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BRING ONE, TAKE ONE AT THE CHRISTMAS PARTY

Those who wish can bring a plant, potted or bare root, seeds or other items to exchange with something that another member brings. We’ll have an area set up for the exchange. We did this several years ago and our members enjoyed it.

Just a reminder to those attending – bring enough of your food to feed 6 to 8 people and include a utensil for serving. Also bring place settings for all in your group.

ON THE COVER

A few weeks ago I was hiking around the Haley Hills, southwest of Maricopa. On the drive back through the Hidden Valley I came across at least 20 dirt bikers tearing around the desert kicking up huge amounts of dust. While the destruction to the desert in this area is sad to see, I did take the opportunity to snap some interesting desert photos.

Photo © Laurence Garvie
Wow, another year is soon coming to an end! In December the annual CACSS Christmas Party happens with good things to eat and great camaraderie. It’s easy to think events like the Christmas Party “just happen” but in reality there’s a considerable amount of planning and coordination that takes place. Those efforts have been expertly executed by Jo Davis and Lin Leivian once again. When you see both these ladies at the party make sure you give them a big “thank you” and hug (Jo especially likes those hugs!).

Along with the party comes the election of CACSS Officers and Board of Directors. For those people who’ve stepped up to plate and offered their time to volunteer serving the club I’d like to extend heartfelt thanks. Remember that if you are coming to the party you’ll have the opportunity to vote for the nominees in person. If you’re not able to attend you can vote by ballot and mail it to the CACSS.

I’d like to thank the current Officers and Board of Directors who served with me this year. Lee Brownson as Vice President and Program Chair has provided us with some exceptional speakers at our meetings once again. Our Secretary, Lois Schneberger, (with laptop in hand at each Board Meeting) has kept the Board on track with meeting minutes and documents we needed to address. My recommendation to anyone thinking of ever being CACSS President...make sure Wayne Whipple is your Treasurer (you’ll never have to worry about where the money is!). A couple of the Directors that we started with at the beginning of the year had to step down for one reason or another but their input was nevertheless invaluable: Cynthia Robinson & Leo Martin. And those Directors who were able to hang in there: Cheryl Brown, Ingrid Swenson, Doug Dawson, Gard Roper, Rick Rosenberg & Steve Martinez, thank you for enduring my Board Meetings. It was a pleasure to serve with all of you this year!

See you at the Party- Steve Plath

From the editor ...

A huge thank you to all who have contributed to this last issue of the Central Spine for 2009, including Cliff Fielding, Bob Torrest, Tom Walters, Lin Leivian, and Tom Gatz.

A few editorial notes. First, when sending contributions please do not embed the photos in the word files. The resolution and sizes of the embedded photos are rarely suitable for the larger format of this newsletter. Instead, send each photo as its own file in one or more emails. Second, resolution is important. Make sure that you are not sending low-resolution photos. These are usually saved at 72 dpi and are rarely usable except as thumbnail-sized photos.

I have been the editor of the Central Spine since June of 2008 and I am planning to complete my tenure with the May 2010 issue. So, for those who are computer literate, would like a challenge, and are interested in taking over ... now is your chance!

Do not be put off if you have little or no experience with being an editor - neither did I. While I do not want to put prospective volunteers off, this can be a time consuming job. For example, I have now got the preparation of new issues of the Central Spine down to about 12 hours of work. Considerably more time was spent on the first few issues.

Laurence Garvie

What does one need to be the editor? Essentials include the following – time, computer, email/internet access, and a typesetting program. For the latter I use the Adobe suite of products, primarily InDesign and Photoshop. While I had some familiarity with Photoshop, InDesign was new for me. It’s amazing what a few hours with the InDesign manual will do.

Why would someone want to be the editor of the Central Spine? While each editor will have their own reasons, I believe a primary reason is the opportunity to be creative about a subject that one is passionate about. Remember, your creation is now visible to all with internet access.

What is involved? There is really not the space here to elaborate on this question, but in short, everything. Such as extracting articles from members, proofing/editing text, checking plant names in submitted contributions, organizing and sizing pictures, writing captions and headings, etc. In general you will not write articles, but instead form and shape the content of an article.

Hopefully, my ramblings have inspired someone to consider volunteering to be the editor for Central Spine starting with the June 2010 issue.
Messing with the Mesembs: Monilaria
Cliff Fielding

A true delight of the early fall is seeing a once dead looking plant return to life. This resurrection is stunningly beautiful in the Monilaria species. I never get tired of seeing the glistening noodles of the Monilaria emerging from a smaller bead-shaped leaf. I have been growing them in Phoenix for about 12 years, seen them in habitat, and drooled over the amazing blooming ones at Steven Hammers’ Sphaeroid institute. They are very easy to grow beautifully in Phoenix. This is not expert growing advice, but merely the observation of someone who has been growing them in Phoenix.

