

AMENDMENTS TO APPENDICES I AND II OF THE CONVENTION

Other Proposals

A. PROPOSAL

Inclusion of *Ariocarpus* spp. in Appendix I.

B. PROPONENT

The Netherlands

C. SUPPORTING STATEMENT

1. Taxonomy

10. Division: Magnoliophyta (angiosperms; flowering plants)
11. Class: Magnoliopsida (dicotyledons)
12. Order: Cactales
13. Family: Cactaceae
14. Genus and species: *Ariocarpus Scheidweiler*  
Subgenus *Roseocactus* (Berger) F. Buxbaum  
*Ariocarpus fissuratus* (Engelm.) Schumann  
Subgenus *Ariocarpus kotschoubeyanus* (Lemaire) Schumann  
*Ariocarpus*  
*Ariocarpus retusus* Scheidweiler
15. Common names: English: living rock cactus (*A. fissuratus*)  
French:  
Spanish: pezuña de venado, pata de venado  
(*A. kotschoubeyanus*); chaut(l)le,  
*A. fissuratus*, *A. retusus*); peyote  
cimarron (*A. fissuratus*)

2. Biological Data

The genus *Ariocarpus* consists of six species in two subgenera, of which *A. agavoides*, *A. scaphirostris* and *A. trigonus* are on Appendix I of CITES. The remaining species, *A. fissuratus*, *A. kotschoubeyanus* and *A. retusus* are on Appendix II.

All species are under pressure of international trade and subject to collecting threats. Most, if not all, species are suffering from human influences like agriculture, and cattle-breeding practises, often followed by erosion of the natural habitat. The commercial value of *Ariocarpus* spp. is based on rarity, desirability for connoisseurs. The species at present listed on Appendix I and II look very much alike.

As such it is preferable to place the genus as a whole in Appendix I of CITES.

21. Distribution

The genus is almost confined to Mexico. Only one of its 6 species, *A. fissuratus*, extends to the United States (Texas).

22. Population and 23. Habitat

*Ariocarpus spp.* of Appendix II are rather widely distributed. All of its representatives are confined to the vegetation zone of the Chihuahuan Desert. This vegetation zone extends to the north over parts of Arizona, New Mexico and Texas, and southwards into the state of Queretaro. Annual rainfall varies between 25,4 and 63,5 cm. Usually the species are found on limestone or soils of limestone origin.

23. Trade Data

31. Utilization and Economic Importance

All species of *Ariocarpus* are highly prized as ornamental plants by cactus collectors. The plants are too expensive and slow-growing for large scale commercial trade, but popular in the specialized cactus trade. In the past decade plants were regularly offered in catalogues, but rarely listed in the annual reports. Due to the slow growth rate commercial growing is economically not very rewarding. Plants in commerce are usually wild collected.

32. Legal International Trade

Legal trade exists. All EEC Transactions in *Ariocarpus spp.* Appendix II in 1984, 1985, 1986, 1987, 1988 and 1989 are:

	Country of		Quantity of	
	Imp.	Exp.	Orig.	Imp.Export/ Re-export
1984*				
<i>Ariocarpus fissuratus</i>	GB	US	MX	50 +
<i>Ariocarpus kotschoubeyanus</i>	GB	US	MX	50
<i>Ariocarpus retusus</i>	GB	US	MX	100 +
1985*				
-				
1986*				
<i>Ariocarpus spp.</i> App. II	GB	GB		2 +
	DE	JP		120 +
	AT	DE		1 +
	IT	DE		1 +
	JP	NL		203 +
<i>Ariocarpus fissuratus</i>	DE	DD		200 +
	DE	JP		30 +
	AT	DE		1 +
<i>Ariocarpus retusus</i>	DE	DD		100 +

