

***Opuntia acanthocarpa* Ganderi** C. B. Wolf, subsp. nov.

(Figure 20)

An erect, sparingly branched shrub about 1 m. high, usually about equally broad. Main stem 5-8 cm. in diam. Joints pale green, 6-15 or 20 cm. long, 3-5 cm. thick; tubercles 12-16 mm. long, 4-6 mm. wide, areoles elliptic, 4-6 mm. long, bearing numerous spines with light colored sheaths; principal spine central, stout, 20-30 mm. long, secondary spines 15-20, delicate, 5-10 or 15 mm. long. Flowers with petals about 20 mm. long, greenish-yellow, tinged with red. Fruits about 20 mm. long, depressed globose, umbilicus depressed, areoles mainly confined to the upper half of the fruit, bearing 12-16 more or less equal slender spines 8-13 mm. long. Seeds grayish-brown, 5-6 mm. long, 4-5 mm. wide, about 2 mm. thick.

Frutex, erectus, circa 1 m. altus et latus. Tuberculis 12-16 mm. longis, 4-6 mm. latis. Areolis ellipticis, 4-6 mm. longis. Spina centrali una, robusta, 20-30 mm. longa. Spinis radialibus 15-20, 5-15 mm. longis. Fructus 20 mm. longus, spinosus. Seminibus 5-6 mm. longis, 4-5 mm. latis.

HABITAT. Lower Sonoran Zone, in desert washes and on the low mesas in association with *Larrea divaricata*, *Hymenoclea salsola*, *Agave deserti*, *Fouquieria splendens*, *Opuntia Bigelovii*, *echinocarpa* and *Fosbergii*.

RANGE. CALIFORNIA: SAN DIEGO CO.: western border of the Colorado Desert at the base of the Laguna Mts., from Carrizo to San Felipe Valley. Especially abundant from Cane Brake Canyon to Vallecito.

TYPE LOCALITY. San Diego Co., California, 3 mi. below the old Vallecito Stage Station. Type Specimen: C. B. Wolf 9424, June 12, 1938, R. S. A. Bot. Gard. Herb., sheet no. 18631. Isotypes distributed as indicated below.

SPECIMENS EXAMINED. CALIFORNIA: SAN DIEGO CO.: C. B. Wolf 9424 (RSA, 2-8, type collection); mouth of Cane Brake Canyon, C. B. Wolf 9394 (RSA, 2); ½ mi. below Agua Caliente Hot Springs, C. B. Wolf 9396 (RSA, 2). The latter collection was from a plant that was especially robust and had very much thickened joints. Occasional plants of this sort are scattered over much of the range of typical *Ganderi*. Propagation materials (cuttings) were obtained of all of the above collection for cultivation at Rancho Santa Ana Botanic Garden.

It is strange that the distinctive features of this *Opuntia* have escaped collectors' notice, since it extends over such a considerable area. It differs from *O. acanthocarpa* Engelm. & Bigel. of the eastern Colorado and Mojave Deserts in having a much more vigorous growth habit, greener color to the joints, but particularly in the more delicate, but much more numerous spines. C. B. Wolf 9390 (RSA, 2) from 11 mi. so. of Palo Verde on the road

to Ogilby, Imperial Co., Calif., is an example of *O. acanthocarpa* as it is usually found on the Colorado Desert. Plants of *O. acanthocarpa* from parts of the Mojave Desert are less stoutly spined, but do not bear the numerous spines of subspecies *Ganderi*, nor do they have the vigorous growth habit and clean light green colored joints.

This new subspecies is named in honor of Mr. F. F. Gander of the Museum of Natural History, San Diego, California, whose studies of the San Diego County flora are adding greatly to the knowledge of California botany.

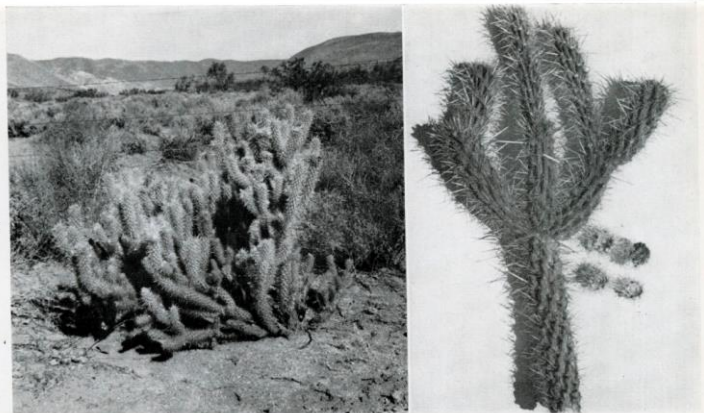


FIGURE 20. *Opuntia acanthocarpa* Ganderi. LEFT. Type plant, 3 mi. below old Vallecito Stage Station, 1 m. high, C. B. Wolf 9424, June 12, 1938. RIGHT. Type specimen! C. B. Wolf 9424, R. S. A. Bot. Gard. Herb., sheet no. 18631. One-third size.