



Fig. 1. *Gymnocalycium schroederianum* ssp. *schröderianum* from Gualeguaychu, in habitat (location 10 on map; see fig. 3).

## TWO NEW SUBSPECIES OF GYMNOCALYCIUM SCHROEDERIANUM

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**SUMMARY:** *Gymnocalycium schroederianum* has been a rather unknown species. In this paper the habitat and expanded distribution are given on the basis of field research. Several details regarding the history and knowledge of the species are discussed. Morphological features are described after study of several living specimens and two new subspecies are described.

### INTRODUCTION:

This species was described in the *Anales del Museo de Historia Natural de Montevideo, Uruguay*, published in memory of Cornelio von Osten five years after he died and based on his manuscripts.

Evidently Dr. Osten did not find the plant himself, and only one specimen was studied by him ("Tengo ante mi deploradamente solo un ejemplar. . ." "El ejemplar florecio abundantemente. . .").

The name of this species is in honor of the person who discovered the plant in May of 1922, Dr. L. Schroeder, a medical doctor who grew cacti and other succulents and lived near the original locality.

The type locality mentioned is Nueva Melhem (1 on the map), a ranch north of Fray Bentos and near Nueva Berlin (now Berlin), a small town in Uruguay near the border with Argentina.

The later history of the plant is easy to follow because not many people visited the original locality and because it is a



Fig. 2. *G. schroederianum* ssp. *paucicostatum*. Note wider and angulate ribs. Flower with pure white petals and red throat.

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rare plant there. Alfred Buining with Leopoldo Horst, on a trip in 1967, spent some days there and rediscovered the species. After this collection the plant was known and cultivated in Europe (HU 289). Some years later Hugo Selmar Schlosser, an active amateur and collector of Uruguayan cacti, after four trips devoted to searching for this species, found it in 1979. Schlosser grew some specimens and from them collected seeds which he sent to other collectors (pers, corresp., 10-22-1980).

My wife, Angeles, and I made a special weekend trip to Uruguay to look for this species. Time was short and not enough to find the plant. Anyway, it was an interesting trip. At Nueva Melhem we contacted the two Dieringer daughters, because their house was just at the entrance to a big piece of land where we tried to find the plant. These two women were both near eighty years old in 1980, the time of our visit, and when they were young they had met Dr. Schroeder and visited his cactus collection. Later they

had also known Buining, Horst and Schlosser, and another person whose name they had forgotten, all of whom, like us, were asking about *Gymnocalycium schroederianum*. It was a surprise to find people who in the course of 60 years had nearly known all the collectors of the plant, but who did not know the plant nor the exact place where it grew!

During recent years I have collected more information on this species:

- 1). There are two photos in Spegazzini's records, one of a specimen collected near the Parana River at Entre Rios Province (2 on the map) and another from the center of the same province (3 on the map); the first was published by Britton and Rose in Volume 3: 161, fig. 170 as *G. monvillei*.
- 2). An herbarium specimen collected to the north of E. Rios (4 on the map) by Dr. T. M. Pedersen (#6274, SI).
- 3). A living specimen brought to me by the botanists of the Darwinion Institute, Prof. Nelida Bacigalupo and Dras. Nelida Burkart and Elisa Nicora, from west of E. Rios (without number, 27-I-1982, cultivated, 5 on the map).
- 4). Living and herbarium specimens from two different places in Corrientes (6 & 7 on map) sent to me by a good friend, Aurelio Schinini, from the Instituto de Botanica del Nordeste (CTES).
- 5). Two collections from near Gualeguaychu (8 on the map), also E. Rios (namely: close to the original locality) made by a cactus amateur of La Plata, Mr. Carlos Volpi.
- 6). One absolutely surprising locality, in the center of Buenos Aires Province, in a group of very low mountains (Sierras Bayas: 9 on the map), near Olavarria. This place, 500km south of Entre Rios, was mentioned to Omar Ferrari by an old inhabitant. Omar visited the place with Walter Rausch who distributed seeds of this plant in Europe with the provisory name, *Gymnocalycium bayensis*.

