, within the family Cactaceae; the listing has been in effect since 29/08/86. They also were included with the earlier Appendix-II listing of Cactaceae in the Americas and Rhipsalis, effective 01/07/75 (this original listing was made 02/03/73, based on proposals from the United Kingdom and Mexico).

    With regard to the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere (CNWH) (cf. Orejas-Miranda, 1976; Coolidge, 1949), Mexico has taken several actions for animals.

43. Additional Protection Needs: Given the many rare taxa known in Turbinicarpus and the intense interest in this group at the international level, Appendix I seems necessary to assist Mexico's efforts in preservation of threatened species in habitat.

5. Information on Similar Species

Walters et al. (1989) provides keys, descriptions, and other information for many of the genera and species of Cactaceae in horticultural trade, including the turbinicarpi (Taylor, 1989). Anderson (1986) provides a key, colour illustrations, and maps dealing with all but the newest turbinicarpi, as well as the few taxa remaining in the similar Neolloydia.

6. Comments from Countries of Origin

Continues under review in Mexico; if needed, among agenda items for CITES North America Regional meeting (12/91). Additionally, the United States values this 5-month review process by Parties to stimulate any additional comments (e.g. from importing Parties), which are welcome. (They may be sent directly to the U.S. Scientific Authority at telefax 703-358-2858 or -2202, or to the U.S. Management Authority at telefax 703-358-2281).

7. Additional Remarks

71. Additional Taxa: (See Anderson, 1986; ZSS & IOS ≥ 1990) [* = now in Appendix I p.p.]

Turbinicarpus s.l. = Turbinicarpus s.s. + Neolloydia p.p. max.

(syn. = * Normanbokea Kladiwa & F. Buxbaum 1969;
Gymnocactus Backeberg 1938;
Rapicactus F. Buxbaum & Oehme 1942)

a. T. gautii (L. Benson) A. Zimmerman ined. 1991
[syn. = Neolloydia gautii L. Benson;
Thelocactus beguinii var. N/P. Taylor;
Gymnocactus beguinii var. smithii misapplied, not Echinocactus smithii Mühlenpfordt]
b. T. gielsdorfianus (Werdemann) John & Říha 1983
c. T. hoferi Lüthy & Lau 1991
d. T. horripilus (Lemaire) John & Říha 1983
e. T. knuthianus (Bödeker) John & Říha 1983
f. * T. krainzianus (G. Frank) Backeberg
forma minimus G. Frank 1989
g. T. mandragora (A. Berger) A. Zimmerman ined. 1991
[syn. = Rapicactus mandragora (A. Berger) F. Buxb. & Oehme]
h. * T. pseudomacrochele (Backeb.) F. Buxb. & Backeb.
var. lausseri L. Diers & G. Frank 1991
i. o T. roseiflorus Backeberg [invalid name] 1963
j. T. saueri (Bödeker) John & Říha 1983
k. T. schmiedickeanus (Bödeker) F. Buxb. & Backeb.
var. dickisoniae Glass & Foster 1982
l. T. subterranea (Backeberg) A. Zimmerman ined. 1991
[syn. - Gymnocactus subterraneus (Backeberg) Backeberg]
Neolloydia subterranea (Backeberg) H. Moore
var. zaragosae (Glass & Foster) E.F. Anderson 1986
m. T. swobodae L. Diers 1987
n. T. viereckii var. major (Glass & Foster) John & Říha 1983
o. T. viereckii (Werdermann) John & Říha 1983
p. T. ysabelae (K. Schlange) John & Říha 1983
q. ■ T. ysabelae var. brevispinus (K. Schlange) John & Říha 1983

72. Included in Appendix I at COP4 (see Glass & Foster 1977; Anderson 1986)

a. T. laui
b. T. lophophoroides
c. T. pseudomacrochele
d. T. pseudopectinatus
e. T. schmiedickeanus var. flaviflorus
f. T. schmiedickeanus var. gracilis
g. T. schmiedickeanus var. klinkerianus
h. T. schmiedickeanus var. macrochele
i. T. schmiedickeanus var. schmiedickeanus
j. T. schmiedickeanus var. schwarzii
k. T. valdezianus

8. References

Anderson, E.F., 1986. A revision of the genus Neolloydia B. & R. (Cactaceae). Bradleya 4: 1-28.

Anderson, E.F., 1991. Com. to U.S. FWS/OSA (B. MacBryde). Whitman College, Walla Walla, Washington, U.S.A.

