In this issue

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Members’ Photos
ON THE COVER

Golden barrel cactus (*Echinocactus grusonii*) at sunset at Boyce Thompson Arboretum. This amazingly popular cactus is easy to grow in the Phoenix area, and will even take full sun. Although some cactus books suggest that it is frost tender, mine showed no ill effects of the occasional dip into the low 20’s and high teens. Surprisingly, this species is almost extinct in the wild, but its future is secure as a result of its mass propagation. This plant is so popular that a google search for "Echinocactus grusonii" came back with 52,600 hits!

Photo © Laurence Garvie

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**Central Arizona Cactus & Succulent Society**

**Plant-of-the-Month Selection - a.k.a. Mini Show**

Succulents: Aloe and Pelargonium

Cacti: Uebelmannia and Discocactus

Please bring your favorite plants in the genera listed above. In fact, if you have any plant that is looking especially fantastic right now and would like to show it off then bring it in!
Well here we are mid-January already and so far our ‘winter’ has been pretty mild. I only had to cover my plants with frost cloth two times because in central Phoenix where I live we have had only a few days of frost. I imagine that some of our members in more outlying areas may have experienced colder temperatures, but it is still a whole different world than in other states where plants are ‘winterized’ and brought indoors.

Looking ahead to events in the coming year, we have in the planning stage at least four workshops to be hosted by some of our members, and have decided to test the waters to see if there is enough interest to have another out-of-state bus trip, which hereafter will alternate with the biennial CSSA national convention (next held in 2011 in San Diego).

I hope to see many of you at our monthly general meetings, and I encourage all of you to come a little early and chat with the other members. This is a club that can be a lot of fun, and we all have a common interest, don’t we? If you have suggestions or comments concerning club issues, feel free to bring them to my attention.

Happy New Year and see you soon! …Steve

From the editor ...

A huge thank you to all who have contributed to the first issue of the Central Spine for 2010, including John Alcock and Tom Gatz. Also, thank you to Amber Huntoon and Scott McMahon for some wonderful photos.

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.

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.

Laurence Garvie
I n mid-July of 2005, extreme temperatures, low humidity and abundant bone-dry vegetation combined to produce superb conditions for wildfire in central Arizona. On the 15th of July, the potential for wildfire was realized when lightning ignited what became the Edge Complex Fire, one of several blazes that erupted around this time and ultimately devastated several hundred thousand acres in the state. The Edge Complex Fire leveled pine forests, chaparral, and upland Sonoran Desert with great enthusiasm, a point that was driven home recently when I walked up the Ballantine Trail in January of 2010. From the trailhead by the Beeline Highway north of Mesa, a hiker climbs up through fine paloverde-saguaro habitat before reaching the start of the burn zone at about the two mile mark. You can see what this stretch looked like just after the fire by checking out a photograph at the following Internet address: http://www.arizonensis.org/sonoran/places/ballantine.html).

Some four and half years later, evidence of the big fire was easy to find from the two mile mark forward. These effects were striking in part because the fire had been highly patchy. Some avenues of hillside had for one reason or another been spared. Here the mature saguaros looked green and healthy; the teddy bear chollas showed off their headdresses of pale, faintly yellow spines; the surrounding desert shrubs were in good shape. But outlining the elongate islands of untouched desert vegetation were depressingly large swaths that clearly had been burnt to a fare thee well in 2005. These areas were completely devoid of living teddy bear chollas and stalkhorn cacti; the blackened lower trunks of the teddy bears, a foot or two tall, acted as their own tombstones while the stalkhorns had been reduced to a zigzag tangle of grey bits and pieces. A good many saguaros were also represented by their skeletal remains, some still partly upright while others lay flat on their backs on the hillsides. Even those saguaros that were still alive had been damaged by the wildfire, which had singed the green tissues growing on south-facing portion of the central trunks of the cacti, presumably during the brief period as the fire raced past on its way up the hill. Instead of green and smooth, the injured skin of the saguaros was grey-white, cracked and flaked. In some specimens, the damaged epidermis ran up the trunk for six feet or more, testimony to the intense, if transient, heat of the wildfire.