I first encountered a Monilaria at Plants for the Southwest in Tucson. It was not love at first sight; in fact, it would take many visits before I would purchase one. It did not survive its first summer. I would never have purchased another but luckily, one was included in a collection of old mesembs from Mesa Gardens. The tiny plant (M. scutata) had a note claiming it was 9 years old. These plants are somewhat unique in that each year one small bead-shaped leaf persists as the stem. Growing only one “bead” each year makes it very easy to guess how old a plant may be. The name Monilaria refers to this growth habit of looking like a “string of pearls.” The plant flourished and managed to survive being indoors for the first summer. It would be the next fall that my love for these plants would begin. With watering in the fall, the brown, dried, dead-looking beaded stem had a glossy fat green bead pop out of the end. From this green bead a V-shaped leaf emerges looking like it is covered with diamonds in the sun. The sight was very beautiful. The water cells that line the leaves never lose their sparkle but it always seems the best in the early winter. The leaves continue to grow longer and longer until you have a mass of sparkling noodles. The plant has survived another 12 years here in Phoenix. Only in the last two years has it flowered. Steve Bract of Mesa Garden had a M. globosa that took 25 years from seed to flower. In the ground and in habitat they may reach blooming age quicker.

Growing them in Phoenix could not be easier. Water them in the winter, keep them mostly dry in the summer. They can be found in habitat in the Northwestern Cape of South Africa. I was able to see the dormant plants living on the quartz flats in the full burning sun of the Knersvlakte (see photo). They were amazing and showed no signs of life. In habitat they get water mostly in the winter. When Monilaria first start growing in the fall I move them from a shaded summer position to full sun. The leaves tell you when to water by drooping when to dry. When summer heat keeps the leaves in permanent wilt, stop watering and let the leaves dry out. I keep them outside all summer under shade where they can get summer rain if it falls. I do not water them until the nights get below 80° F degrees. They will break out of dormancy in the summer with the monsoons but will not actively grow until the weather cools. This last summer with no real rain they looked completely dead until they had been watered. I was shocked and joyful that they were still alive.

There are about 6 species of Monilaria and yes they do look very similar. The most spectacular is M. globosa. The bead leaf is sparkling and huge. When it starts to grow it is very beautiful.

For more information check out Mesembs of the World or contact me at clifffielding@msn.com. Plants can be found at Plants for the Southwest or Mesa Gardens. Get a few and enjoy a plant unlike any other.
Monilaria chrysoleuca

Monilaria pisiformis at 8 years old

Monilaria scutata at 21 years old

Monilaria chrysoleuca
Why does my Ariocarpus fluoresce?
Laurence Garvie

A few years ago I bought a small LED UV flashlight. Most of the light output is in the near UV around 390 nm, with only a small fraction in the purple region of the spectrum. Our eyes cannot see UV colors so the light from the flashlight is a dim purple. Out of curiosity I decided to see if I could find anything fluorescent in my garden, such as scorpions and minerals. After finding a few pieces of weakly fluorescent pieces of caliche and no scorpions I decided to check the plants for fluorescence. To my surprise some of my Ariocarpus exhibited a deep red fluorescence - a quick survey of the scientific literature shows that the red fluorescence can be caused by chlorophyll a (Cerovic et al. 1999). This observations poses an interesting question - why do some cacti exhibit red fluorescence whereas most do not? Even more dramatic were my Ariocarpus sp., especially fissuratus and kotschoubeyanus (image right), which display a bright yellow color with the UV light. A close examination of the tubercles shows that they support a white coating, which could be a carbonate from the water or maybe an oxalate produced by the plant. The majority of field-collected plants that I have seen for sale have a white coating on the tubercles. This coating may act as an efficient sun screen by both absorbing and reflecting sunlight. Reference: Cerovic et al. (1999) Ultraviolet-induced fluorescence or plant monitoring: present state and prospects. Agronimie, vol. 19, 543-578.