Battaia, L. & C. Zanovello, 1989. Riscoperta di Gymnocactus ysabelae. Piante Grasse 9: 5-7.
Brack, S., 1991. Com. to U.S. FWS/OSA (B. MacBryde). Mesa Garden, Belen, New Mexico, U.S.A.
Cartier, A., 1986. Gymnocactus viereckii et ses formes. Succulentes 1986 (3): 13-16.
CITES, 1984. Turbinicarpus (No. 128-133, US 83-88), pp. 905-908 in Proposal (No. 65-135, US 20-90): Transfer of 71 taxa of native U.S. and Mexican Cactaceae from Appendix II to Appendix I. Vol. 2: 878-909 in Proceedings of the Fourth Meeting of the Conference of the Parties (COP4), Gaborone, Botswana, 19-30 April 19983. World Conserv. Centre, CITES Secretariat, Gland, Switzerland.
CITES PC., 1989. Use of multiple-shipment CITES export documents for artificially propagated plants, Appendix 12: 111-116 in Minutes and Working Papers of the First Meeting of the Plants Committee (PC) of CITES, 2-5 November 1988, London (Kew), U.K. CITES, Rijksuniv., Leiden, 126 pp.
Coolidge Jr., H.J., 1949. A world approach to nature protection. pp. 714-724 in Proceedings of the Inter-American Conference on Conservation of Renewable Natural Resources, Denver, Colorado. September 7-20,.1984. U.S. Dept. State Publ. 3382. Washington, D.C. 782 pp.
Diers, L., 1987. Turbinicarpus swobodae L. Diers. Eine neue Art aus Nuevo Leon, Mexiko. Karteen and. Sukk. 38: 86-91.
Eggli, U., 1984a. Die Gattung Turbinicarpus (Backeberg) F. Buxbaum & Backeberg. Kakteen and. Sukk. 35: 126-129.
Eggli, U., 1984b. Die Gattung Turbinicarpus. Verlag Urs Eggli, Erlenbach, Switzerland. 42 pp.
EUM, 1988a. Ley General del Equilibrio Ecológico y la Protección al Ambiente. Diario Of. Fed.; Estados Unidos Mexicanos (EUM), Edic. Secr. Gobern., Mexico (ISBN 968-805-468-2). 149 pp.
EUM, 1988b. Título Segundo: Areas naturales protegidas; Capítulo 3: Flora y fauna silvestres y acuáticas; Artículos 79-87. pp. 85-89 in Ley General del Equilibrio Ecológico y la Protección al Ambiente. Diario Of. Fed.; Estados Unidos Mexicanos, Edic. Secr. Gobern., Mexico.
Fitz Maurice, W.A., 1988. Fieldnotes: The rediscovery of Gymnocactus saueri. Cact. Succ. J. (US) 60: 181-183.
Frank, G., 1988a. Bestaat Turbinicarpus roseiflorus Backeberg? Succulenta 67: 257-258.
Frank, G., 1988b. Ein Fundort von Turbinicarpus krainzianus (Frank) Backeberg. Kakteeen and. Sukk. 39: 172-173.
Glass, C. & R. Foster, 1977. A revision of the genus Turbinicarpus (Backbd.) Buxb. & Backbg. Cact. Succ. J. (US) 49: 161-176.
Glass, C. & R. Foster, 1982. Turbinicarpus schmiedickeanus var. dickisoniae: A new variety from an unlikely location. Cact. Succ. J. (US) 54: 74.
Glass, C. & R. Foster, 1986. What's new. Cact. Succ. J. (US) 58: 22-23.
Hunt, D. & N.P. Taylor, 1990. The genera of Cactaceae: Progress towards consensus. Bradleya 8: 85-107.
John, V., 1986. Turbinicarpus schmiedickeanus a příbuzné taxony. Kaktusy 22: 75-80.
John, V. & Říha. 1981/1983. Formální příbuzné některých zástupcú rodu Gymnocactus Backbg. do rodu Turbinicarpus (Backbg.) Buxb. et Backbg. (Unkombinationen aus Gymnocactus in die Gattung Turbinicarpus). Kaktusy 17: 15-18; ibid. 19: 22.
Lüthy, J.M. & A.B. Lau, 1991. Turbinicarpus hoferi Luethy & Lau. Eine neue Art aus Nuevo Leon, Mexiko. Kakteen and. Sukk. 42: 34-37, 62-65.

MacBryde, B., 1990. Com. With several persons at SEDUE, 8/90. U.S. FWS/OSA, Washington, D.C.

Orejas-Miranda, B., 1976. The OAS and renewable natural resources. Parks 1(3): 8-10.

Říha, J., 1984. (~ Turbinicarpus spp. p.p. maj.). In Atekia 84(1/2).

SEDUE, 1991. Listado de especies raras, amenazadas, en peligro de extinción, o sujetas a protección especial, y sus endemismos en la República Mexicana. Flora terrestre y acuática. pp. 9-24 in Secretaría de Desaarrollo Urbano y Ecología (SEDUE), Acuerdo por el que se establecen los criterios ecológicos CT-CERN-001-91 que determinan las especies raras, ... Diario Of. (Fed.) 17/05/91: 7-36.

Taylor, N.P., 1989. Neolloydia Britton & Rose. Vol. 3: 274-276 in S.M. Walters et al., eds., The European Garden Flora. Cambridge Univ. Press, Cambridge, New York, etc.

Taylor, N.P., 1991. Com. to U.S. FWS/OSA (B. MacBryde). Royal Botanic Gardens, Kew. Richmond, U.K.

Walters, S.M., et al., eds., 1989. Cactaceae (Mostly by D. Hunt & N.P. Taylor). The European Garden Flora 3: 202-301. Cambridge Univ. Press, Cambridge, New York, etc.

Zimmerman, A.D., 1991. Turbinicarpus. In D. Hunt & N.P. Taylor, Notes on miscellaneous genera of Cactaceae. Bradleya 9: 81-92 (in press, publ. 11/91).

ZSS & IOS. ≥ 1990. Cactaceae (1950-1990). Repertorium Plantarum Succulentarum. ZSS & IOS, Zürich & London.