

THE XEROPHILE

April-June 2019

In Memoriam
Donna Frances Behme
1940-2019



Donna was an avid gardener and a member of the Cactus and Succulent Society of New Mexico. She was also a Lifetime Master Gardener and a member of the Native Plant Society. She held the position of Librarian for the Council of Albuquerque Garden Clubs' extensive horticultural library for many years.

Donna's contributions to the CSSNM were many. She was CSSNM Treasurer in 2009. In 2015, she gave a presentation to the Society on Cacti and Succulents in the Landscape, and gave a similar presentation at the 2017 Exhibition at the Botanic Garden. She also prepared the landscape posters for a 2018 demonstration at the Exhibition that will continue to be used. She co-hosted three open garden tours to which CSSNM was invited, and she designed the two posters, Membership Matters and Educational Outreach, used at CSSNM events, as well as some advertising material for various events.

Donna was a familiar figure around the Garden Center for many years, where she wore a number of hats. But her life was much more rich and interesting than simply that.

She grew up in Washington DC and its environs, where she remained until 1987, when she moved to Albuquerque. In 1959, she began working for the Central Intelligence Agency. There she met Margaret Todd who became her roommate and best friend. During her tenure with CIA, she received a Certificate of Commendation signed by the Director for her work on the Cuban Missile Crisis. She left the CIA in 1969 to attend computer programming school. While working in the programming field, she also assisted her father with re-

continued on page 7

Cactus &
Succulent
Society of
New Mexico



"The object and purpose of the Society shall be exclusively for the study, appreciation, propagation and promotion of cacti and succulents among growers and collectors; the conservation and cultivation of native cacti and succulents, the exhibition of said materials whenever and wherever possible."

Mark Your Calendars

April 12-14

Show and Sale

May 4 - home garden tour

Details on website...

Friday June 21

Ad Konings

"The Sex Life of Succulents"

President's Letter

Dear all you cactus lovers,

I know that all of you enjoyed Eric Gensler's March presentation. I did even though there were a couple of shocks in it. It was very informative and entertaining. I liked his style of presentation. Thank you all for being there.

Would you all please thank Margaret and Margaret and Pia and Steve for doing such super jobs as officers of the Cactus Society? They are the best. Their efforts and success are bringing new members to us and producing results for the Society. Please do look at the website for updates and current information. It is the best source for the most up-to-date information -- compliments to Ralph Peters and his efforts.

Now to our Spring Shows and Sale. From all we can see preparation is well underway. Dan is working to ensure a very successful Exhibit and Steve is working toward a very strong Sale. We need all of you as participants and helpers. There are simply not enough hands and time among the officers to get everything done. And it is fun, too! You will enjoy it and maybe learn something about cacti and your fellow Society members. They are a great group of people, except maybe a couple of rigid taxonomists, but they also have their place and we love them.

I have written enough now. But you are doing great and we need to keep up the good work.

Carl Hime, President

Editor's Letter

This year is shaping up to be a typical New Mexico spring. As late as 14 March I was sitting in a meeting at the Garden Center watching a last hurrah of snow flakes drifting down. But spring is in the air and it's time to be out in the garden with your cacti and succulents. Need a few more? The annual show and sale will take place in about two weeks (11-15 April, including setting up and tearing down). Get your best plants spruced up for exhibition and get your checkbooks out to add to your collection! Details on schedules may be found on page 7, with updated information on the website.

Steve has also been working to line up the monthly programs for 2019. The first three months were truly a delight. It is clear to me that the people who know about cacti also know how to photograph them! Oohs and aahs were routinely heard during all three talks. The Mark Your Calendars box (front page) lists what we can look forward to over the next three months. As always, of course, check the website for updates.