Around My (or Your) Desert Garden
Bob Torrest

December 1, 2009 -- Finally, great cool weather and lots of color in the yard with yellow flower spikes on Cascalotes (Cassulpina cakalaco), large pink flowers on the Chorisia speciosa, yellow rod-shaped flowers on the Leatherleaf (Acacia cerasoides), fragrant white flower balls in clusters on Acacia salicina and even good leaf color on the Pistacia tree. The aloes get started with some of the best flowers including A. ramosissima, A. cryptopoda, A. branddraaiensis, A. voambe and even the small but colorful A. krapoliiana. So it is easy to forget that we’ve been through one of the hottest summers and driest years. The summer took a toll, especially on the aloes. Among those lost were broomi, distans, echinata, brevifolia, glauca, socotrina, arborescens (the one in full sun), melanacantha, microstigma, mitriformis, meyeri, and spicosa (we’ve tried several times with this one). Of course, aloes were also among the succulents that suffered the most in the hard freeze of a couple of years ago. Luckily, there are still lots to choose from and winter is the best season for many.

Many of the plants we use for landscaping here come from the region around Oaxaca in southern Mexico. We were fortunate to do a Botanical Tour of much of the area between Tehuacan to the north (in the south of Puebla state) to the tropical Isthmus of Tehuantepec to the southeast. Habitats include tropical deciduous thorn forest, dry forest, cloud forest, oak - pine forest and desert with elevations between about 3000 and 9500 feet. The rainy season was over when we got to Oaxaca on November 5th. Much of the area is very beautiful with mountain ranges covered with many varieties of trees, shrubs, flowers and cacti. Very tall cacti poke out of the deep green mountains (at four to five thousand feet), which may have received up to 25 inches of rain but no freezing temperatures. In the dry season when the trees have dropped their leaves the profusion of cacti and other succulents becomes even more apparent.

We were surprised to see Beaucarneas (“Pony-tail palms”) covered with bromeliads and even mammillarias, on the top if a 5000ft ridge. The Burseras were large trees and there were Cycles, Dcoon, Echeveria, Agave, Senecio praeceps, etc. Lower down on often steep hillsides and in valleys you see many varieties of columnar cacti including Pilosocereus, Neobuxbaumia, Escontria chiotilla, several varieties of Stenocereus (pruinosus, stellatus, dumortieri) and Myrtilloaactus schenckii, etc. These are often so much larger and plumper then they are in Phoenix that identification can be confusing. On lower hills south of Tehuacan there were Cephalocereus, Ferocactus (recurvus, macrodiscus), Echinocactus platyacanthus and Ipomea trees. Just below an oak-pine woodland were Acacia penultima growing with Bursera trees, Pilosocereus and Agave potatorum. The enormous Pachycereus weberi were spectacular.

To the south, close to sea level, were giant Pereskia trees, a town called Guiengola (Yes ... where the agave comes from) and somewhere up in some distant hills, Agave nizandensis. In another location there seemed to be some date palms in the distance but they were very large (20ft or more) Farraeae macdougalii, which here look like a thin leaved medium sized agave after 15 years in the ground. Throughout the trip there were always agaves including macroacantha, salmiana, marmorata, angustifolia, petrophila, horrida, atrovirens, kerchovei, isthmensis, and others.

To get a good idea of the variety of plants near Oaxaca, a good photo book is “Cactaceus y otras Plantas Nativas de la Cananda Cuicatlan, Oaxaca.
As a child growing up on the East coast, my introduction to the world of cacti and succulents was through a type of plant that had been kept by my mother and her mother before her: The Holiday cactus.

“Holiday cactus” is an informal term that describes two genera of epiphytic cacti today. *Schlumbergera* includes the Thanksgiving or Christmas cactus, and *Rhipsalidopsis* includes the Easter cactus. These holiday names refer to when these plants typically bloom. Although these are South American plants that normally are found growing on tree branches under the forest canopy in very humid conditions, they will grow and bloom quite well here in Phoenix with a little extra care.

First of all, which is which? True species have unfortunately, become somewhat uncommon. Most of what you will find, even at nurseries are cultivars. *Schlumbergera* hybrids are commonly sold this time of year as Zygocactus. These are easily distinguished by their zygomorphic flowers and the soft teeth usually found along the edges of the pads:

*Schlumbergera* are easy to grow with just a few things in mind. First, do not let the roots dry out completely. Dry roots will die and the stems of the plant will turn a grayish, chalky color and wrinkle, which is sometimes mistaken for rot. Second, do not use a heavy, compacted soil. Remember that in habitat, the roots of these plants are only loosely covered when they are even covered at all. If the roots cannot breath, the plant will rot. Rotting stems sometimes turn slightly translucent, almost like a pickle. Third, these plants do not like direct sunlight or excessive heat. Unless you have a cool, shaded patio, this probably means growing them indoors during Phoenix summers.

