

Espinas y Flores

BULLETIN OF THE SAN DIEGO CACTUS AND SUCCULENT SOCIETY
Affiliate of the Cactus and Succulent Society of America, Inc.

Volume XX, Number 9

September 14, 1985

SEPTEMBER MEETING
 Saturday September 14, 1985

Casa Del Prado, Room 101, Balboa Park

1:30 P.M.

PROGRAM

THE BEST OF BAJA

Piet Van de Mark has for nearly 20 years operated "Baja's Frontier Tours" the first tour operation specially focused on the wilderness of Baja, CA Mexico. Also a photographer, Van de Mark has been published by various newspapers and magazines including National Geography's World, Sunset and Newsweek. His work is occasionally seen in San Diego.

This program is a subjective look at some of Van de Mark's favorite places in the wild areas of the Baja Peninsula and contains a variety of photos taken since his first visit in 1962. The peninsulas unique and fascinating plants will be well represented.

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SHOW SCHEDULE FOR SEPTEMBER AND OCTOBER
 Room 101, Casa Del Prado, Balboa Park

Sept 21 & 22	San Diego Professional Horticulturist	Sat:10am-5pm Sun 10am-4:30 pm
Sept 28 & 29	San Diego Bonsai Fall Show	Sat and Sun:10:00 - 5:00pm
Oct 5 & 6	Balboa Park African Violet Fall Show	Sat & Sun: 10:00am - 4:00 pm

STAPELIADS - THE SUCCULENTS OF THE MONTH

[Asclepiadaceae of the tribe Stapelieae]

by Joey Betzler

The Stapelieae are succulent members of the family Asclepiadaceae (the milkweeds). This family is very closely related to the Apocynaceae (Adenium and Pachypodium) and some authors consider them as part of the Apocynaceae. In this discussion the milkweeds will be treated separately, and further divided, according to Rowley, into six tribes. The succulent tribes are as follows with representative members in parenthesis: Periploceae (Raphionacme), Cynancheae (Cynanchum, Sarcostemma); Marsdenieae (Fockea); Ceropegieae (Ceropegia, Brachystelma); and Stapelieae (Caralluma, Trichocaulon). The Stapelieae are stem succulents with rudimentary leaves (though Frerea indica is an exception with true leaves). The flower colors range from yellows, to complicated purple and white patterns, with allot of variation. Hairs and papillae further accent the weird floral structures. Though the majority of the species are odorless, some are quite foul smelling, hence the name, carrion flower, though a few have a sweet smell (Stapelia flavopurpurea, S. arenosa, and Caralluma quadrangula). There are five corolla lobes (petals) united and fleshy, which resembles a starfish, hence another common name, 'starfish flower'. The anthers and stigma unite at the center of the flower to form the very specialised corona. The pollen is not free as in the Cactaceae, but bound in special sacks referred to as the pollinia.

The pollinia must be moved from their top position on the corona to a lower position, wedged between two hand rail-like structures. Only in this position can successful pollination be accomplished, described as a lock and key mechanism by some authors. The plants are dependent on flies and perhaps other insects for pollination, known as entomophily. Generally plants that are dependent on insects are very diverse, as in the Orchidaceae, which may account for some of the problems in Stapeliad classification. Pollination techniques have only recently been worked out, so propagation has mainly been via rooted cuttings and field collected seed. Various workers are now conducting pollination experiments. This is difficult and requires a dissecting microscope, a fine pair of tweezers, and a steady hand. Also, patience, the twin seed pods or follicles do not form immediately, twelve months is not unusual for seed production! The seeds are small (2-6 mm) brown ovals, with a tuft of fine white hairs at one end. The seeds float quite easily on a slight breeze, which may account for the distribution pattern of these plants, which corresponds with the wind patterns of Asia and Africa.

Stapeliads can be found in India, Pakistan, Bangladesh, Burma, Spain, and the Middle East. Though most of the Stapelieae are on the African continent, Madagascar has an endemic genus (Stapelianthus) and The Canary Islands have the very unusual Caralluma buchardii, with chromosome numbers that are as high as

2N = 128 (most of this group have chromosome numbers of 2N = 22). The horn of Africa (Somalia and Ethiopia) have some very unusual Stapeliads in their flora i.e. Pseudolithos, Rhytidocaulon, and Whiteslonea, while the southern part of Africa (especially South Africa) is rich in Stapeliad genera and species.