These mountains have been completely altered by stone exploitation. At present only a few specimens are still growing there, as we personally verified in 1980 and 1981. It is also quite possible that in the past several other intermediate localities existed. Today, the main concentration of people, industry and agriculture of Argentina are in these intermediate areas (Buenos Aires city and surroundings: nearly 15,000,000 people

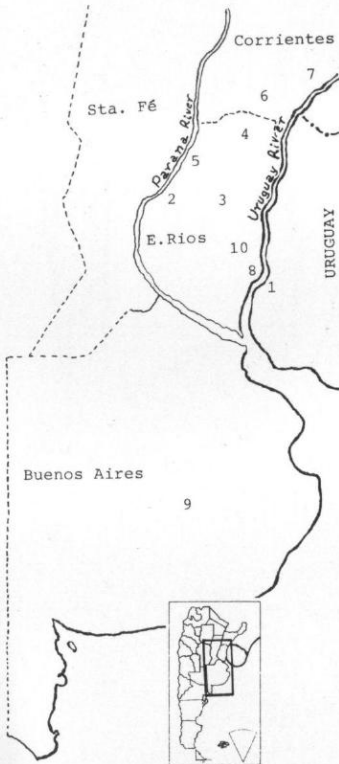


Fig. 3. Map of the area of distribution of the species in Uruguay and Argentina. The numbers and the localities to which they refer and are cited in the text.

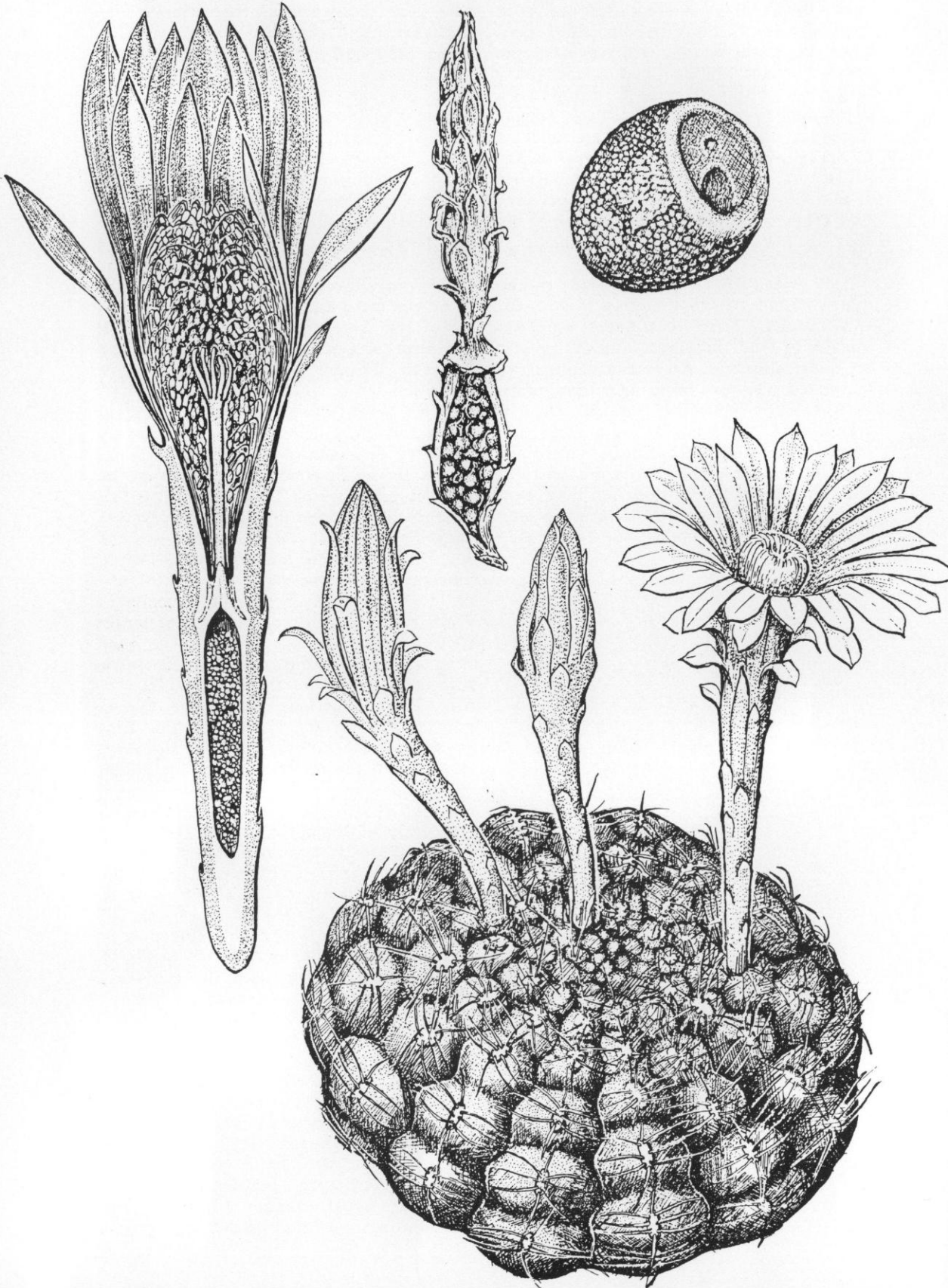


Fig. 4 (opposite page). Drawing of *Gymnocalycium schroederianum* subspecies *schroederianum* drawn from RK 5932. The flower section shows the relatively short stigma. The seed is clearly Ovatiseminae.

and the richest Pampas).

