



Desert Breeze

Newsletter of the Tucson Cactus and Succulent Society

January 2016

Thursday, January 7, 2016 at 7:00 PM

“Lithops: The Wild and the Tame”

Presented by Doug Dawson

Doug has completed fourteen 3-week botanical expeditions in Namibia and South Africa over the last 13 years, spending many nights sleeping on the ground and days hiking many mountains and rolling hills in search of mesemb species and other botanical riches. His latest interests include Namaqualand’s many exotic crassulas and euphorbias.

As well as 37 known species of lithops, there are many subspecies, varieties and a non ending supply of cultivars. This yields a kaleidoscope of color, texture, and form. In his PowerPoint program, Doug will give us a glimpse of some of these “pretty faces” and also show many species as they blend with nature out in the veld of South Africa and Namibia.

Doug is a retired math professor and does extensive botanical travels to areas of the world where succulents grow. These include Mexico, Chile, Argentina, Yemen, Socotra, and Africa as well as our own state of Arizona. In recent years, he has organized 8 botanical exploratory trips too South Africa and Namibia, camping on local farms and public areas by night andexploring the surrounding mountains and hills by day. To

aid in his travels, he has a background in languages. These include German and French. Nowadays Afrikaans has become a much more useful language for him in rural South African areas.

For many years, one of his key interests has been seed-growing of cacti and succulents. Other interests are photography and presentations with succulent content. He has delivered many workshops and speaking engagements in Arizona and other states. Doug’s private plant collection has an emphasis on seedlings, lithops, other mesembs, Arizona natives, and other cacti. He is a member of the CSSA, Central Arizona Cactus and Succulent Society, and the Tucson Cactus and Succulent Society.

This will be our first program presentation at the Sky Islands High School and an excellent way to wish everyone a “Happy New Year”. Please come and enjoy a spectacular evening with our special guest, Doug Dawson. There will be lots of friendly faces, great conversation, delicious food, raffle plants to win, and excellent free plants!

Plants in Nature



Lithops julii fulleri



Lithops olivacea



Lithops karasmontana bella



Lithops otzeniana

Interesting Forms & Cultivars



Lithops lesliei
'Albinica'



Lithops aucampiae
eunicea



Lithops
gracilidelineata
waldroniae



Lithops hookeri
lutea



Lithops lesliei
venterii



Lithops verruculosa
'Rose of Texas'



President's Message

I have had the privilege of serving you for the past decade and a half as president. It is the most rewarding and gratifying experience anyone could have. What a wonderful group of members!

I can't help from telling anyone who will listen to me that our society is

made up of over 1100 members who do wonderful things for our hobby, our environment, our education, our conservation, our literature, our aesthetics our economy and everything else that is cactus and succulent, for the sheer enjoyment of participation.

I am very excited about this New Year. We have a new home at the Sky Island School. It provides us with more space and opportunities. We had the largest holiday party in our history and it didn't seem crowded. Thanks to everyone who helped make it a special event.

Pima Prickly Park will see a lot of development this year. We will start on the design and planting of the "Monrad Ferocactus Garden". We will make this one of the best collections of Ferocatus anywhere. Many plants have already been purchased or donated and we are always interested in new acquisitions.

The entrance to the garden is being designed and planted with the potential acquisition of a large number of mature plants. The plants are free but the removal and transportation will be expensive. The board will be working on those details.

We have contracted for and completed an extensive mapping project of the park which will be presented at the January Board Meeting. This will really help us move forward.

More plants are always needed for the Park and we will print a want list in upcoming Newsletters.

The Sonoran XI committee is working on the final details which should be sent out in late January. This is our biennial conference of speakers, workshops, show and sales, highlighting growing cacti and succulents from and in the Sonoran and other deserts.

The new chair of our rescue program is Donna Ellis. Donna has a committee of dedicated volunteers who will assist her managing this incredible activity. All of you need to be the eyes of this program. When you see signs go up, fences go up or any other activity that indicates development, we need to know. Get us the contact information and the rescue community coordinator Noe Mayotte noemayotteaz@yahoo.com will do the rest.

This will be another great year thanks to all of you.

Dick Wiedhopf, President



Arizona's Tallest Boojum

As part of the successful effort to save the historic Joseph Wood Krutch desert garden on the University of Arizona campus, I did an inventory of boojum trees in Arizona Botanical Gardens. The results were published in the article "Boojum Trees in Cultivation", Cactus and Succulent Journal vol 75 No 1, 2003. Since then the last three boojums planted by UA president Homer Schantz in 1930 have died. What was then the state's tallest boojum (35.8ft) at Boyce Thompson Arboretum has also died. Anyone who knows of the location of one or more big boojum trees, please contact me with locations and photos if possible.

