

**OPUNTIA CHISOSENSIS (Anthony) Comb. Nov.**

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**Opuntia chisosensis** (Anthony) Ferguson, **comb. nov.**

*Opuntia lindheimeri* var. *chisosensis*  
Anthony, 1956. Am. Midl. Nat.,  
Vol. 55:1, 252 (fig. 26).

**HOLOTYPE:** Anthony 223, April 8 & July 17, 1948, deposited at the Univ. of Michigan, Ann Arbor, MI.

**TYPE LOCALITY:** Basin of Chisos Mountains, Big Bend National Park, Brewster Co., Texas.

This is an attractive species of *Opuntia* which has thus far been found in the Chisos mountains in Brewster County, Texas and in the Sierra del Carmen in northern Coahuila, Mexico. It is characterized by an upright, bushy growth (to 1m tall), and has mostly circular, bluish joints (about 15-20cm long). There are 1-5 spreading to deflexed, bright yellow (rarely to orange-red) spines (up to 6.5cm long) on the upper 2/3 or more of the pad. In nature the spines turn black after several years. The flowers are about 6.5mm across and of an unusual, pale yellowish-buff color. The fruits are about 3-4cm long and obovate to spherical with few areoles. They ripen glaucous reddish purple and usually have several thin, stiff, yellow spines near the top. The seeds are tan in color and average 4-5mm in diameter.



Fig. 1. *Opuntia chisosensis* in fruit in cultivation. August 1985.

With its contrasting bluish pads and yellow spines, this is the most striking *Opuntia* in its natural habitat. It grows mostly above 1,650m (5,500ft) in open woodland made up of mostly juniper (*Juniperus* sp.), pinon (*Pinus cembroides* Zucc.), oak (*Quercus* sp.) and Texas madrone (*Arbutus texana* Buckl.). It is occasionally also found in more open grassland. Other prominent cactus and succulents associates are *Cylindropuntia imbricata* (Haworth) Knuth, *Opuntia engelmannii* Salm-Dyck (sensu Engelm. and Brit. & Rose, non Benson)<sup>1</sup>, *O. phaeacantha* var. *brunnea*

<sup>1</sup> It is the author's opinion that Benson's interpretation of the name *Opuntia engelmannii* Salm-Dyck is in error. It seems unlikely that the type specimen is an *Opuntia ficus-indica* (Linnaeus) Miller as Benson believes. The author prefers to follow Britton and Rose's interpretation. This subject will be discussed in more detail in a future paper.

It is also the author's opinion that *O. engelmannii* is not a variety of *O. phaeacantha* as Benson believes (thus his combination: *O. phaeacantha* var. *discata*). In many thousands of sympatric specimens of both species observed in the field, the author has seen only four possible hybrids.



Engelm. (sensu Engelm., non Weniger)<sup>2</sup>, *Echinocereus coccineus* Engelm. var. *gurneyi* (Benson)<sup>3</sup>, *E. russanthus* Weniger, *Escobaria varicolor* (Tiegel) Hunt, *Mammillaria meiacantha* Engelm., *Agave havardiana* Trel. and *Nolina erumpens* (Torr.) Wats.

In the past *Opuntia chisosensis* has been quite misunderstood. When first described it was placed as a variety of *Opuntia lindheimeri* Engelm. Benson considered it as part of a hybrid swarm between *O. phaeacantha* Engelm. and "*O. phaeacantha* var. *discata* (Griffiths) Benson & Walk." (= *O.*

*engelmannii*). Benson's theory is not supported by the populations found in the field. Weniger's interpretation is somewhat unclear, but he appears to have equated *O. chisosensis* with both *O. engelmannii* var. *cyclodes* Engelm. & Bigelow<sup>4</sup> and "*O. engelmannii* var. *cacanapa* (Griffiths & Hare)" (nom. nud.)<sup>5</sup> which come from eastern New Mexico and from near Encinal and Laredo, Texas, respectively.

Both *O. engelmannii* and *O. lindheimeri* are fairly easily distinguished from *O. chisosensis*. They are both much larger in stem (pads usually at

<sup>2</sup> *Opuntia phaeacantha* var. *brunnea* Engelm. was described from El Paso, Texas, and was clearly applied to the common southern variety of *O. phaeacantha* which is found growing in mostly mountainous areas. Benson uses varieties *major* and *phaeacantha* somewhat at random for these plants (based on useless spine traits). Varieties *major* Engelm., *phaeacantha* (=var. *nigricans* Engelm.), as well as var. *camanchica* (Engelm. & Big.) Benson should all be considered synonyms, and are all based on the common (somewhat less robust) northern variety of mountainous habitats. Weniger's interpretation of var. *brunnea* is somewhat unclear, but his photo is of *O. macrocentra*. The varieties and synonyms of *O. phaeacantha* will also be the subject of a future paper.

<sup>3</sup> *Echinocereus coccineus* var. *gurneyi* is a currently illegitimate combination which will soon be properly published in a revision of the red-flowered *Echinocereus* of the United States.

<sup>4</sup> Weniger considered *O. chisosensis* to be the same as *O. engelmannii* var. *cyclodes*. He seems to have also mixed the Chisos Mountains population of *O. engelmannii* var. *engelmannii* into this interpretation, but this is uncertain. The Chisos Mountains plants do have yellowish spines but have nothing to do with var. *cyclodes*. The variety *cyclodes* grows only in eastern New Mexico in the drainages of the upper Pecos and upper Canadian Rivers. It is a weak variety characterized by large seeds (for the species), smaller than average fruit, less woody, thinner joints of a bluish color, and more slender (often fewer) yellow spines than in the typical variety.