To check part of this information about Argentinian localities for this plant, in August of 1985 we organized a trip with Barkev Gonjian, Omar Ferrari, Nelida Serrano and Victor Turecek, visiting three of the known localities (5, 6 & 8) and discovering another (10 ). Dozens of these plants were observed.

As a consequence of all of this, we now know that this species grows over a very wide area, unsuspected of before, and that it possibly also grows in Santa Fe Province. We are now more knowledgeable about the different localities and habitats of this species, and we have also found some morphological differences which support the creation of subspecies.

***Gymnocalycium schroederianum* Osten  
ssp. *schroederianum***

Stems globose, simple, depressed, to 15cm diameter and 5cm in height, grey-green to mauve. Ribs 15-18 with approx. 5-6 rounded tubercles. Spines 5 or 7, in 2 or 3 lateral pairs and a single lower largest

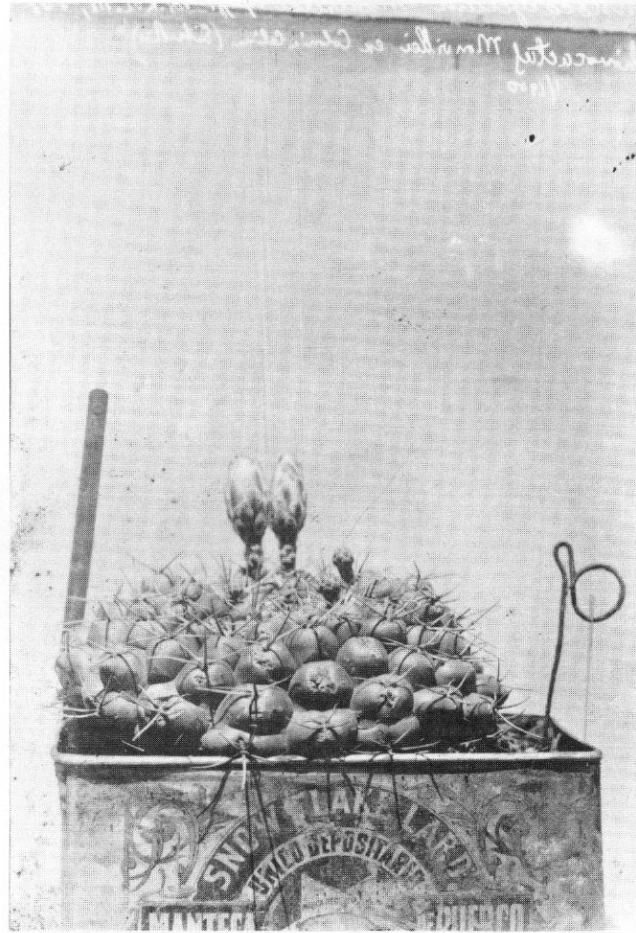


Fig. 5 (above). The subspecies *schroederianum*. From Spegazzini's records, collected to the north of Parana (Entre Rios).