Bill Thornton

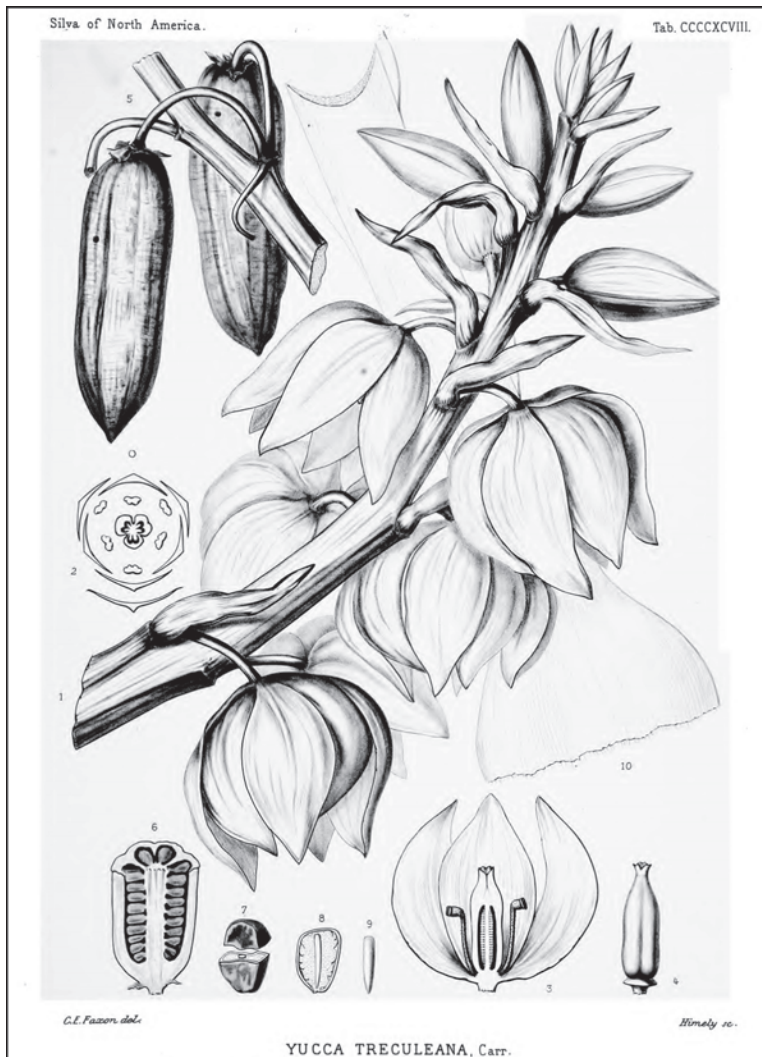
FROM THE FLORILEGIUM

Botanical illustrations that include plant habits and enlarged floral structures are usually fairly easy to decipher, even without the accompanying text. But sometimes a 19th or early 20th century work may include a set of diagrammatic marks that are quite distinct from the rest of an otherwise life-like drawing. Many illustrations of that time included a floral diagram, a sort of visual shorthand used to indicate the various parts of the flower and their relative position to each other.

These diagrams are similar in concept to an architect's floor plan—a cutaway of a building that shows only the spatial relationships of rooms, doors, windows, and other physical features. The floral diagram shows the arrangement of the flower's structures in a single plane. Unlike the architect's plan, the floral diagram gives no indication of overall shape, as the arrangement of structures occurs within a series of concentric circles. In order to get a complete understanding of the flower's shape, a longitudinal section (a flower sliced in half vertically) is necessary to show the size and form of the parts depicted in the diagram.

While floral diagrams aren't commonly included in contemporary botanical illustrations, they were once very important to document plant morphology, appearing in the early part of the 19th century in botany texts and used as a teaching tool. The methodology and symbols were standardized in 1875 with August W. Eichler's *Blüthendiagramme*, an extensive work that formed the basis for Eichler's system of taxonomy. Today the use of floral diagrams continues in the study of plant morphology and botanical systematics.

The botanical illustration shown here is by Charles Edward Faxon (*Silva of North America*, Vol. 10, by Charles Sprague Sargent) and includes both a longitudinal section of the flower of *Yucca treculeana* and the corresponding floral diagram. These two components of the drawing are shown separately side by side and labeled to indicate how the floral structures appear in the floral diagram. Note that the complete illustration shows the bract and stem, structures that do not appear in the longitudinal section of the flower.