As I have written before, I look forward to receiving articles, ideas, and photographs from you! Claire has written another great column (page 3) in which she reflects on the value of spines. Steve's article on experimental cactus growing addresses determining the cold-hardiness of cacti native to other cool, arid environments (page 10). Judith has provided an introduction to the CSSNM library (page 9), that we hope will turn into a regular column highlighting some of the books in this invaluable collection. She and I are working on a method using the Garden Council Library as an intermediary to make checking out and returning books easier.

Penny's article (pages 4-6) is a photographic ode to leafcutter bees and their role in cactus flower pollination. It surely prepares the way for Ad Konings' June talk on the sex life of succulents.

We were saddened to learn of the death of long-time CSSNM member Donna Behme in February. Her life and widely-ranging interests are reviewed on page 1. I am sure she would be deeply honored by the CSSNM donation being made to the CSSA in her name.

Please feel free to contact me with any articles, photographs, ideas or suggestions you might have for me: margaret@margaretmenache.com.

Margaret Ménache

KACTUS KIDZ KOLUMN

CLAIRE ROSS

Why do cacti have spines?

It's a question I've often wondered when transplanting my *Opuntia* paddles and getting my fingers pricked accidentally.

After researching the subject a lot, I learned that spines are sharp modified leaves derived from the cactus's epidermis. Spines were originally leaves, but leaf-cell genes were turned off over time.

I also found out that cactus spines help cacti in a number of surprising ways. Cacti that rely on fog, like some *Copiapoas*, need their spines to collect dew droplets. This gives the cactus more water than if it didn't have spines.

I was surprised to learn that spines can also help some cactus species propagate. Imagine a cholla piece hitching a ride on your pants and falling off far away from the original plant. Then, it takes root and becomes a new plant in a completely different location.

So, the next time you're transplanting cacti, think about why they have such sharp spines and be a little more understanding if you get poked.

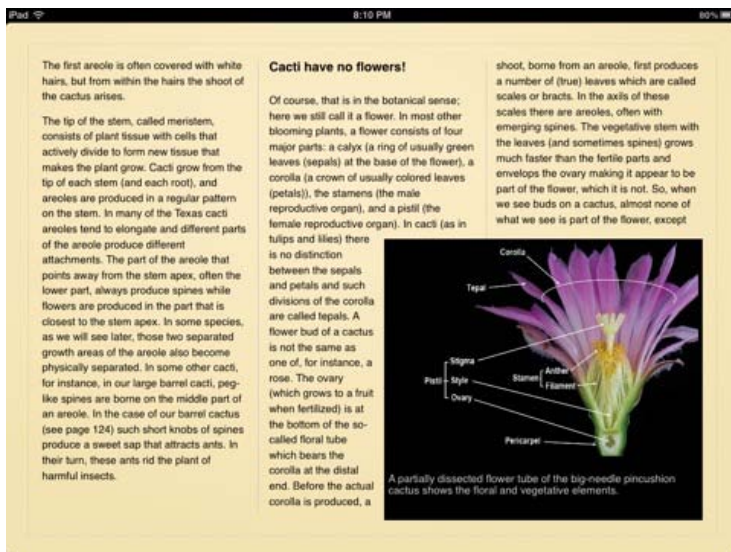


Toumeya papyracantha photo: Woody Minnich

About the Author: My name is Claire Ross and I am twelve years old. I am a sixth grader at Mountain View Middle School in Rio Rancho. I first got interested in cacti and succulents when I was eight. I saw the cactus and succulent display at the State Fair. I got a membership to CSSNM for my birthday because of my interest. Now I enjoy growing cacti from seed.

Ad Konings to speak at the June Meeting

Ad Konings is from Holland and has done about 30 years of research on the cichlid fish of the rift valley in Africa. He has published more than 30 books on his research and speaks all around the world on fish and cacti. About 15 years ago he and his wife, Gertrud, moved to El Paso. Together, they have published a book on the *Cacti of Texas in Habitat*. They took dozens of trips to find all the native species in flower in habitat. Now he is doing more work on cacti mostly in Texas, New Mexico and Mexico, taking photos of plants in habitat. With respect to his upcoming talk, Steve Brack writes, "I have seen the talk, it is very informative and entertaining. There are a lot of microscopic photos about the pollination process of various cacti and succulents."