	Country of		Quantity of	
	Imp.	Exp.	Orig.	Imp.Export/ Re-export
1987*				
<i>Ariocarpus kotschoubeyanus</i>	GB	US		2 +
<i>Ariocarpus retusus</i>	GB	US		2 +
1988**				
<i>Ariocarpus fissuratus</i>	DE	US		2 +
-	FR	US		2 +
-	GB	US	1 +	1 +
-	IT	US		8 +
-	XX	GB		2 +
<i>Ariocarpus kotschoubeyanus</i>	DE	US		6 +
-	FR	US		2 +
-	GB	US	1 +	3 +
-	IT	US		24 +
-	NL	US	1 +	1 +
-	XX	GB		1 +
- <i>retusus</i>	DE	US		2 +
-	FR	US		1 +
-	IT	US		18 +
-	XX	GB		1 +
1989**				
<i>Ariocarpus spp. II</i>	DE	CS	50 +	
-	DE	JP	2 +	
<i>Ariocarpus fissuratus</i>	DE	JP	4 +	
-	DE	US		2 +
-	FR	US		2 +
-	GB	US	1 +	5 +
-	IT	US		15 +
<i>Ariocarpus kotschoubeyanus</i>	DE	JP	17 +	
-	FR	US		1 +
-	GB	US		2 +
-	IT	US		7 +
<i>Ariocarpus retusus</i>	DE	JP		3 +
-	DE	US		1 +
-	GB	US		1 +
-	IT	US		6 +
-	US	GB		3 +

+ living artificially propagated plants

\* Source: Convention on international trade in endangered species of wild fauna and flora (CITES). EEC Annual Reports.

\*\* Source: World Conservation Monitoring Centre, 219c Huntingdon Road Cambridge CB 0DL, U.K.

### 33. Illegal Trade

International illegal trade in the genus exists. Illegal imports of *Ariocarpus* for the Dutch and German market have been intercepted in

1984 (in the Netherlands) and 1990 (in the Netherlands and Germany) (comm. Blanke, Groen). Wild collected plants were observed in nurseries in several countries (comm. Sajeve, van Vliet). In all cases of confiscated illegal collections by Europeans from Mexico during 1990, *Ariocarpus species* were involved. See also Additional Notes.

#### 34. Potential Trade Threats

It is likely that the similarity between the Appendix I and II will be abused in trade for illegal import.

##### Detailed Species Account

##### *A. fissuratus* (Engelm.) Schumann

RANGE : Mexico (Coahuila, Zacatecas, San Luis Potosi, Durango, Chihuahua). USA (Texas from Presidio Co. SE along Rio Grande and near Pecos River).

STATUS: Not threatened.

TRADE : Legal trade exists, see also 3.2. Artificial propagated material is very rare (EEC annual report, 1988). Adult plants in trade and nurseries are almost without exception field collected. Illegal trade exists, e.g. an intercepted shipment at Schiphol Airport (Netherlands) contained 18 plants.

##### *A. kotschoubeyanus* (Lemaire) Schumann

RANGE : Mexico (Coahuila, Zacatecas, Nuevo Leon, San Luis Potosi, Tamaulipas, Queretaro). Distributed over a range of more than 600 kilometers in locally restricted populations.

STATUS: Threatened (pers. comm. Taylor, 1991). Some local populations are under serious threat by human activities.

TRADE : Legal trade exists, see 3.2. 182 plants have been re-exported from US to EEC countries and Switzerland in 1982/1983 (Oldfield, 1985).

See also 32. The species is by exception artificially propagated in (EEC annual report, 1988). Substantial illegal trade exists e.g. an intercepted shipment at Schiphol in 1990 contained 363 specimens.

##### *A. retusus* Scheidweiler

RANGE : Mexico (Coahuila, Nuevo Leon, Tamaulipas, San Luis Potosi).

STATUS: Not threatened (pers. comm. Taylor, 1991).

TRADE : Legal trade exists, 386 plants have been re-exported from US to EEC countries and Switzerland in 1982/83 (Oldfield, 1985). See also 3.2. Illegal trade exists, e.g. an intercepted shipment at Schiphol in 1990 consisted of 49 specimens.

This species is rather similar *A. trigonus*, an Appendix I species.

