March General Meeting Presentation Topic:

PERU: "Cacti of Peru: Land of the Incas"

Guillermo Rivera’s talk will cover a voyage through the whole country of Peru: from the dry, deciduous forest in the North around the cities of Chiclayo and Jaen, to the lower slopes of the Andes and into the Amazon region. We will explore the habitats around Huaraz, a beautiful town nestled in the valley between the Cordillera Blanca and Cordillera Negra. In the end we will cross the Andes once again heading towards the Sacred Valley of the Incas to finish our voyage in Machu Picchu. We will see amazing Matucana in flower, high elevation arroyos, spectacular Neoraimondias and the most incredible bromeliad Puya raimondii growing at 4400 meters, with its inflorescence of over 20 feet!

**Presenter: Guillermo Rivera**

- Born in Argentina. owner of South America Nature Tours (formerly Cactus Expeditions), a company dedicated to the organization of tours throughout South America (Chile, Argentina, Brazil, Peru, Bolivia, Ecuador, Baja California and South Africa) with emphasis on plants (bromeliads, cacti and orchids), or birding.
- Former researcher at the University of Córdoba, Argentina. BS degree in Biology, University of Córdoba
- MS Marine Biology. Northeastern University. PhD in Botany, University of Córdoba.

You can find more information on his website www.southamericanaturetours.com or contact him directly at rivera@intecar.com.ar
April Central Spine Deadline: April 9, 2014

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Sue Hakala

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Nick Diomede

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Tom Rankin, Ingrid Swenson

Holiday Party - December 2013
Wendy Barrett

Library
Paul Schueneman, Marty Shaham

Membership
Beth Kirkpatrick

Members-Keeping-In-Touch
Jo Davis

Mailed Newsletter Subscriptions
Sue Tyrrel

Newsletter
Diana Decker

Nominations for Board Officers, Directors --
Jim Oravetz, Joe Barnes

October Silent Auction
Pending

Plant Rescues
Open Position

Private Plant Sales at General Meetings- Sue Tyrrel

Programs (Speakers, Workshops, Open Gardens,
Special Interest Group
Deborah Mulholland

Refresments
Katherine Hanna

Show & Sale 2014 Co-Chairs
Lynda Michaelson
Sue Tyrrel

Website
Beth Kirkpatrick

Telephone numbers, emails, and addresses can be
found in the CACSS Member List emailed
periodically to members by Beth Kirkpatrick.

Show & Sale 2014
Friday-Sunday, April 4-6

May 2014 General Meeting
Sunday, May 18
President’s Letter
Wayne Whipple
March 2014

Spring will soon arrive, and the April Show & Sale is being finalized by the dedicated committee. I hope you have chosen, or soon will chose, some of your favorite plants to display, not only for our Members but also for the many visitors at the DBG. Probably most people will attend that day because of the Chihuly garden sculptures, but they will be in awe with our display of well cared for cacti and other succulents. We have several new vendors this year as well as popular vendors of the past. I am always impressed with the total number of volunteers who make this major event a success for us.

I am looking forward to our March speaker Guillermo Rivera. Scott McMahon, Woody Minnich, my wife Karen and I had the pleasure of participating in one of his tours to Peru in July 2010. We had a great time searching for specific cacti in the steep mountains of that country. We were certainly in the outback and well off the beaten path for tourists. Steve Martinez joined him on a trip to Argentina in 2011. Steve enjoyed the trip immensely. I am sure Guillermo will have information on his future excursions.

Several Members have asked me about our Board Meetings, when they are held, and if non-Board Members may attend. The Board has scheduled seven Board Meetings for the rest of this year. They will be held March 30, May 18, July 27, September 28, and November 24 in the Farrington Conference Center, which is adjacent to Dorrance Auditorium where we hold our General Meetings. The Board Meetings start at 11:00 a.m just prior to the General Meetings. All CACSS Members are welcome to attend these meetings.