<https://itunes.apple.com/us/book/cacti-of-texas/id555225508?mt=11>

CACTUS POLLINATION: LEAFCUTTER BEES

PENNY HOE

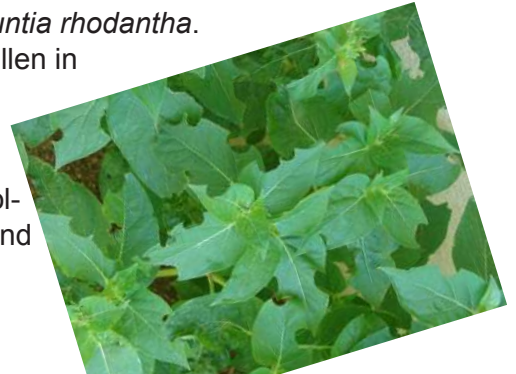
Editor's note: Penny graciously provided her powerpoint presentation on leafcutter bees as this article for the newsletter. It goes without saying that the size of the printed page/pdf cannot even begin to do justice to some of the amazing photographs Penny has provided. If you have a chance to see her make the presentation and project the images on a screen, I'd highly recommend that you take advantage of the opportunity.

I'd like to introduce you to one of the species of native bees that visit our yard and spend quality time with cactus blossoms – the leafcutter bee in the family Megachilidae. This one is on *Cylindropuntia spinosior*. Note the bee's black body and flattened, fringed abdomen with an orange tip.



The image to the left shows a female leafcutter bee in a flower of *Opuntia rhodantha*.

The female carries pollen in hairs on the underside of her abdomen, unlike honey bees, which have special pollen carriers on their hind legs.



Leafcutter bees use their jaws to nip out circles or ovals of leaves such as these. The female bee carries each leaf piece one at a time back to her chosen nest site. I have found leafcutter nest cells under rocks in cooler, moister soil and even one inserted into the drainage hole of a terra cotta pot.



Each female makes and provisions her own nest. She makes nest cells by overlapping the leaf pieces into little cylinders. If a chosen cavity is large enough she may connect several in a row.

In each little cell she lays an egg and provisions the future larva with many little balls of pollen.



Below is a pair of leafcutter bees meeting, greeting, and mating in an *Opuntia clavata* flower. The female is larger and has the pollen collecting bristles on her abdomen. The slightly smaller male has no pollen hairs on his abdomen.



These bees also have long tongues to access nectar. (left)

Just by wallowing in the pollen-laden stamens, the leafcutter gets covered in pollen. Many *Opuntias* have a pollinating strategy of their own – **thigmotropism**. When a bee dives into the stamens, its touch triggers movement of the stamens to wrap around the bee. Thus, more pollen collects on the bee. (next page)

I have observed a bee with pollen on her eyes and antennae pause before flying away. Using her front pair of legs, she wiped her face and passed



the pollen back to her other legs which patted it onto her abdomen.

The five sources on my bookshelf that I have used to learn more about native bees --

The Bees In Your Backyard: A Guide To North America's Bees, by Joseph S. Wilson & Olivia Messinger Carril, Princeton University Press, Princeton & Oxford, c. 2016. [Guidebook, quite extensive, details on identification of bees, arranged by Families]

Attracting Native Pollinators, by the Xerces Society, Storey Publishing, Massachusetts, c. 2011. [Considers bees, birds, butterflies and moths, flies, bats, etc; has guide to ID for each groups, recommends plants to attract pollinators.]

National Wildlife Federation Field Guide to Insects and Spiders of North America, by Arthur V. Evans, Chanticleer Press, Inc., c. 2007.