#### 4. Protection Status

##### 41. National

The Mexican Government has prohibited the export of cacti collected from the wild, except under license (Lucas & Synge, 1978: 103). This law exists since 1938, it has rarely been enforced however. All larger imports of *Ariocarpus spp.* proved to be illegal. Mexico became a party to CITES on 2.07.91, this entry came into force on 30.01.1991 (comm. van Vliet, 1991). At present *Ariocarpus spp.* has no official status or protection in Texas or elsewhere in the United States. The protection of *Ariocarpus fissuratus*, the only species in the US (Texas), depends on land ownership and management. Nobody can collect plants or enter private property in Texas without permission from the landowners (comm. MacBryde, Poole, 1991).

##### 42. International CITES Appendix 2

*A. fissuratus*, *A. kotschoubeyanus* and *A. retusus* are in Appendix 2 of CITES.

##### 43. Additional Protection Needs

The status of *Ariocarpus fissuratus* and *A. retusus* is not threatened at present. However recent field data recorded a fast reduction in number at known localities and even a total extermination of some localities. It is expected that both species will be threatened in the near future. It is therefore recommended to place all *Ariocarpus spp.* on Appendix I.

#### 5. Information on similar species

##### 51. Recognition/Identification

*Ariocarpus spp.* are usually readily recognized as such, and do not resemble species in other genera. They can be easily recognized by the absence of ribs and the presence of large tubercles (warts) on the body. Spines are (almost) absent. None of the species has the traditional habit of a cactus. Identification at species level is possible by vegetative characters. Verification by trained taxonomists is necessary.

##### 52. How to recognize habitat collected plants

Characteristics for in habitat collected material, which is exported without meantime cultivation or cleaning are:

- damaged roots.
- remnants of the original substrate between the tubercles.

If plants are grown under nursery conditions and cleaned their size may indicate wild collected material: large plants are almost always wild collected.

#### 6. Comments from Countries of Origin

Comments are being sought.

7. Additional remarks

71. Possibilities of artificial propagation

*Ariocarpus* spp. only reproduces by outcrossing and the production of seeds. Propagation by seed is slow, grafting increases size and growth rate. Only *A. kotschoubeyanus* is relatively easy to propagate. Some propagation attempts have been made by tissue culture.

72. Addresses of specialists

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Taylor, N.P., the Herbarium, Royal Botanic Gardens Kew, Richmond, Surrey, TW9 AE, United Kingdom.

8. References

- 1 Anderson, E.F. 1960 A revision of *Ariocarpus* (Cactaceae). I. The status of the proposed genus *Roseocactus*. Am. J. Bot. 47: 582-589.
- 2 - 1962. A revision of *Ariocarpus* (Cactaceae) II. The status of the proposed genus *Neogomesia*. Am. J. Bot. 49: 615-622.3 - 1963 A revision of *Ariocarpus* (Cactaceae) III. Formal Taxonomy of the subgenus *Roseocactus*. Am. J. Bot. 50: 724-732.
- 4 - 1964. A revision of *Ariocarpus* (Cactaceae) IV. Formal Taxonomy of the subgenus *Ariocarpus*. Am. J. Bot. 51 (2): 144-151.
- 5 - 1965. A taxonomic revision of *Ariocarpus* (Cactaceae). Cact. & Succ.J.US 37: 39-49. f. 1-23.
- 6 Benson, L. 1982. The cacti of the United States and Canada: 861-864, 965. Stanford University Press, Stanford, California.
- 7 Lucas, G. & H. Synge 1978. The IUCN Plant Red Data Book. Morges, Switzerland.
- 8 Mitich, L.W. & J.G. Bruhn 1977. The genus *Ariocarpus* - A Bibliography. Cact. Succ. J. (U.S.) Vol. 49: 122- 127.
- 9 Office for Official Publications of the European Communities. Convention on international trade in endangered species of wild fauna and flora. EEC annual report, 1985, 1986, 1987, 1988.
- 10 Oldfield, S. 1985. The western european trade in cacti and other succulents. Traffic Bulletin (USA) Vol. 7 (3/4): 44-57.
- 11 Stuppy W. & N.P. Taylor 1989. A new variety of *Ariocarpus fissuratus* (Cactaceae). Bradleya 7: 84-88.
- 12 Zimmerman, A.D. (in press). Flora of the Chihuahuan Desert. Cactaceae.

9. Informants:

Blanke A.R., Bundesamt für Ernährung und Forstwirtschaft, Frankfurt am Main.