Saguaros whose trunks have been fire-damaged clearly can live to reproduce another day as testified by the survivors that are still standing along the Ballantine Trail over four years after the huge fire. But the loss of photosynthetic tissue reduces the rate at which they grow, according to Ruth Wilson and Marcia Narog. These two California ecologists studied a population of saguaros subjected to 80 percent higher term mortality rate for fire-injured saguaros is much higher (up to 80 percent higher) than that for intact individuals.

These data demonstrate that saguaros do not accommodate well to fire. The standard explanation for the sensitivity of these huge, robust succulent plants to wildfire is that the saguaro, and other cacti like teddy bear cholla, evolved when desert wildfires were very rare and so lack the fire resistance that they would have gradually acquired in more wildfire-prone regions. In the “natural” Sonoran Desert, grasses tend to be uncommon and sparse in most places, and so the fuel to carry a fire is lacking. But now, the story goes, after the introduction of red brome and buffelgrass (in southern Arizona) by ranchers and livestock managers, fire caused by lightning or man can spread widely and become so intense as to kill native plants, which lack immunity to fire.

If this hypothesis is correct, then we might expect that cacti associated with native grasslands and savannas (and there are many such species) would be able to cope with wildfire, since grassland communities go up in flames so frequently. There does not seem to be much research on this issue but in one study done in southern Arizona by Peter Thomas, a British botanist, revealed that certain small cacti, like <i>Echinocereus pectinatus</i>, often make it through grassland fires alive but the survivors then die-off more quickly than unburnt companions nearby. The one exception to this rule is <i>Mammillaria heyderi</i>, a ground-hugging species whose crown is just a few centimeters above the soil surface. This cactus actually does better when the grassland around it burns. However, <i>M. heyderi</i> is an apparent exception to the rule that fires harm cacti, even those that occur in grassland habitats. Moreover, Thomas notes that, not surprisingly, the greater the frequency and intensity of wildfire, the more damage they do to cacti.

In this light, it is surprising that some Sonoran Desert shrubs can be burnt to the ground by intense wildfires and still come back. One such fire raged through thousands of acres of the Barry M. Goldwater Air Force Range in the summer of 2005. Although this blaze attracted far less newspaper attention than the big fires closer to Phoenix, it torched native plants every bit as dramatically, finishing off most saguaros and chainfruit chollas in its path. Yet within a year, incinerated creosotebush was resprouting, evidence that the root system of the shrub had outlasted the fire. Likewise, along the Ballantine Trail, acacias and jojobas that were fricasseed during the 2005 fire have produced new growth, again demonstrating a capacity for regeneration from rootstock that cacti apparently lack. Yet like saguaros and teddy bears, the creosotebushes, acacias, and jojobas have all experienced Sonoran Desert conditions for millennia. If the shrubs have evolved (or retained) adaptations against desert fire, why haven’t the saguaros and opuntias done the same? Are the roots of the cacti placed closer to the soil surface than those of creosotebush and jojoba, and thus more likely to be killed by fires? I suspect that there is still more work to be done on this problem. But botanists should get going on this issue quickly because fires in the Sonoran Desert are said to be increasing in both frequency and severity, not a good sign for the wonderful saguaros and other cacti that we admire so much.

Figure - opposite page. Along the Ballantine Trail before the big fire of 2005 (top image) and after the fire (bottom image) taken in January 2010. There are ten fewer saguaros in this area after the fire. Also missing in the fire photo are one barrel cactus, two ocotillos, desert spoon (<i>Dasyliorion wheeleri</i>), and teddybear cholla (<i>Cylindropuntia bigelovii</i>). Only one small teddybear cholla survived the fire.
Two great Succulent plants to create focal points in your landscape*

Tom Gatz

I usually wait a few years after new plant varieties are introduced at the plant sales and nurseries until we see how well they actually do here before recommending them to friends. Here are two where the waiting is over. I love these plants!