The Swedish botanist Linneaus (1707-1778) erected the genus Stapelia (1737) to honor Johannes Bodaeus Stapelius, a doctor and author. With this new genus several other taxa were consolidated, and for the next 72 years the genus grew. In 1809, Robert Brown divided, the genus into four genera. One of these genera, Huernia, is meant to honor Justus Heurnius, (notice that the 'e' and 'u' in the genus name were transposed, it should have been Heurnia) an early Dutch missionary and collector of South African plants.

Since this time taxonomists have further split up the Stapelieae, and lumped them again, and at present there seems to be a trend to split them up into small groups. Some authors talk of reinstating just one or two genera again, Stapelia and Caralluma, but this may be a rather drastic action. All this juggling is the result of various workers trying to understand the relationships of the many taxa. The Stapelieae comprise a very diverse group. The velvety Stapelias and the spiny Hoodias look very different, though they will hybridize and form viable seed! The normal species concept does not seem to hold up with these plants. As of now the Stapelieae seem to include about 32 genera: Caralluma, Desmidorchis, Duvalia, Duvaliandra, Echidnopsis, Edithcolea, Frerea, Hoodia, Hoodiopsis, Huernia, Huerniopsis, Luckhoffia, Ophionella, Orbea, Orbeanthus, Orbeopsis, Pachycymbium, Pectinaria, Piaranthus, Pseudolithos, Pseudopectinaria, Quaqua, Rhytidocaulon, Stapelia, Stapelianthus, Stapeliopsis, Stultitia, Tavaresia, Trichocaulon, Tridentea, Tromotriche, and Whiteslonea.

Another factor to take into account is that in the last 20 years extensive exploration of the African continent and the Arabian peninsula has lead to the discovery of new Stapeliads. Now there are allot more species which complicates the current classification schemes of this group. In 1937 White and Sloane recognized 367 species, there are now about 100 to 150 new species described. In detailed studies, by Larry Leach of South Africa, taxa that were spread in different genera have been consolidated into concise and systematic groups. Even though this author has created several new genera, relationships have been cleared up, and past mistakes are corrected. As long as humans keep trying to classify and organize these plants to fit compartments (taxa or species) there are bound to be changes in Stapelieae nomenclature.

I have been busy this summer pollinating my plants and photographing each species that comes into flower. Most of my plants have collection data, and I keep records on all my plants. My collection is kept in a small greenhouse which protects plants from the sun (55% shade cloth) and our winter rains. I fertilize at 1/3 the recommended rate every other watering. Some plants have more specific requirments and I always try to grow these difficult ones with

more care. In the winter I water about once a month, depending on plant growth, and when I do water it is not very much, not enough to run out of the pot. When they start to grow in the late winter I start to water more, close observation is important!

For the dreaded mealy bug I observe my plants very closely. I repot every year, and some times twice if I suspect problems. If there is a problem I use Cygon 2E plus Safer Agro-Chem's Insecticidal Soap as a drench in the early morning and rinse any off any residue from the plant body. I think it is good practice to alternate with Malathion, or other insecticides.

I use a very loose mixture of 'lomex', pumice, 'supersoil', and charcoal in a ratio of 10:5:10:1/2 respectively. I am very limited in space so I use 2", 2 3/4", and 4" square plastic pots. I do have some clay pots, but as space becomes more of a problem I will move these to square plastic pots. I have been growing Stapeliads for about 12 years in all sorts of conditions and locations, and I have never seen so many flowers as this year. I have had 18 of the 30 genera, in my collection, flower so far this summer. So enjoy the flowers, and the diverse form and structure, but hold your nose!

References used:

Asklepios [The Journal of the International Asclepiad Society]
- various issues

Betzler, J.A. 1985. A Bibliography of Stapelieae Descriptions [1644-1981],
an unpublished paper