National Audubon Society Field Guide to North American Insects and Spiders, by Lorus & Margery Milne, Alfred A. Knopf, New York, c. 1995. [Useful as field guides. NWF has color photos 3/page; NAS has color photo section keyed to narrative descriptions. Not 100 % overlap in examples of various categories of arthropods. Both are useful to narrow down observed bees, etc to Family and often genus.]

The Forgotten Pollinators, by Stephen L. Buchmann & Gary Paul Nabhan, Island Press, Shearwater Books, Washington D.C. & Covelo, CA, c. 1996. [Narrative on the importance of pollinators such as insects, birds, bats, etc. Not much mention of leafcutters per se, but is a good explanatory source for the importance of pollination.]

If you Google "Native Bees of North America", the site <https://bugguide.net/node/view/475348> will give you a good overview of the many families of native bees and will whet your appetite for exploring their varied life-styles further.

<https://bugguide.net/node/view/84> focuses on Megachilidae.

Google "Lithurgus apicalis" to see pictures of the species that frequents our front yard.

2019 Spring Show & Sale Set Up and Work Schedule

Thursday 4-11

9 am: meet at the storage locker to haul the supplies needed to the GC, start set up

Friday 4-12

8:30 am: meet at GC to complete the set up
1:00 pm: start to accept show and sale plants
8:00 pm: shut and lock building

Saturday 4-13

7:15 am: judges & clerks assemble and start judging
9:30 am: presale for entrants, judges & clerks, limit of 5 plants per person
10:00 am: open to public
4:00 pm: close

Sunday 4-14

10:00 am: open to public
3:30 pm: possible half-price sale
4:00 pm: close and start tear down

Monday 4-15

8:30 am: return supplies to the storage locker



Check the website for details and updated information.

Volunteer Work Reminder

A big thank you to the CSSNM volunteers who put in a total of 14 hours in March cleaning up our demonstration garden at the Garden Center. Remember, when you work on projects that benefit our Council of Albuquerque Garden Clubs (CAGC), whether on fundraisers, the gardens, or CSSNM projects like our show and sale, report your hours to **Margaret Todd**. Those hours are totaled at the end of each year and reported to Council. Your volunteer hours help to support the retention of the CAGC non-profit status - and provide us with one of the best rental deals in town.

Donna Frances Behme, continued from p. 1.

search in the field of freight transportation, learned the business of consulting to shippers, became his partner, and eventually took it over as he moved into retirement.

After moving to Albuquerque, she became active in her neighborhood, completing Neighborhood Patrol Training and graduating from the Albuquerque Citizen Police Academy. She was also an avid photographer. She not only enjoyed photographing the spectacular views offered in the State and National Parks and Memorials, she also made exquisite studies of flowers and mushrooms. She selected many of her favorite images to be shown in the memorial and celebration of her life, held at the Garden Center on 16 March 2019.

Her interest in gardening began while very young; in later years, gardening became a real passion. She became a Master Gardener and focused her volunteer work on the Garden Center activities. As someone who was a lifetime avid reader, it stood to reason that she would ultimately direct most of her efforts to the Council library. Her favorite motto was a saying by Marcus Tullius Cicero, "If you have a garden and a library, you have everything you need."

Donna died from an aggressive, incurable brain cancer on 13 February this year. A memorial service celebrating her life was held at the Garden Center on 16 March. As Donna wrote, she was fortunate to have the opportunity to write a farewell letter to the many friends she left behind. This was read by Margaret Todd.

US Post Office Finally Comes To Its Senses and Releases Really Good Stamps!

From the USPS website (https://store.usps.com/store/product/buy-stamps/cactus-flowers-S_680004):

Explore the unexpected beauty of cactus flowers with ten new stamps from the US Postal Service.