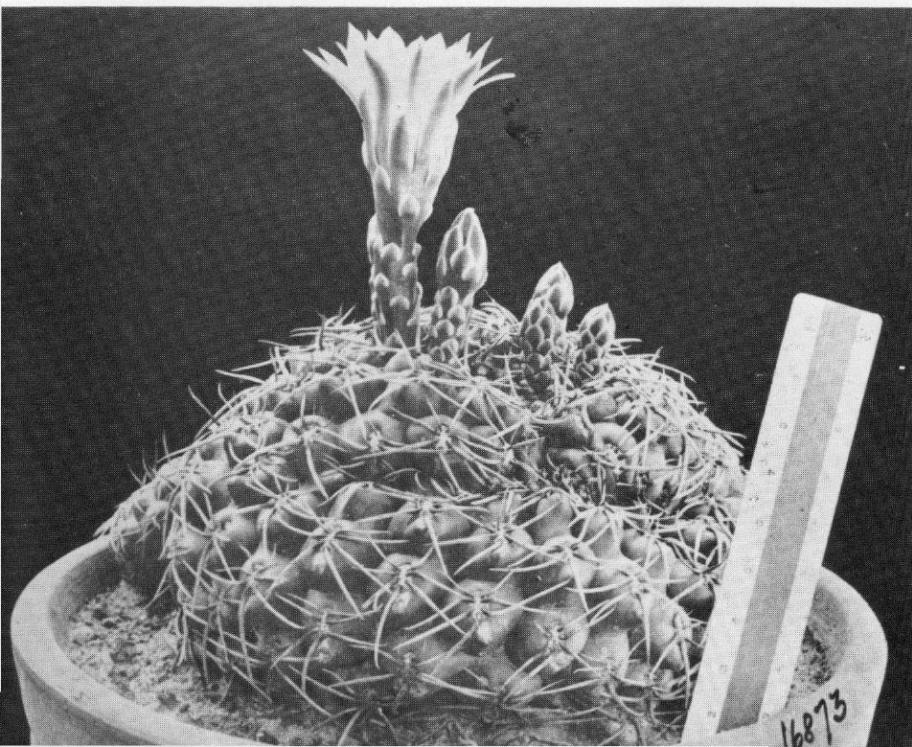


Fig. 6 (left). *Gymnocalycium schroederianum* ssp. *schroederianum*. One of the two original photos from Osten. The flowers look short for the species but the original description reads 7cm long.

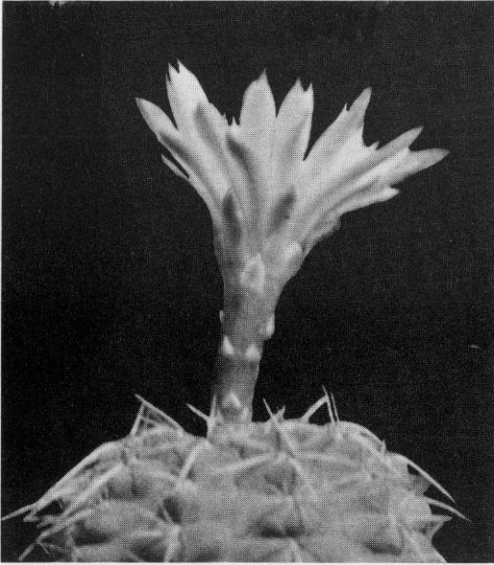


Fig. 7. The subspecies *schröderianum*. Plant collected near Gualeguaychu, with the typical thin flower, pale throat and rounded ribs.



Fig. 8. *Gymnocalycium schroederianum* ssp. *bayense*. Note short, conical flower and some central spines.

and downwards directed one, all appressed, 0.4-1cm long, normally whitish or yellowish with dark base, but also completely dark and blackish brown.

Flowers to 7cm long and 5.5cm diam. (but sometimes smaller on the same specimen), olive outside, whitish or cream (yellowish or greenish white) inside, with the throat of the same color or rarely pale pink. Pericarpel elongate, cylindrical, ca. 2cm long and 0.5 - 0.8cm diam., clear yellow or white. Stamens in 2 hardly distinguishable series, one spirally with many and another in a ring, at the border of the throat. Style shorter than the stamens, ca. 1.4cm long, cylindrical, whitish green, with stigma about 10-12 white or clear yellow lobes.

Fruits more or less clavate, 2.5cm long and 1.2cm in diam., grey-olive, opening by a longitudinal furrow. Seeds more or less ovate, with apical hilum, dark-brown, nearly 1.2mm long (*Ovatiseminae*).

LOCALITY: Argentina, Entre Rios, Dept. Gualeguaychu, Rio Gualeguaychu, August 1985 (flowered in cultivation XI-1985), R. Kiesling et al. 5931 (SI).

This species flowers abundantly from October to March, with a rest period in the middle of summer (January to February).

It grows in Uruguay (type locality is the only one known) and in a big area in Entre Rios: Gualeguaychu, north of Parana, etc.

It is found in open, low forest with *Prosopis* sp., *Geographia decorticans*, *Aspidosperma quebrachoblanco* and other small trees, in pale (whitish or rose) clay. Many times growing with *Frailea schlinzkyana*. These areas are frequently flooded and the clay forms a soapy soil. It was absolutely new for me to look for *Gymnocalycium* with my feet in the mud!

*Gymnocalycium schroederianum* ssp. *bayense* Kiesling, ssp. nov.

syn.: *Gymnocalycium* "bayensis" Rausch *nomen nudum*

A ssp. *schröderianum* differt caulibus minoribus pallide griseis et floribus obconicis minoribus.