*Aloe 'Hercules' (dicotoma X barberae)

You can’t miss this massive tree aloe with a beautiful trunk when you first enter the new Succulent Gallery at the Desert Botanical Garden. This fast growing tree aloe was created by crossing two species of aloe: *Aloe dicotoma* and *barberae* (formerly bainesii). It is believed that a phenomena known as “hybrid vigor” may explain why the hybrid ‘Hercules’ is hardier and grows faster than either of its parent. It should survive temperatures down to at least 20° F. Jim Elliott at Arizona Cactus Sales in Chandler had a 6 foot-tall specimen survive (but with upper leaf damage), uncovered two nights in the mid to low teens during the deep freeze of January 2007 that killed a nearby *Aloe dicotoma*. It has since recovered and is now over 10 feet tall. My specimen survived two nights of temperatures down to 21° F in my north Phoenix yard (under a frost cloth with a low voltage light) with only a little tip damage. Acquired as a foot-tall specimen in 2004, it is now 7 feet tall. An eventual height of over 30 feet is possible so make sure you don’t plant it under a tree or an overhang! I water mine deeply in the fall and spring months about twice a month, cutting back the amount and also the frequency to once a month during the heat of the summer and in the winter. Jim Elliott doesn’t water his at all from November through February and waters overhead every other week the remainder of the year. It appreciates some afternoon shade in the heat of the summer here but likes a lot of winter sun. Jim Elliott’s specimen has outgrown its shade and does okay in full sun with some lower leaf scalding. San Marcos Growers reports that it will eventually produce beautiful green-tipped salmon colored flowers from spring to fall. Don’t confuse this hybrid with *Aloe Goliath*, a hybrid between *A. barberae* and *vaombe*, which has heads so heavy that it is prone to breakage.

*Whale’s Tongue Agave (Agave ovatifolia)*

Displayed for the first time at the Desert Botanical Garden in the new Berlin Agave Yucca Forest, this low and wide pale powder-blue beauty was only recently described in 2002 by Tucson nurseryman Greg Starr and his Mexican colleague Jose Angel Villareal. It can be acclimated to full sun but also appreciates filtered sun or afternoon shade in the low desert. Lee Brownson, executive director at the Wallace Desert Gardens, installed a specimen in a landscape in full sun against a south-facing wall in 2004 and it is now 3 feet tall and 4 feet wide. This species apparently really takes off if well watered. Greg Starr reports that it does not produce “pups”, survives temperatures down to at least 5° F and can reach 5 feet tall and 6 feet wide, so give it plenty of room. I kept one in a large pot for several years where it was never really happy, so I recently transplanted it into the ground. The only possible downside with this species is its apparent susceptibility to agave snout weevils. Ty Peterson at Arizona Cactus Sales lost a stunning 4 year-old specimen growing in full sun in spite of treatment for weevils every other month from March to October. See the “Good Growing Guides” under “Gardening Help” on the Desert Botanical Garden’s website for weevil control tips.

Both of these plants will likely do best in soil with fairly good drainage and both have been available at recent Desert Botanical Garden plant sales. If you have the room, give one of these showstoppers a try. If you like the whale’s tongue agave and want to go with a nautical theme, consider adding the squid agave (*Agave bracteosa*), the octopus agave (*Agave vilmoriniana*), Arizona fishhook cactus (*Mammillaria grahamii*) and the octopus cactus (*Stenocereus alamosensis*) to your garden palette!

* Reprinted with permission from the Gatherings, the Desert Botanical Garden volunteer newsletter
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

PUMICE FOR SALE

**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

MEMBERS’ PHOTOS

**MEMBERS’ PHOTOS**

Left: CACSS member Amber Huntoon flanked by large *Opuntia* sp. on a tortoise-inhabited Galapagos island.
Right: *Rauhocereus riosaniensis ssp. jaenensis* blooming in the DBG propagation area. Photo © Scott McMahon

**THE POINT OF MISCELLANEA**

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

**NAME BADGES**

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

**CENTRAL ARIZONA CACTUS AND SUCCULENT SOCIETY**

JO DAVIS

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.

**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, Theocactus, 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.