Each stamp depicts a photograph of the flower of one of these ten cacti: *Opuntia engelmannii*, *Rebutia minuscula*, *Echinocereus dasyacanthus*, *Echinocereus poselgeri*, *Echinocereus coccineus*, *Pelecyphora aselliformis*, *Parodia microsperma*, *Echinocactus horizonthalonius*, *Thelocactus heterochromus*, and *Parodia scopa*. ... cactus nomenclature is in flux, and with new DNA studies, botanists sometimes reclassify plants. As of the printing of these stamps, the names were accurate. Cacti also have common names, with some plants having several different names in popular use.

Cacti are flowering perennial succulents in the plant family Cactaceae. Though experts debate the exact numbers, more than 1,500 species are known. Almost all cacti are native to the Americas, ranging from British Columbia and Alberta in Canada to the southern regions of Argentina and Chile. The southwestern US and Mexico are home to the greatest variety and abundance of cacti.

Several botanic gardens in the US showcase the wide variety and stunning beauty of these plants. When the cacti are in bloom, visitors are presented with a vivid -- and surprising -- floral display. Cactus flowers generally occur singly, although many separate blossoms might appear on a plant at the same time. Flowering occurs at different times of the year and even different times of the day or night depending on the species. Most cactus flowers are large and flamboyant, with colors of white, red, pink, orange, or yellow. Some flowers are also richly scented, and the nectar and colors attract pollinators such as bats, bees, and birds.

Cacti are among America's most popular houseplants. Most cacti grow very slowly, and they are tough, adaptable, and low maintenance. They are also favorites for rockeries and desert and exotic gardens. When they bloom, their flowers put on a show that compares in beauty with any flower in the garden.

Art director Ethel Kessler designed the stamps with existing photographs taken by John. P. Schaefer.

How Many Do You Recognize?

- A. *Opuntia engelmannii*,
- B. *Rebutia minuscula*,
- C. *Echinocereus dasyacanthus*,
- D. *E. poselgeri*,
- E. *E. coccineus*,
- F. *Pelecyphora aselliformis*,
- G. *Parodia microsperma*,
- H. *Echinocactus horizonthalonius*,
- I. *Thelocactus heterochromus*,
- J. *Parodia scopa*.

answers on page 12



CSSNM Library Judith Bernstein



The library is now housed in the club's storage area, which is NOT accessible to the membership. Some of you may remember that it used to be housed in a member's home but, with 329 books and rows of journals, that has become too difficult.

The list of library materials can be accessed online from the club's website: www.new-mexico.cactus-society.org. Scroll down the home page until you find the phrase "Club Information," and then the words "library list ." The list is presented as an Acrobat file, i.e., a -pdf file, that is ordered alphabetically by author. If you know how to search for words in such a file, you may search for words in the titles. If you do not know how to do this, please get in touch with Judith Bernstein, the librarian, and I will help you find the material for which you are looking. You can get in touch with me via email: rosen900@gmail.com.

If you want to check out a book, and you are a member, then the books can be brought to the next upcoming meeting. Books can be checked out for 2 months! We are currently trying an arrangement with the librarian of the Garden Council Library, Margaret Menache, to allow for pick up and return of CSSNM library books at the Council Library at the Garden Center.

I also bring selected books to each meeting, chosen for their relationship to that meeting's program. These books can be checked out at the meeting. Other books, which, for instance, have beautiful photographs---such as the Japanese ones---or have valuable information on cactus and succulent cultivation for novices, are also available in the library.

The library also contains the journals of the Cactus and Succulent Society of America, from its inception in 1929 to the present. The tables of contents are available online at the CSSA website---accessed by the link at the top of our club's website. In addition, there are 10-, 20-, and 50-year indices. The library list also shows collections of other (relevant) journals.

If you wish to read a particular journal article you can contact me to request that issue be made available for you to read at the Garden Council library, which is open Tuesdays through Thursdays from 10 A.M. to 2 P.M. year-round.