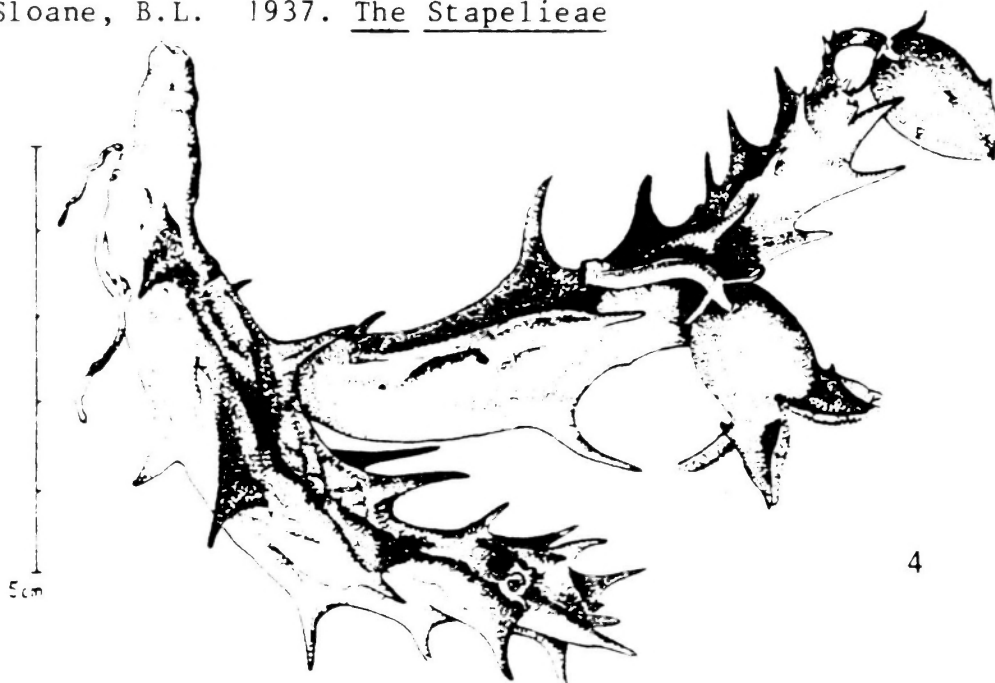
Leach, L.C. 1978. Excelsa, Taxonomic Series No. 1

Leach, L.C. 1980. Excelsa, Taxonomic Series No. 2

Rowley, G. 1978. The Illustrated Encyclopedia of Succulents

Thorne, R.F. 1976. Evolutionary Biology Vol. 9, A phylogenic Classification
of the Angiosperms

White, A., and Sloane, B.L. 1937. The Stapelieae



The Specie

FEROCACTUS ACANTHODES

Frank Thrombley

The specie Ferocactus acanthodes, with its varieties, has a range from the southwest corner of Utah, in the north, to Calamajue mission site, Baja, Calif. to the south. A straight line distance of approximately 525 miles. They are most prominent in the Mojave and Sonoran deserts but are probably found in the extreme boundaries of the Great Basin and Chihuahuan deserts as well.

There are four varieties of this specie of Ferocactus and possibly a fifth one, yet to be determined in the authors opinion. They are: Ferocactus acanthodes varieties acanthodes, lecontei, eastwoodiae, tortulospinus and a form from Calamajue canyon. The taxon Ferocactus rostii which was considered to be a distinct specie, has been combined with F. acanthodes var. acanthodes and could possibly be called the "rostii" form. All of the plants have yellow flowers with a little red along the basal portions of the veins. Their size is atypical in that full grown plants can be from 2 feet to 9 feet tall. The majority of them being columnar or barrel-shaped solitary stems. It is their very variable spination however, that holds your facination for these plants. The spine colors vary from white, grey, yellow, to orange and a brilliant red. Further they come in lengths up to 7" long and can be all shapes from oval to elliptical, flat to twisting, stiff to flexible and in some cases with a hook on one or more of the centrals. Some of the plants are indeed ferocious (which is derivative from the latin word "Ferox" = bold or fierce) hence its name Ferocactus.

The greatest concentration of these barrel cactii are in Riverside and San Diego Counties of California. This very large population are the varieties of F. acanthodes var. acanthodes (about 75%) and F. acanthodes var. lecontei (about 25%).

Ferocactus acanthodes var. lecontei has the greatest distribution and is found in all areas of this vast range with the exception of the Laguna Chapal Seca and Calamajue site in Baja, California. This plant grows to between 6 & 7 feet tall with a columnar stem completely covered with red or dull-red spines. The stem can grow to 2 feet in diameter. The stem, however, is usually covered completely with its broad, curving but not twisting central spines and the narrow, flexible, undulating radial spines. An impressive sight standing as a sentinal in its habitat.

Ferocactus acanthodes var. eastwoodiae has a distribution over a very limited range, growing in small areas of Organ Pipe National Monument and the Dripping Springs and Mescal Mts. of Arizona. .

The spine color on this plant is a straw-yellow to a bright yellow. They are also comparatively short (not covering the plant body), stout centrals with stiff radials and a little shorter than the centrals. This, too, is an impressive plant to see growing on rocky cliff faces in habitat.