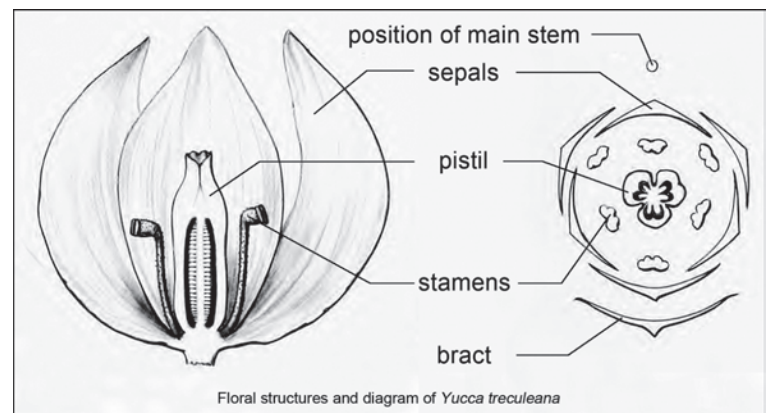


Yucca treculeana, Spanish bayonet

Illustrator: Charles Edward Faxon

Silva of North America, Vol. 10

Image courtesy Biodiversity Heritage Library <http://www.biodiversitylibrary.org>



Floral structures and diagram of *Yucca treculeana*

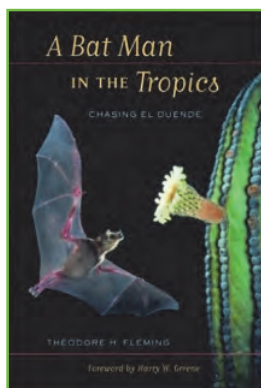
TCSS Education Committee

VOLUNTEERS NEEDED....

- Science, Technology, Engineering, and Math (STEM) night at Rattlesnake Ridge School Wednesday, February 10th 6-8pm pm.
- Math and Science Night at Kellond Elementary, in TUSD, Tuesday, February 16, from 5:30-7:30 pm.
- SARSEF Judging at the TCC Thursday, March 3rd 7:30 am til noon
- SARSEF Future Innovator's at the TCC Friday, March 4th 5:30 to 8:00 PM



Sign up NOW
education@tucsoncactus.com



GREAT BOOKS.....Hop into the heart and mind of a SCIENTIST..... and Tucson resident by reading **A Bat Man in the Tropics** by Dr. Ted Fleming. The book will help you understand how it feels to THINK LIKE A SCIENTIST. It is not just a tale about bats... you'll love learning from his family experiences over the years. Ted is amazing and this book is fascinating. Explore with him, ask questions while he explores and enjoy his observations. Connect to our desert plants and animals while reading about bat pollination. I am glad to have met Dr Fleming and now read his book.... his passion is inspirational. The long hours of data collection and observations are made easily readable in **A Bat Man in the Tropics**, a SCIENCE book by Tucson's own Dr. Ted Fleming.

Adults love coloring....this book combines the biology and the fun of coloring. Good for **YOU**, your family or grandkids. **Botany Coloring Book**



One Opuntia and 4 Saguaros.... What's that growing on the Prickly Pear in Sabino Canyon about 1/5 miles up the road on the left?

Do you ever stop to observe the beauty? Where does #1 live? Next time you hike near saguaros... observe the pleats and the dividing pleats. See any above 10 feet? See any divisions on the arms? Sure, but only a few.... close observations lead to interesting questions. **Join TCSS Education Committee and help students observe with a critical eye.**



What in the world is happening to these saguaros up on Sentinel Peak?

THE TUCSON MOUNTAIN RESERVE RESIDENTS AT WORK

BEAUTIFYING OUR COMMUNITY

Thanks to the collaborative efforts of dedicated members of the Tucson Cactus and Succulent Society, Jessie Byrd and her staff of the Pima County Natural Resources, Parks and Recreation, and the generosity of the folks at ASARCO/Silverbell mine and Meritage Homes, the WTA library received the wonderful gift of a landscape makeover for its 7th birthday. The landscape beautification project included the planting of nearly 5 dozen rescued native cacti, succulents and other plants from the nearby historic Silverbell mine and a Meritage Homes development site. Visitors to the library are greeted by a variety of groupings of Ocotillo, Saguaro, Golden Hedgehogs, Barrel Cactus, and Desert Lavender.