Differs from ssp. *schröderianum* by the smaller stems, 7(-10)cm diameter, pale grey epidermis, the occasional presence of 1 erect central spine in addition to the 5 to 7 radial spines, and shorter flowers, 4-5cm long, with obconic pericarpel.

HOLOTYPE of the subspecies: Argentina, Buenos Aires, Pdo. Olavarría, Sierras Bayas, July, 1981 (flowered in cultivation XII-1982), R. Kiesling et A. G. Lopez 4323 (SI).

This new subspecies grows on the top of these low mountains in crevices of the granitic rocks or in humus. The vegetation there is mostly grasses and other herbaceous plants. In cultivation it flowers sparsely and mainly in December which is the beginning of summer here in the southern hemisphere.

**Gymnocalycium schroederianum** ssp.  
**paucicostatum** Kiesling, ssp. nov.

A ssp. *schroederianum* differt caule minus costato, costis angulosis maioribus, pauciareolatus; aculeis 3(-5), maioribus suberectis, rigidissimis; floribus niveis, intus carmineis.

Differs from the typical variety by the smaller number of ribs, only 9-11, wider and very angulate. Arcoles 2-3 per rib, nearly 1.7cm apart, elliptic, 0.6-0.7cm long. Spines normally 3, rarely 5, disposed in a "Y", the lower longer, 2-4cm, strong, subulate, the other 2 laterals 1-1.5cm long, all suberect and arching outwards, horn-color, reddish brown at the base. Flowers pure white with red throat, style pale green.

HOLOTYPE of the subspecies: Argentina, Corrientes, Dpto. Curuzu Cuatia, Arroyo Mocreata, 12-XI-1981, A. Schinini 21678, cum S. Caceres et C. Quarín (SI); "crece en suelos degradados, entre *Sellaginella sellowii*, asociada con *Dyckia* sp. y *Portulaca* sp. Flor externamente verdosa e internamente blanca. Florece a medio día".

PARATYPE: Corrientes, Dpto. Paso de los Libres, Rio Mirinay, 16-II-1979; A. Schinini 17.288, cum E. Cabral et R. Vanni (SI). Entre Rios, Dpto. Federación, Ea. Buena Esperanza, Dpto. Federación, Ea. Buena Esperanza, 25-X-1961, T. M. Pedersen 6274 (SI).

The vegetation and soil at the type locality is nearly identical to the one described for ssp. *schroederianum*. This new subspecies flowers abundantly from November to March.

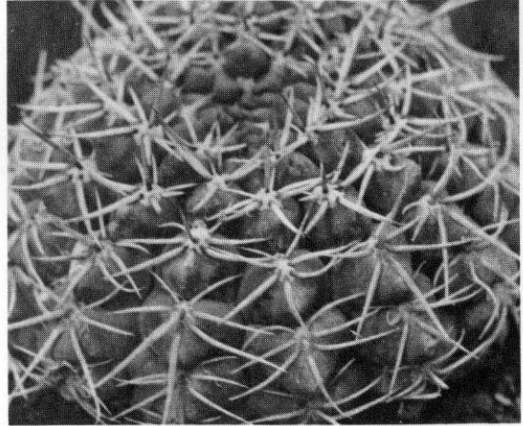


Fig. 9. *Gymnocalycium schroederianum* ssp. *bayense*.

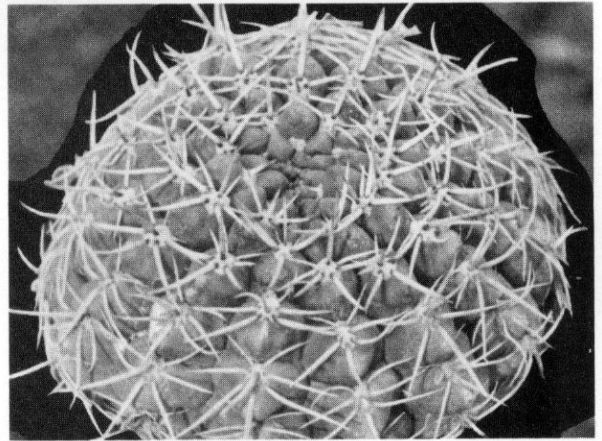


Fig. 10. *Gymnocalycium schroederianum* ssp. *bayense*.

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There are no other reference works that cover the field of cacti and succulents as completely as do Jacobsen's 3 volume *Handbook of Succulent Plants* and Backeberg's *Cactus Lexicon*. Unfortunately, both works are out-of-print and generally unavailable. Abbey Garden Press has a very limited number of the 3 vol. Jacobsen work available for \$150.00 a set and the Deluxe Collector's Edition of Backeberg's lexicon for \$250.00