Somewhat less common is the Easter cactus. These are also often cultivars developed for flower color. *Rhipsalidopsis* flowers are radially symmetrical and the pads are noticeably smoother along the edges:

The Easter cactus is less forgiving and consequently, a little harder to grow. The same general guidelines apply, with the additional requirement of higher humidity. Seedlings and young cuttings especially like regular misting. An unhappy *Rhipsalidopsis* will start dropping pads right and left. This is often your first and only clue that something is wrong.

All Holiday cacti are “Short day” bloomers. What this means is that the primary triggers in bud development are shorter days and cooler temperatures. *Schlumbergera* take their cue from the approach of winter. Any break in this pattern and the plant may not bloom. This fact cannot be emphasized strongly enough. If your plant is indoors, turning on artificial lighting after the sun has set for even a few minutes will reset the plant’s clock. An easy solution here in Phoenix is simply to put the plant outdoors away from artificial lighting around mid-September.

Easter cacti are less forgiving when it comes to blooms as well. They prefer an extended period of short days and cooler temperatures from October clear through February. Buds should begin to develop around the beginning of February. Remember that neither *Schlumbergera* nor *Rhipsalidopsis* species can tolerate frost.

All the Holiday cacti are very easy to root. There are various ways to do this, but I prefer to simply put one or more three pad segments in a glass of water anytime during the spring or summer. Roots should begin to grow in one to two weeks. Transfer the cutting to a soil medium after a nice tuft of roots has formed.

Here in Phoenix, larger grocery stores and big box retailers alike usually mark down their stock after Christmas to make room for spring plants. Anything that is not moved often winds up in the dumpster. *Schlumbergera* hybrids can be obtained for just a few dollars each. Why not consider rescuing a few this year.
Why don’t Canadian Cactus Freeze to Death?
Tom Gatz

This question came from one of our visitors escaping the frigid northern climate at the Desert Botanical Garden this past winter and, once again, I was stumped. After all, when the temperatures drop below freezing here in the Phoenix area, we bring our more sensitive cactus and succulents under the protection of our patios, cover them with frost cloth, or at least protect the tender tips with Styrofoam cups. Even our native saguaros, which can briefly survive temperatures of 10°F, can be damaged or killed with sustained temperatures below 20°F for 12 hours or more. The cultivated prickly pear Indian Fig Cactus (Opuntia ficus-indica) is killed at 14°F. Yet some species of prickly pear cactus survive unprotected in temperatures well below zero. The record holder, Opuntia fragilis, belies its name by surviving temperatures lower than -50°F in western Canada! How do they do that?

To find out, I consulted one of my favorite DBG library books Cacti: Biology and Uses by Dr. Park S. Nobel and located a technical paper he co-authored in the journal Plant Physiology with a lot of confusing graphs and with the intimidating title of “Water Relations and Low-Temperature Acclimation for Cactus Species Varying in Freezing Tolerance.” To help me interpret it, I threw my self at the mercy of Gary Moore, ASU chemist research assistant extraordinaire and Mark Dimmitt at the Arizona Sonora Desert Museum in Tucson.

It’s obviously a lot more complicated than this, but, boiled down to something that our average visitor (or I) can understand, these northern species of prickly pear basically keep from freezing by rapidly reducing the amount of moisture in their tissues by about 35% as temperatures drop, causing them to start to shrivel up, further concentrating the higher levels of the various sugars and other substances being produced in their tissues that act as sort of a “cactus anti-freeze,” thereby keeping water in a liquid state within their cells.

If you prefer a more technical explanation, here goes. As temperatures decrease, the osmotic pressure increases, mostly due to the synthesis of fructose, glucose, and sucrose. In addition, a substantial amount of mannitol, a sugar alcohol, is produced at low temperatures. Substantial accumulation of these sugars and mannitol in the cactus cells may help prevent intercellular freeze dehydration and ice formation as well as provide protection to its membranes.

Occasionally, some individual cactus that fail to reduce their water content sufficiently do freeze to death, permanently removing themselves from the chilly Canadian cactus gene pool.

(Article reprinted from the Desert Botanical Garden volunteer newsletter “Gatherings”)

Remembering Luminaria
Lin Leivian

As our group meets at the Desert Botanical garden for our annual holiday party, I think it’s appropriate to share some of my memories as a past volunteer for our longest running garden event. When I became a volunteer for the garden at the end of 1987, I had no idea I would be part of our largest project of the year: Noche de las luminarias. At that time all of the effort expended by the volunteers and staff was for one magical evening.

There was a small parking lot, and no buses, but at that time there weren’t as many members either, so if the lot filled up, we simply parked along Galvin parkway. Can you imagine the mess that would cause now? All of the cookies were baked by individual volunteers and donated to the event. The cider was made up in a small kitchen and carried to various sites around the garden. My station that year involved handing out the free refreshments with my staff partner, Wendy Hodgson.