Send article and photo submissions for the Central Spine to the Editor:
Diana Decker
dianadec@cox.net
(602) 220-9825
Open Garden and Studio

Saturday, April 12, 2014, 10 am to 1 pm

Over 1 acre of desert trees, shrubs, cactus, succulents and sculpture

Rick and Barbara Rosenberg
5916 E. Caballo Drive
Paradise Valley, Az.
480 483 5630
DrRikRok@cox.net

South on 56th Street off Doubletree Ranch Road
Past Cherokee Elementary School and a left on Caballo Drive

Please bring boxes to the general meetings so you can carry your new plants home more easily.

Jo Davis
Welcome To New Members
Lillian Barker
Cheryl Fogelman
Sally Gummeson
Rocky Wilson
Vicki Woods
Membership Chair:
Beth Kirkpatrick

Please Wear Your Name Tag at Monthly Meetings
Board Member Jo Davis asks members to wear their name tags at monthly meetings and other club events. Members then can more easily spot guests and talk with them about the guest’s interests and CACSS. If you need a lanyard to hang the name tag around your neck, see Jo at the meetings.

Letter to President Wayne Whipple from the Desert Botanical Garden

January 31, 2014

Mr. T. Wayne Whipple
Central Arizona Cactus and Succulent Society

Dear Mr. Whipple,

On behalf of the Desert Botanical garden, I would like to thank you and the Central Arizona Cactus and Succulent Society for your recent contributions to the Garden. On behalf of our dedicated staff, volunteers, trustees and our entire community, I express my warmest appreciation.

As you have requested, your $2,500 contribution is restricted to support the Garden’s living plant collections, their growth, maintenance and increase in species representation and biodiversity.

Your support of the Garden’s mission to exhibit, conserve, research and educate others on desert plants is greatly appreciated. Our outstanding plant collection and interpretive exhibits increase visitors’ appreciation of our desert home every day. The more the residents of our community understand its ecological environment, the more likely they will be to preserve it.

Thank you for your support of the Garden and our environment!

Sincerely,
Beverly Duzik, Director of Development
*Crassula elegans*: Doug Dawson’s Photos
Taken on May 14, 2013 in South Africa
Julie Plath has presented perfectly grown and expertly staged plants at our annual show year after year. She has been awarded with many ribbons and trophies. How does she do it?

“I like to plan ahead and have succulent plants I’m thinking of showing in their pots months ahead of time. Then, the week before the show, I look to see what plants are putting on their best face,” Julie said. “Things change all the time so it’s really a last minute decision as to which plants will go.” (Her husband Steve grows and shows cactus.)

She is on an eternal search for the perfect pot in which she presents her plants. She finds them in odd places like Goodwill, garage sales, and Bakers Nursery in Phoenix. The Plaths used to live in Las Vegas. When visiting family there, Julie and Steve, always go to Plant World and Star Nursery for pots.

They will dig and sift gravel from a wash on their property to use as top dressing. “It makes for a very natural look,” Julie said. “I would not advise using it in a potting mix.”

The Plaths own Signature Botanica, growing plants for desert revegetation. Julie does the growing, mostly from seed, and Steve is involved in the field work. They live on six acres in Morristown (near Wickenburg) with shade and greenhouses. “We grow behind 50% sunscreen in the full sun, and bring cold and rain-sensitive plants into the heated greenhouse in the winter,” Julie said.
Julie has bachelor’s and master’s degrees in horticulture. She has worked as a research gardener in charge of five greenhouses at Longwood Gardens in Philadelphia, Pennsylvania. “Staff would travel all over the world bringing back seeds and plants for evaluation for use in the garden. We would be processing over 3,000 different accessions at any time. It was here that I got interested in South African bulbs and the protea family. If plant introductions worked well, then we would produce crops of them for display. One time, with the help of volunteers, we grew 70,000 bulbs for display,” Julie said. “Longwood’s claim to fame is perfection in horticulture. Working there was a real high point in my career.”

Julie was lured away by the Bellagio in Las Vegas to build greenhouses and develop the horticultural program growing plants for display in their conservatory. She hired staff and worked in a state-of-the-art facility right behind the casino complex.

The Plaths met when Julie did a presentation at the cactus club Steve belonged to in northern California. At the time, he worked doing revegetation for Castle Mountain Gold Mine. She moved there working in a family-owned master gardener nursery. Then it was back to Vegas for three years, and then to Morristown in 2005.