Ferocactus acanthodes var. tortulospinus is found in a very local area near Laguna Chapala Seca, Baja, California. Approximately 200 miles south of its closest relatives in northern Baja, Calif. The colony seems to be located on two rocky hillsides and relatively small in population. The paved road, Mexican Highway #1, passes through the lower range of these plants. The plant grows to 2 feet tall and about 16 inches in diameter (although this is not common). The spines are its most outstanding feature. The radial spines are greyish-white, acicular, and about 20 in number. The central spines are a greyish-red in color, yellow-tipped, banded with approximately 11 in number and spreading. The lower central is usually very contorted, hooked and up to 6 inches in length. A very fierce looking plant. They also seem to 'blend in' with their surroundings of a reddish rocky hillside. The colony of Ferocactus growing at the Calamajue site is between 8 and 10 miles (straight line) south east of Laguna Chapal Seca. These Ferocactus have been assigned to var. tortulospinus by Nigel Taylor, Botanist & Taxonomist, Royal Botanic Gardens, Kew, England. Nigel Taylor wrote that this disjunct variety is very similar to var. acanthodes and is maintained here more for reasons of geography than morphological difference. This colony however is very variable in all aspects. The plants on the mesa can grow to excess of 6 feet tall. The author measured a plant 6 foot 6 inches tall with a diameter of 12 inches with all yellow spines and no contorted central. In the same location there is a ferocactus 3 foot 10 inches tall with yellow spines and contorted central spines about 4 1/2 to 5 inches long. All plants were photographed with yellow flowers and were growing at an elevation of about 1800 feet. When travelling down into the canyon the Ferocactus are much smaller (up to 3 foot high) with spination colors of orange, yellow, red and dull greyish-red. The spines also vary in length and description from short straight to hooked and of course many contorted centrals. This is a much larger colony than the one at Laguna Chapala Seca and certainly deserves to be studied further.

Ferocactus acanthodes var. acanthodes is being described last, for it certainly is the most variable and colorful of this series. In the Anza-Borrego State Park of California in the County of San Diego is an ideal location to study this variety. Some colonies, of thousands, of these plants grow to 3 feet tall and appear to be at their maximum height. Other colonies, in different habitat within the park, grow to 6 feet tall with occasional plants growing to 8 foot. The author measured a plant at 7 foot 1 inch tall and knows of a sighting that was approximately 9 foot tall. They are primarily growing on the rocky hillsides at elevations between 500 and 2500 feet and into every canyon or arroyo. Within this parks 500,000 plus acres there must be 50,000 to 100,000 Ferocactus. The spine colors include all colors previously described with some plants having yellows, orange and reds on its own spines.

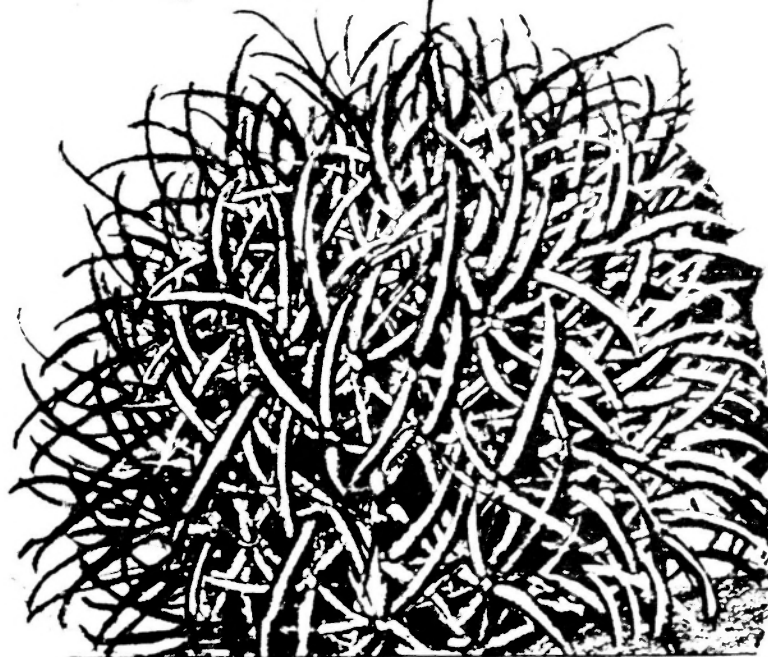
The spination will vary from the symmetrical form on var. eastwoodiae to the long twisted spines on var. tortulospinus and more, some central spines will grow to a length of 7 inches. The shapes of these plants are barrel type to columnar with some clumping, occasional pups or offsets on older stems. And a few plants dividing dichotomously. I believe that I have found both varieties of leonti and eastwoodiae growing in the park, but without having studied these plants in other habitats one should not be so bold. The Ferocactus growing at the Calamajue site however, are indeed very much the same as those in Anza-Borrego. But once again not being a Taxonomist, the science dealing with the form and structure of organisms, and development and relationship of their organs must be performed by one who has been trained in the field of Morphology.