Luminarias were, of course, handmade using paper bags and sand with a votary candle placed inside. Since we did not have an ethnobotanical trail at that time, we didn’t have to line as many paths. Patrick Quirk, our much-loved, though curmudgeonly, cactus horticulturist always took his station atop Webster Auditory to make sure the building didn’t catch afire if a luminaria flamed out up there.

Since people didn’t commonly use computers for communication or cellphones either, a number of orientation meetings would be held prior to the big night. Pathwalkers, candle lighters and snuffer, music coordinators, food handlers, and others each had a job description, and the security force always gave us safety tips, and taught us to use the Walkie-talkies. Special sweatshirts commemorating luminaria could be purchased reasonably at these meetings, and they made a great memento of our participation. I still treasure the one that glows in the dark.

Plants, including Christmas cactus, were sold in one of the horticultural greenhouses, not far from the entrance. Stringing enough lights so people could see what they were buying was a challenge! Another special aspect of luminaria was the booth that sold homemade wreaths and decorations made by the volunteers during the year. I still have several of these.

Noches de Las Luminarias or “Lumi” (as some marketer has now coined it), is still beautiful and more serene than in 1987 (the crowd really packed the place on that one night), but that special quality that our volunteer efforts brought to the event is now a part of the past. Nothing can match that tingle of excitement that we all felt as the first people appeared; it was something akin to an actor stepping out on stage as the curtain opens on an excursion into the imagination.
MEMBERS’ PHOTOS


MISCELLANEA

DUES
Pay your dues! Membership is by calendar year. Annual dues $20 individual (1 newsletter, 1 vote), $25 household (1 newsletter, 1 vote per member); 1/2 price paid August-December. Make checks payable to and mail to:
CACSS, PO Box 63572, Phoenix, AZ 85082-3572. More info: 602-852-9714.

CACSS WEBSITE UPDATES
Have you noticed the new change on our CACSS Website? We now have “search” capability! Interested in finding out what information we have on a particular cactus? Put the information in the website’s search engine (on the front page of the website) and see what comes up. Great new tool to have on our beautiful website! Check it out: www.centralarizonacactus.org/

If you have any suggestions or ideas please contact Melinda Louise at 602-326-1684 or email melindalouise@hotmail.com

PUMICE FOR SALE
If anyone is interested in buying some pumice, I can bring bags of pumice to the meeting on Sunday. One bag - equivalent to a 5 gallon bucket full - is $2.50. Email me if you want some and how many bags you would like.
Lee Brownson - lsbrownson@cox.net

THE POINT OF MISCELLANEA
This page is reserved for news snippets, announcements, items for sale etc. Email contributions to lgarvie@cox.net

NAME BADGES

Central Arizona Cactus and Succulent Society

Jo Davis

Interested in one of the name badges you see other members wearing? You can have one of your very own! Talk to Jo Davis at the meeting or send her a check for $7.50, made out to “Jo Davis” to her home address:
2714 W. Monte Ave, Mesa, AZ 85202

Anything for sale?
If so, advertise it here.
Many CACSS members have experience with different kinds of succulent plants. I hope they will add their names to the following list (just call or e-mail Bob Torrest). For now the list is simply alphabetical with principal interests. When more members add their information, the list will be cross-referenced by topic.

**PLANT QUESTIONS???**

**WHOM TO CONTACT!!!**

**DOUG DAWSON**
480-893-1207
dawsonlithops@hotmail.com

Specializations include Flora of Namibia, Growing from Seed, Lithops, other Mesembs, and Melocactus.

**MIKE GALLAGHER**
602-942-8580
mgallagher26@cox.net

Specializations include Aloes, Haworthias, Columnar Cacti, and Turbinicarpus.

**STEVE PLATH**
623-915-7615
revegdude1@juno.com

Specializations include Ariocarpus, Astrophytum, Cyphostemma, Echinocereus, Fouquieria, Thelocactus, General Propagation, and Desert Revegetation.

**CYNTHIA ROBINSON**
602-615-2261
crobin500@msn.com

Specializations include Flora of Madagascar, Growing from Seed, Caudiciform & Pachycaul Succulents, Aloes, Apocynaceae, Burseraceae, Euphorbiaceae, Fouquieriaceae, and Succulent Bonsai.

**BOB TORREST**
480-994-3868
robertst9114@msn.com

Specializations include Desert Landscaping, Unusual (including Rare Fruit) Trees and Shrubs, Aloes, Agaves, Columnar Cacti, Trichocereus, and Opuntia.