Where does Julie like to buy her plants? “I like California nurseries, botanical gardens, Baker Nursery in Phoenix and Bach’s in Tucson,” she said.

Having tried many soil mixes through the years, she now uses one bought in bulk. It’s four parts composted organic mulch, four parts volcanic cinders and four parts perlite. The cinders have sharp edges helping the soil drain well. The perlite also helps drainage, but can float to the surface. “I just remove the perlite that floats up and/or cover it with top dressing,” Julie said.

“I find cactus mixes a bit heavy on the organics, with the composted bark a bit of a problem. If you use a commercial mix, add more pumice,” Julie advises. She also finds that adding sand to a soil mix can be problematic as it interacts oddly with soils. “If you mix sand with real clay soils, you’ll get concrete. When used in a large proportion in a mix, it can add a lot of weight. Sand can also settle in the bottom of a pot. Most growers don’t use sand as it’s not an easy compound to work with.”

Julie does not acidify the water she uses on her plants, as she feels she can’t really control the results. “I’d need to do more research to see just what plants would like it and in what proportions,” she said. “Do water thoroughly when you water so that it flows out of the bottom of the pot. If you’re not sure when to water, put your finger in the pot. Get familiar with how heavy the pot feels when it’s wet or dry. When you wake your plants up in the spring, do it with a light spray, then a light watering to get the roots growing.”

The only fertilizer Julie uses is Osmocote, which is lower in nitrogen, for flowering plants. “I use an appropriate amount for the pot size (see directions) and sprinkle it on the surface of the plant so a little bit is washed in with each watering. It’s not as direct a way as feeding with a water-based fertilizer, but I find it works great.”

“Try to repot your plants every year as watering causes the soil and minerals to break down. Plants in pots are growing in a much harsher environment than they would find in the ground. We try to grow them at their peak, never looking like you would find them in the desert. We are 100% responsible for everything they get.”

When Julie needs more information on a plant, she turns to her extensive library and the Internet. “I find that the CACSS library is a magnificent resource,” she said. “Club members freely share any and all information that they possess and are the best resources of all.”

Doing 90% of the seed growing and propagation for their business, Julie finds that she can have a lot of success and failures. “I kill plants all the time,” she said. “If you make mistakes, don’t be discouraged; instead, learn from them. Try some unusual plants that others say are hard to grow; they may turn out to be your favorite plant. Come to the show and sale, talk to plant sellers and club members, and get inspired by what you see. Enter some plants, too. It’s fun and you’ll learn a lot.”
I have been doing a lot of reading about lights for growing plants indoors. It turns out white fluorescent lights of the proper color are at least as good as specialty "grow-lights."

Fluorescent lights, including tubes and CFLs, are sold in different colors of white. Spiral CFL tubes are engineered to give the greatest amount of light down the axis of the spiral.

They are labeled as to color temperature, which is measured in Kelvins, abbreviated as K. The color temperature is almost always printed on the tube, label or box, often in tiny print. Color temperature refers to the relative proportion of various light wavelengths in the light. When we see multiple wavelengths mixed together they form what we perceive as white light.

I discovered years ago that 40-watt "cool white" fluorescent tubes are fine for sprouting cactus seedlings and growing them on for a few years, before they are ready to be transplanted outside to individual pots. But "cool white" is approximately 3,500K, and this doesn't contain enough of the proper wavelengths for most other plants. Cactus seedlings do fine with cool white because they generally don't need that much light to grow. Cool white contains only small amounts of the wavelengths chlorophyll absorbs, but that amount is sufficient for most cactus seedlings for a while. (Cool white is not adequate for *Opuntia* seedlings.)
The best artificial light color temperature for almost all plants is 6,500K, which is usually called something like "daylight." This has a lot of pink and blue wavelengths, which are the ones absorbed by chlorophyll. Both straight standard fluorescent tubes and CFLs of the proper light temperature and wattage are great for growing plants indoors.

Straight fluorescent tubes are now sold in varying lengths and diameters. New small-diameter tubes (T5, T8) are a lot more expensive than the old 1-inch tubes. The old tubes work just fine at a much lower cost. Four-foot long tubes of 6,500K and 40 watts can be mounted in cheap 2-tube shop light fixtures and suspended over your growing area.