Groen L.E., Botanical Gardens, Agricultural University, Wageningen.

Poole J.M., Texas Natural Heritage Program, Resource Protecting Division, Texas Parks and Wildlife Department, Austin.

MacBryde B., Fish and Wildlife Service, United States Department of the Interior.

Sajeva M., Scientific officer CITES Italia, Palermo.

Taylor N.P., the Herbarium, Royal Botanic Gardens Kew, Richmond, Surrey, TW9 3AE, United Kingdom.

Vliet G.J.C.M. van, Bureau CITES, Lausanne.

Wijnands D.O., Botanical Gardens, Agricultural University, Wageningen.

Gattung *Ariocarpus*

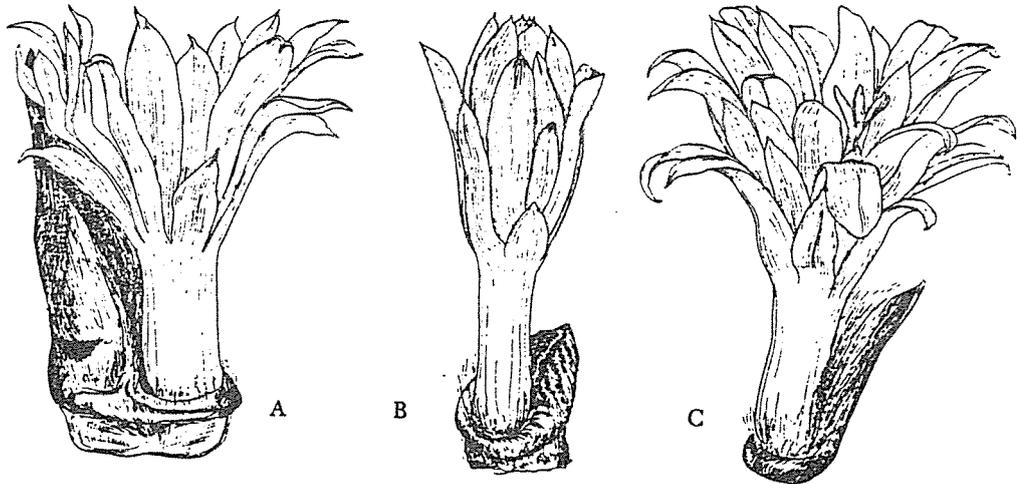


Abb. 2. Stellung der Blüte auf der Basis der Warze: A. bei *Ariocarpus retusus*, B. bei *A. fissuratus*, C. bei *A. agavoides*. Behaarung der Areole entfernt um den Sitz der Blüte zu sehen. Nach photographischen Aufnahmen E. F. Andersons.

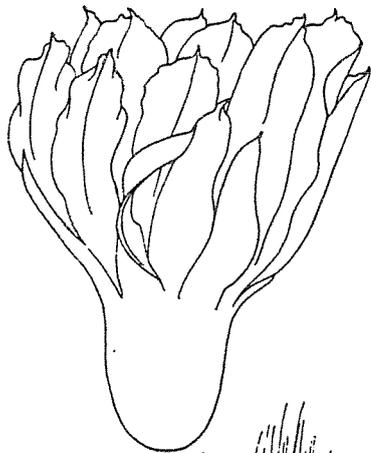


Abb. 3. Außenansicht der Blüte von *Ariocarpus trigonus*.

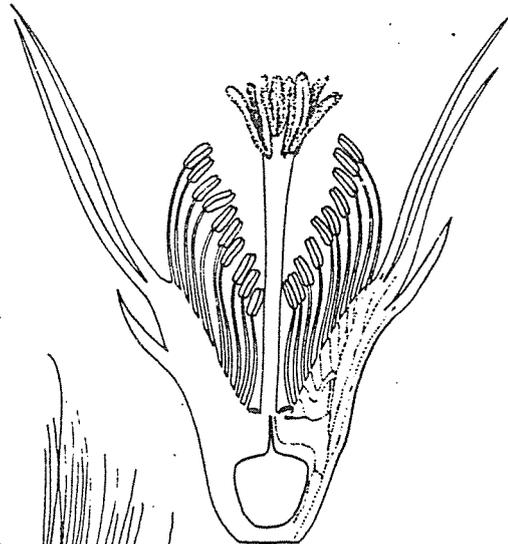


Abb. 4. Blüte von *Ariocarpus trigonus* im Längsschnitt, rechts mit eingezeichnetem Gefäßbündelverlauf.