South Coast Cactus & Succulent Society
47th Annual Show & Sale
April 6 - 7, 2019 9 AM - 4 PM
Aeonium sunburst
South Coast Botanic Garden
26300 Crenshaw Blvd. • Palos Verdes Peninsula 90274

Experiments in Cold-Hardy Cacti

Steven Brack

I have a small hardy garden in my back yard to test



plants for hardiness. *Maihuenopsis glomerata* seemed a likely candidate for this test, as it grows high in the Andean hills in central Argentina. I planted three of them outside and they handled this winter without any problems. They were pretty

much buried under snow for two weeks, so below freezing all the time. With hardiness, overnight cold with warming in the day is one set of conditions. A much harsher set of conditions is to be below freezing for many days on end -- this is much more difficult for plants to survive.

Many of them grow in the hills above Uspallata, Argentina. Take a look at the climate information in Wikipedia (<https://en.wikipedia.org/wiki/Uspallata>) for more details. The temperature and precipitation table at that link is reproduced

here. The area is in the cold desert region zone. The annual rainfall is about 6 inches, so quite dry. The winter nights are much more mild than central NM, with average lows

Climate data for Uspallata													[hide]
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Average high °C (°F)	25 (77)	24.1 (75.4)	21.4 (70.5)	18.4 (65.1)	14.3 (57.7)	11.5 (52.7)	11.2 (52.2)	12.2 (54.0)	14.2 (57.6)	17.3 (63.1)	21.1 (70.0)	23.9 (75.0)	17.9 (64.2)
Daily mean °C (°F)	17.1 (62.8)	16 (61)	13.4 (56.1)	10.6 (51.1)	7.4 (45.3)	5 (41)	4.6 (40.3)	5.2 (41.4)	7.1 (44.8)	10.1 (50.2)	13.1 (55.6)	16 (61)	10.5 (50.9)
Average low °C (°F)	9.2 (48.6)	8.0 (46.4)	5.5 (41.9)	2.8 (37.0)	0.5 (32.9)	-1.5 (29.3)	-2 (28)	-1.7 (28.9)	0 (32)	2.9 (37.2)	5.2 (41.4)	8.2 (46.8)	3.1 (37.5)
Average precipitation mm (inches)	24 (0.9)	25 (1.0)	15 (0.6)	6 (0.2)	6 (0.2)	8 (0.3)	9 (0.4)	11 (0.4)	7 (0.3)	9 (0.4)	16 (0.6)	20 (0.8)	156 (6.1)

Source: Climate-data.org, altitude: 1894m^[1]

in the 20's. But remember that plants have lived here for far longer than people have recorded weather details, so likely long ago at some time it was much colder here than it is now.

The plants have very dense shiny spines, make a large spherical clump with finger like segments.



When the sun shines on the spines they really sparkle. The flowers are cup shaped and coppery yellow. I think that after they become established here they will survive just on rainfall. This winter they survived down to 3 F so they are very tough, and show no difficulty at all. In time, a very substantial thick root system will develop. I also expect the clusters to get a couple feet in diameter. They will prefer quite a bit of sunlight, at least half day of direct sun.

Propagation can be done from seed, or easily by rooting stem segments in the spring. Since they make large clusters I expect them to live a long time, 100 years would be possible.

January

We began the New Year with snow - a good omen here in New Mexico where moisture is always welcome. And, at CSSNM, we began the New Year with a breath-taking presentation by Woody Minnich, who is also always welcome here. While I was preparing this newsletter, I asked if he'd mind sending me a photograph or two along with a few words. Enjoy looking at his wonderful images one more time.



Copiapoa longistaminea (below) in habitat in the Gaunillos Valley, Chile. This plant is about 4 feet across and possibly one to two hundred years old! In my opinion, this is one of the most beautiful of all cacti. (photo: Woody Minnich)



Copiapoa serpentisulcata (above) north of Chaparral, on the bluffs and also along the rocky shore line. This species ranges from beautiful gold spines to red, black, brown and orange spines. Often it forms large mounds and grows with *Copiapoa hypogea* and *Copiapoa cinerascens*. (photo: Woody Minnich)



Copiapoa columna alba (below) in the upper Gaunillos valley. This is an amazing species that grows in large populations where all the *C. columna albas* point or lean north to reach the sun. (photo: Woody Minnich)



February

CSSNM member Oleg Lagutin talked about his trip to South Africa last year. He focused on the many kinds of miniature bulbs in habitat and also showed and discussed many other succulents like Haworthias, Adromischus, Aloes, the Stapelia family and some of the thousands of kinds of living stone type plants as well.