Featured...front and center...among the plantings, you will spot a new “Old Man” cactus..a plant of important significance...prominently displayed near the library entrance. This “special” cactus replaces the original gift (which did not survive) to the library by Ms. Renee Abbett in memory of her father, Mr. Wheeler Taft Abbett, Sr., the library’s benefactor. Ms. Abbett commented that the “Old Man” cactus was her Dad’s favorite cactus. We feel that it is a lovely addition to the landscape.

An engraved stone acknowledging their contribution, will be incorporated into the completed landscape. In addition, the library is exploring acquiring funds to add small identification

markers and offering public education programs on cacti, succulents and other native plants.

This project would not have been possible without the tireless efforts of many people. I would like to especially recognize and thank the following individuals: Jessie Byrd, Native Plant Nursery Manager, Pima County Natural Resources, Parks and Recreation and Nancy Johannesmeyer, Sr. Environmental Engineer at ASARCO/Silverbell Mine, K.C. O’Haver, Site Dev. Mgr. at Meritage Homes and TCSS Volunteers: Joe Bannon, David Freund, Tom Kresler and, Noé Mayotte. You’re all helping make this world a more beautiful place!

Lastly, I would like to express our gratitude to the Tucson Cactus and Succulent Society for their generous donations of the Society’s Field Guide to Cacti & Other Succulents of Arizona to our library. Our copy will be on display along with the new landscape plan.

The next time you visit the library, I invite you to pause a moment to take in the breathtaking beauty of our new landscape. As one customer commented, “it’s a beautiful sight!”

Composed by: Catherine (Cat) Strong, Managing Librarian,
Wheeler Taft Abbett, Sr. Library



L-1) David Freund, Noé Mayotte, Reyes Mitchell, Joe Bannon, Tom Kressler and Jessie Byrd



C-2) Catherine (Cat) Armstrong, Managing Librarian Wheeler Taft Abbett Sr. Library, Noé Mayotte of TCSS welcoming the “Old Man”



R-3) Jessie Byrd, Tom Kresler, Joe Bannon, David Freund, Reyes Mitchell and kneeling, Noé Mayotte

Study finds nearly a third of all cacti facing extinction

THE ASSOCIATED PRESS

MEXICO CITY - About a third of the world's cactus species are threatened with extinction, the International Union for Conservation of Nature warns in a new report.

The study evaluated 1,478 species and determined that 31 percent are endangered due to factors such as the conversion of wilderness areas to farming and ranching, urban development and the harvest of cactus seeds and plants for trade and private collection.

'We show that cacti are among the most threatened taxonomic groups assessed to date ... demonstrating the high anthropogenic pressures on biodiversity in arid lands,' said the report, which was published in the journal Nature Plants.

It identified hotspots of endangered cacti across the Americas, from the southern Brazilian state of Rio Grande do Sul and parts of neighboring Uruguay north to the Mexican states of Queretaro, San Luis Potosi, Oaxaca and Puebla.

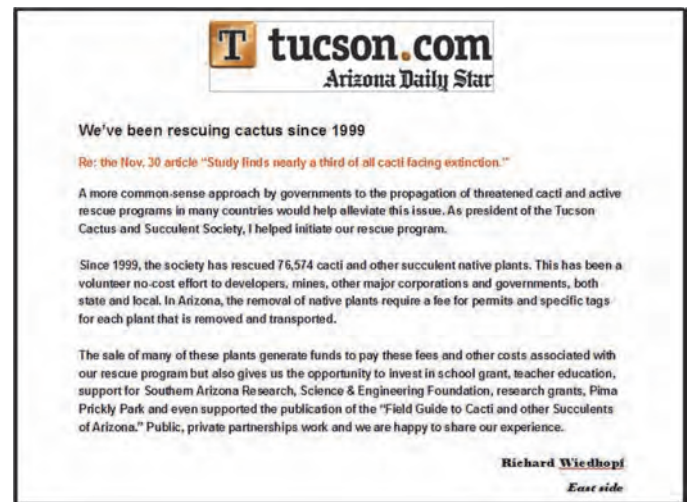
Salvador Arias, cactus curator at the National Autonomous University of Mexico's botanical garden, said a little over a third of the country's 700 or so native species are at severe risk for survival and called the situation 'alarming.'

He said the greatest threat comes from destruction of habitat for crops and cattle. Second is illegal collection, often by aficionados who take seeds or plants to sell in European countries.

'These plants belong to the so-called exotic plants, which have ornamental value for people around the world,' said Arias, who was involved in putting together the report. 'How did (the plants) make it there (Europe)? We can simply say through illegal extraction.'

He added that authorities are trying to combat the problem, but more resources and education are needed.

Scientists say cacti are important elements of desert ecosystems as sources of food and water for flora and fauna. They're also a source of nourishment and building materials for local human populations.