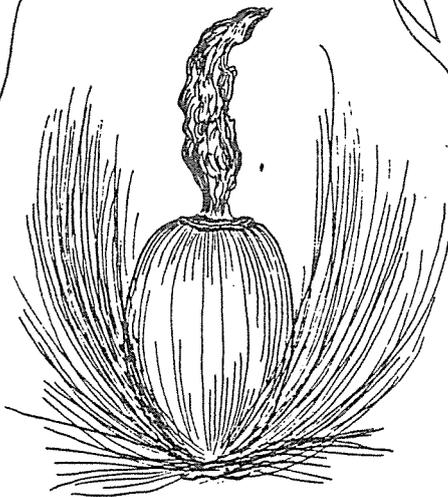
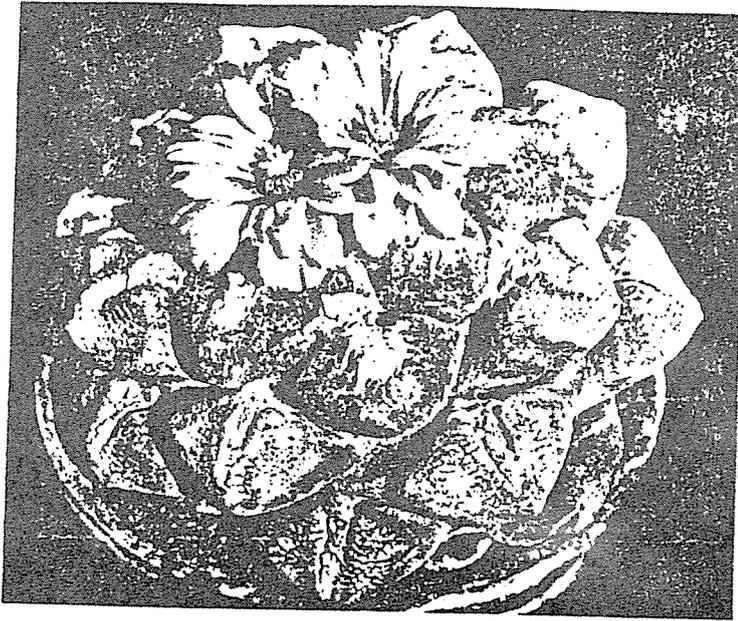


Abb. 5. Frucht von *Ariocarpus fissuratus*. Die dichte Behaarung aus der kaulinen Zone der Furcht nur angedeutet.