References used:

BRADLEYA Year book of the British Cactus and Succulent
 Society Volume 2/1984
 A review of Ferocactus Britton & Rose
 by Nigel P. Taylor

The Cacti of the United States and Canada
by Lyman Benson

Ferocactus acanthodes



NEWS NEWS NEWS -----

WELCOME TO NEW MEMBERS

George Jennings - San Diego Richard Plant - LA Mesa Ernest W. Angus - San Diego

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BRAGGING PLANT WINNERS FOR AUGUST -----

- 1st Place Marylyn Harms for her Ipomea platensis
- 2nd Place Martin Mooney for his Euphorbia polygona
- 3rd Place Lit Phan for his Bursera collection
- Honorable Mention - Joey Betzler for his Stapeliads

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Thanks to Flo Warner for the donation of plants to the Cactus Garden in Balboa Park

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Thanks to Excelsior Gardens of Vista - Donated \$250.00 to the club in appreciation of their being allowed to sell at the CSSA Convention.

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Those who have signed up to bring refreshments for the September Meeting -----

Ethel Standish	Mildred Richter	Marylyn Harms
Curt Hammel	Judy Hannula	Amna Cornett
Elizabeth Glover	Helen Barkdoll	

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12 August 1985

Dear SDC&SS Members

Just a note to thank you again for hosting the convention this year.

You were gracious hosts and a round of applause to you for a well-organized week of activities!

Green's up,
Peg Spaete, Boring, Oregon

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Editors observation -

Bud and I were in Ojai not long after the fire. We saw a large Opuntia. It had turned pure white and looked like a ghost on the side of the hill. Saw nothing that had been affected in such a manner. Mary

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Remember that past issues of the Espinas Y Flores are available at our regular meetings. I do not keep many at home.

DEADLINE FOR THE OCTOBER ISSUE -- September 28- Thanks Mary

NEW BOOKS IN OUR SDCSS LIBRARY

Asclepiadaceae/Asklepios Journals, Volumes 1-31 (May 1974-June 1984)

Wilhelm Barthlott, Cacti*

C. D. Brickell, International Code of Nomenclature for Cultivated Plants
(1980)

Cactus and Succulent Society of America's Journals, Volumes 54-6 (1982-4)

Robert T. Craig, The Mammillaria Handbook*

R. L. Heinig, Glossary of the Botanic Terms Used in Describing Flowering Plants

D. R. Hunt, The Genera of the Cactaceae (1967)

Edgar & Brian Lamb, Colorful Cacti of the American Deserts*
The Illustrated Reference on Cacti & other Succulents
Volumes I-V*
Popular Exotic Cacti in Color*
Pocket Encyclopedia of Cacti Including other Succulents in Color*

Marlene Rainman, An Introduction to the Stapeliads

Werner Rauh, The Wonderful World of Succulents

Hermine Stover, The Sansevieria Book

Robert F. G. Swinbourne, Sansevieria in Cultivation in Australia

Sansevieria (National Botanic Gardens Lucknow, India (1959)).

---Rick Latimer, SDCSS Librarian

*These books (10) were donated by Wally Musser -THANKS!!!!

SPECIAL NOTICE

All members please check your bookshelves at home to determine if you have any of the SDC&SS Library books which are overdue. We are missing quite a few. Next month we will list the names of those we believe who have overdue books.

THANK YOU

SAN DIEGO CACTUS & SUCCULENT SOCIETY

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The San Diego Cactus & Succulent Society is open to all persons interested in growing cacti, other succulents and exotic plants. Meetings are held the second Saturday of each month at 1:30 pm in Room 101, Casa del Prado, Balboa Park. Board of Directors meetings are held after the general meetings. Annual dues are \$8.00 per single member per year, \$2.00 for each additional member of a household within a family. Single copies of Espinas y Flores are 60 cents.

Editor

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