Spiral CFL tubes are engineered to give the greatest amount of light down the axis of the spiral. So, when using them for plant lights, they should not be mounted sideways; they should be pointing down at the plants. Most people who use them as plant lights use individual hanging light fixtures with a conical reflector. A 45-watt CFL provides as much light as a 200-watt incandescent light bulb, with much less heat, while using much less electricity. It is possible to bloom high-light plants like hibiscus indoors in dim rooms under 45W CFL lamps.

Use a heavy-duty mechanical clock appliance timer with a 10 to 12 hour ‘on’ schedule. These are not always available at hardware stores, but they are much more reliable than cheap electronic lamp timers. You may have to go online to find one. Ace Hardware sells heavy-duty mechanical clock timers at Christmas time for use with outdoor lights. If you use multiple light fixtures, plug the fixtures into a powerstrip, then plug the power strip into the heavy-duty timer. Take care that the total amperage of your array does not exceed the amperage rating of the timer nor circuit breaker.

Many indoor growers have discovered most plants don't need long nights, so plants can have multiple light-on periods per day. I have been told that people who grow certain crops indoors now give their plants 11 hours-on, one-hour off cycles, and they get twice the growth rate—which means half the time to harvest. I haven't tested this with cactus seedlings.

Many succulents only open their pores to absorb carbon dioxide at night, storing it until the next day, when they use it to make sugar in the sunlight. Succulents with this kind of metabolism probably shouldn't be on one-hour night cycles. Cactus seedlings aren't like this; when immature they open their pores during the day, so short nights shouldn't be a problem for them. I have read that adult cacti are limited in the amount of carbon dioxide they can absorb at night, since plant tissues become more and more acidic as the carbon dioxide is stored, and there is a limit to what the plant will tolerate. Cacti taste much more sour just before dawn than they did just after dusk. This is one explanation of why cacti grow slower than plants that can absorb carbon dioxide all day long. Cacti generally have absorbed as much carbon dioxide as they can hold in the first few hours of darkness. So I might guess adult succulents should have somewhere in the range of four-to six-hours of darkness, but this is just a guess, and experimentation would yield real information.

Crinkled Mylar can be bought very cheaply at hydroponics shops to line reflectors. This provides better light reflection than a pure white or polished metal reflector. Most big-box stores carry 6,500K CFLs, up to and including 45W. If not available at the store they can be bought online. Stores also carry 6,500K, 40W standard tubes. Most fluorescent tube shop lights sold are 20W so, again, read the label. You have to read the labels and do some searching, because the sales people generally don't know anything about color temperature, and they will try to sell you the much more expensive grow-lights.

Tubes and CFLs don't provide the same light output over time; they become dimmer. Our eyes can't tell the difference, but the plants can. Replace straight tubes once a year. I write the date I put them in service on the tube with a marker. For CFLs, read the manufacturer's information on hours of service. Replace the bulbs when they are down to 75% of original brightness, unless you are still happy with your results.
Commercial vegetable growers in southern California are now growing organic-certified greens indoors in warehouses under arrays of pink and blue LED lights. Remember, these are the wavelengths chlorophyll absorbs. The photos are eerie because the light looks so strange. The greens are grown in mats on shelves, stacked on wheeled carts, with the LED arrays underneath each shelf, to shine on the plants on the shelf below. There may be 12 or more shelves per cart. Dilute fertilizer solution is pumped to the top shelves, and then flows down to the other shelves. Access is carefully controlled so no insects enter the warehouses, and no pesticides are needed.

Leo Martin
Phoenix Arizona USA

Doug Dawson’s Photo of *Crassula alstonii*, May 14, 2013, South Africa

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PLANT QUESTIONS?? WHOM TO CONTACT!!!

Many CACSS members have experience with different kinds of succulent plants. I hope they will add their names to the following list. Call or e-mail Diana Decker, *Central Spine* editor. Find contact information on p. 3.

For now, the list is simply alphabetical with principal interests. When more members add their information, the list will be cross-referenced by topic.

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