<sup>5</sup> Weniger also apparently confused some *chisosensis* plants with Griffith's *O. cacanapa*. This plant was described from Encinal, Texas, and seems to be the same as Griffith's *O. tricolor* from near Laredo, Texas. Weniger improperly placed *O. cacanapa* as a variety of *O. engelmannii*, leaving it as a *nomen nudum*. Benson placed *O. tricolor* as a variety of *O. lindheimeri*. Based on the author's experience, it would seem that neither name has any connection with *O. chisosensis*, and that both are probably synonyms of *O. lindheimeri*. It is unlikely that either name deserves full varietal rank, but more study of these plants is needed.





Fig. 2. *O. chisosensis*, a small plant growing in the Chisos Mts., March 1981.

least 25cm long), flowers (usually at least 7cm in diameter) and fruit (usually at least 4.5cm long, typically much larger). The seeds of both species are smaller, usually 3mm or less in diameter (occasionally to 4mm in *O. engelmannii* var. *cyclodes*). The seedlings of both *O. engelmannii* and *O. lindheimeri* have the spines modified into hairs while those of *O. chisosensis* do not.

The true kinship of *O. chisosensis* would seem to lie closest to the species of the *O. phaeacantha* group. This group includes *O. phaeacantha*, *O. spinosibacca* Anthony, *O. azurea* Rose, *O. macrocentra* Engelm. (= *O. violacea* Engelm.), *O. aureispina* (in press), and *Opuntia* sp. (?=*horstii*, a horticultural name of which the types were lost in World War II). These species all have the same basic vegetative and reproductive morphology as *O. chisosensis* (though they tend to have proportionately narrower fruit and in *O. aureispina* the fruit becomes dry). These species differ mainly in coloration, number and size of spines, and in growth height (the later is usually more a function of environment).

Plants have been found by the author near Saltillo in southern Coahuila and northern Zacatecas, Mexico, which may represent a form or variety of *O. chisosensis*. These occur in similar habitats with similar associated flora. They differ from the Big Bend plants mainly in having slightly heavier, cream to white colored spines. They have the same growth form and fruits, but the flowers have not yet been seen.



Fig. 3. *O. chisosensis*, Chapultepec, Coahuila, Mexico, August 1985.

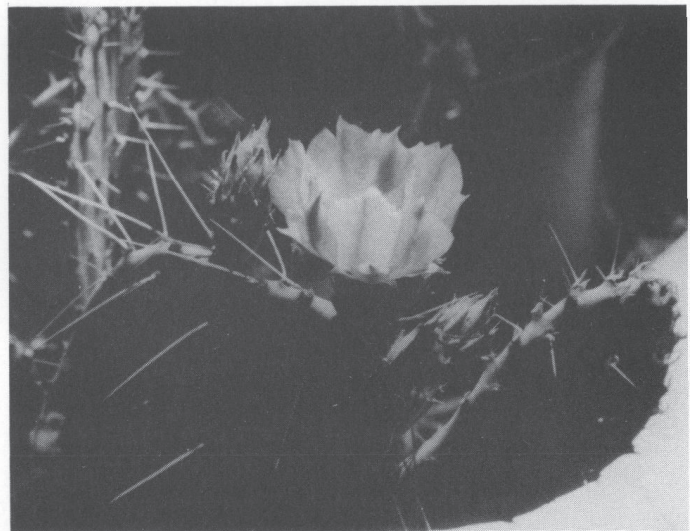


Fig. 4. *O. chisosensis* in flower in cultivation, May 1985.



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Britton, N.L. & J.N.Rose, 1937. The Cactaceae, Abbey Garden Press reprint.

Engelmann, G., 1849. Pl. Fendl., Mem. Am. Acad. 4.

-----, 1850. Pl. Lind. II, Boston Journ. Nat. Hist. 6.

-----, 1857 (preprint 1856). Proc. Am. Acad. 3.

-----, 1857. U.S. Senate Rept. Expl. & Surv. Rt. Pac. Ocean. Bot. 4.

-----, 1859. Emory Rept. U.S. & Mex. Bound. Surv. 2.

Weniger, D., 1970. Cacti of the Southwest, Univ. of Texas Press.

LITERATURE:

Anthony, M., 1956. The Opuntiae of the Big Bend Region of Texas, Am. Midl. Nat., 55:1, 225-256.

Benson, L., 1982. The cacti of the United States and Canada, Stanford Univ. Press.

The FIFTH EASTERN CACTUS AND SUCCULENT CONFERENCE

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 John Pierce: "The Home Solar Greenhouse"  
 John Pilbeam: "Mammillarias"  
 "Gymnocalyciums"

ERRATA

Several errors were introduced by the publisher in the paper, "Annual Growth Bands in a Tropical Dry Forest Cactus, *Lemaireocereus aragonii*" by G. W. Otis and R. E. Buskirk in the January-February issue of the Journal (Vol. 58:1, pp. 25-29. 1986). The publisher and editor accept responsibility for these omissions and ask that you correct your personal copies of that issue. The corrected text should read:

Page 25, 3rd paragraph: "This species is endemic to the seasonally dry region of northwestern Costa Rica..."

Page 28, table 1: *Lemaireocereus aragonii* should be *L. eichlamii*. The missing text reads: "*Lemaireocereus aragonii* = *Marshalllocereus aragonii*, Costa Rica, Distinct, Britton and Rose, 1920: p. 92, Fig. 135; Backeberg, 1977: p. 301".

Page 29, ACKNOWLEDGEMENTS: "Carlos Salas, manager of the refuge, Juan Rodriguez, wildlife biologist, and Roxana Diaz of Costa Rica Expeditions provided logistical support.