Ariocarpus fissuratus var. lloydii



Ariocarpus kotschoubeyanus



photo A. Keller

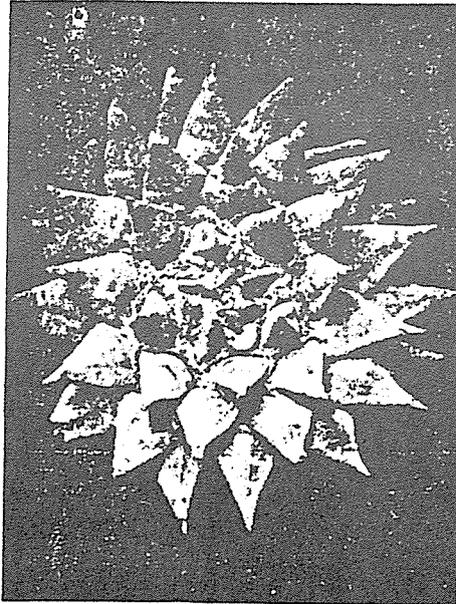


Samen

Photo: K. Kreuzinger

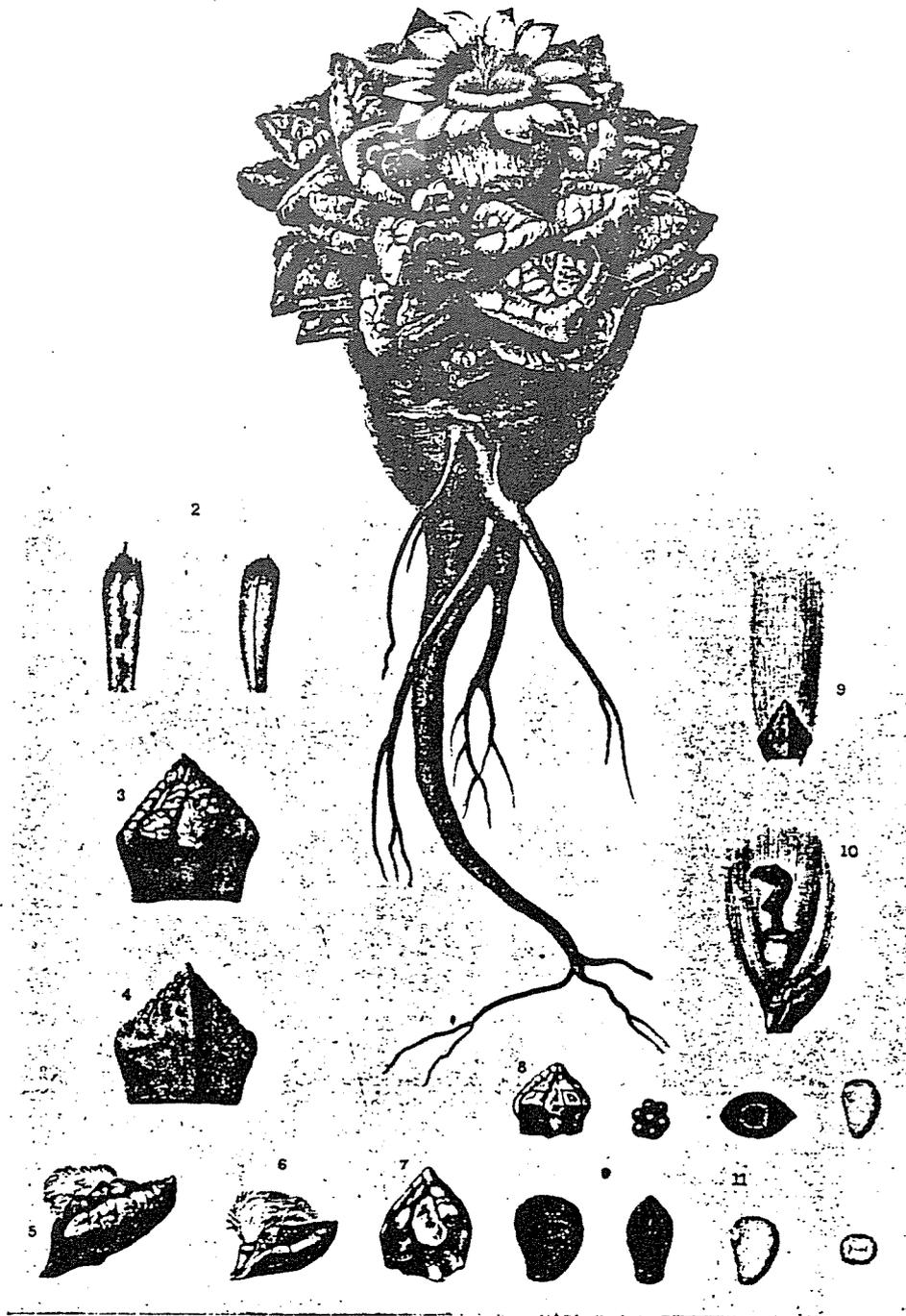
Uit Krainz, Die Kakteen 1, XI, 1965.

**Ariocarpus retusus** Scheidweiler  
*retusus* = gestutzt, bezieht sich auf die Warzenform



Uit Krainz, Die Kakteen 1, X (1975).

*Ariocarpus fissuratus*



*Ariocarpus fissuratus* (Eng.) K. Schum. in Engelmann, Cact. Bound. 1858, Taf. 16, als *Mammillaria fissurata*.