I shamelessly downloaded one of his amazing photographs (right) from the CSSNM website. Check it out to see more of Oleg's fascinating photographs: <https://www.new-mexico.cactus-society.org/Presentations/OlegLagutin/SAfrica/index.html>

<https://www.new-mexico.cactus-society.org/Presentations/OlegLagutin/SAfrica/BoophoneHaemanthoides.jpg>



Although the talk illustrated a number of miniature bulbs, this looked anything but miniature to me. In the amaryllis family (Amaryllidaceae), it wouldn't be exactly described as particularly small. However, in common with a number of the other cacti and succulents described in this newsletter, it shares the trait of living a hundred years or more.



5-A
4-C
3-E
2-J
1-I
10-G
9-H
8-F
7-D
6-B

March



The March program was presented by Erik Gensler, who grows many *Echeveria agavoides*. He selects different strains/varieties for various characteristics, such as different patterns of color in the leaves. Following crosspollination or simply from purchased plants, he collects seeds from the flowers and grows new plants. Many of the plants are very spectacular. They are very well adapted to growing in NM. Our cool nights, during most of the year, really enhances the colors.



Erik brought a selection of the *E. agavoides* he has growing right now. If you look closely, you'll see his 'pollination paintbrush.'

As if the young plants aren't spectacular enough themselves, Erik showed images of many of his grown/larger plants. I (shamelessly) downloaded this image of *E. agavoides* 'Red Ebony' from the CSSNM website. Check it out yourself to see more photographs of these amazing plants.



Continuing on the theme of home-grown cacti, Sig brought a selection of cacti he had grown from seed. His were freely given away, though Erik's were not! But perhaps you'll be able to buy one of Erik's AND one of Sig's at the upcoming sale...



MEMBERSHIP APPLICATION

Name: _____

Address: _____

City/State: _____ Zip: _____

Tel No.: _____ E-Mail: _____

How do you grow? Greenhouse _____ Yard _____ Window _____ Other _____

Favorite genera: _____

Suggestions for a program: _____

Volunteer to give a program? _____

Volunteer for: Officer: _____ Co-Chair an Event: _____

Other: _____

Do you: Buy plants locally _____ Mail order _____ Raise from seed _____ Buy at our sale _____

For current information about the Society, including our email address, go to the Society's website:
<http://www.new-mexico.cactus-society.org>

Complete this application and send it to the address below with your check for \$10.00
made out to the CSSNM.

For more information, contact:

CACTUS and SUCCULENT SOCIETY of NEW MEXICO
P.O. Box 21357
Albuquerque, New Mexico 87154-1357

Elected Officers

President
Vice President
Recording Secretary
Treasurer
Executive board members

Carl Hime
Margaret Todd
Cheryl Haaker
Pia Louchios
Penny Hoe
Lee Graham
Ralph Peters

Key Positions

Program Chair
Webmaster & Show PR
CSSNM e-mail
Garden maintenance
Librarian
Representatives to CAGC (4)

Affiliate CSSA Representative
Membership Chair
Newsletter
Spring Show
Spring Sale
Fall Show-State Fair

Fall exhibition-Botanic Garden

Steve Brack
Ralph Peters
Steve Brack
Robert Perz
Judith Bernstein
Steven Brack
Judith Bernstein
Margaret Todd
Becky Wegner
Oleg Lagutin
Lee Graham
Margaret Ménache
Daniel Finley
Steve Brack
Margaret Todd (info
only)
Margaret Todd