Holiday Party 2015

Photos provided by John Durham



Acknowledgement of Contributions

The names below represent the Tucson Cactus & Succulent Society members and friends whose donations helped make this year a success. We extend our sincere thanks for your support.

Publication Fund

Vonn Watkins & Karen Keller
Educational Outreach
David Palzkill
Nancy & Regis Slutter
Jerry & Colette Price
Susanna Schippers
George & Emojean Girard
Daphna Lederman & Family
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Matthew Johnson & Patricia Rorabaugh
Ralf Holzheu
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Pima Prickly Park

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Diane & Louis Vazquez
Gene & Susan Kelley
Junie Hostettler
Jeff Timan

President's Service Awards

On behalf of the Board of Directors, four individuals were recognized for their outstanding service to the Society at the December 6, 2015 Holiday Party.

Augie and Dale Johnson: Rescues, event set-ups, vendors for conference and events, nominations committee chair and more. These are some of the services needed to be done and they do it! This is what makes them valued and makes us an terrific society.

Susan Durham: Besides her secretarial responsibilities for the society, she has taken on the task of shipping all the Field Guide orders. This year almost 1,600 books have been distributed. Great job!

Bill Holcombe: Our CSSA representative has also taken on the responsibility of answering our TCSS phone. The number is 520-256-2447. Anyone who wants information about anything cacti or succulent call this number and Bill answers the questions or forwards it on to one of our many experts to help. This is a real plus for the society.



TCSS BOARD

Officers

President: Richard Wiedhopf • president@Tucsoncactus.org

Vice President: Vonn Watkins • vp@Tucsoncactus.org

Secretary: Susan Durham
secretary@Tucsoncactus.org

Treasurer: Linda Bartlett
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(Ending Dec. 31, 2015)

Keimpe Bronkhorst
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Dale Johnson

(Ending Dec. 31, 2016)

Teresa Curtis
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CSSA Affiliate Rep:
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Cactus Rescue: Donna Ellis
cactus@Tucsoncactus.org

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Free Plants: Donna Ellis • plants@Tucsoncactus.org

Floilegium: Margaret Pope • art@Tucsoncactus.org

Librarian: Joie Giunta • librarian@Tucsoncactus.org

Prickly Park: Linda Heisley • park@Tucsoncactus.org

Programs: Vonn Watkins • programs@Tucsoncactus.org

Refreshments: Patsy Frannea • refreshments@Tucsoncactus.org

Technology: technology@Tucsoncactus.org

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Garden Tours: Bill Salisbury • tours@Tucsoncactus.org

Field Trips/tours Rob Romero/Joie Guinta
trips@Tucsoncactus.org

Editor: Karen Keller • editor@Tucsoncactus.org

Deadline for November newsletter text or photos:
Thursday, January 21, 2016

TCSS Web Page:

www.tucsoncactus.org

Webmaster: Keimpe Bronkhorst • webmaster@Tucsoncactus.org
For additional information call: (520) 256-2447

Everyone is Welcome!

Bring your friends, join in the fun and meet
the cactus and succulent community.



Cacti Rescued - Since 1999
363 Rescues - 26,095 Volunteer Hours

Please see our Website Calendar for the next
rescued cactus sale. They are scheduled at various
times during the year based on our inventory.

TCSS Club Members receive a 10% discount

We need your "Eyes and Ears" to help us find new Cactus
Rescue Crew sites. Please email us as much information
as you can from new project signs or from other sources
to Site@TucsonCactus.org. Attach a photo of the sign if
you can. Note, we do not remove plants from residences.

January 2016

Thursday January 7, 2016, 7:00pm

"Lithops: The Wild and the Tame."

Presented by Doug Dawson

Tuesday January 12, 2016 7:00pm

Board meeting at the U of A College of Pharmacy



Sky Islands Public High School • 6000 E. 14th St.

Thursday, February 4, 2016 at 7:00pm

"Cactus Rescue: Using salvaged plants to create
meaningful landscapes"

Presented by Jessie Byrd

December Meeting Refreshments

Those with family names beginning with
K, L, M, N, O, P, and Q, please bring your choice of
refreshments to the meeting. Your generous sharing will
be greatly appreciated and enjoyed!



Desert Breeze

Newsletter of the Tucson Cactus and Succulent Society

February 2016

Thursday, February 4, 2016 at 7:00 PM

“Cactus Rescue: Using salvaged plants to create meaningful landscapes.”

Presented by Jessie Byrd



Starting in 1999, the Tucson Cactus and Succulent Society Cactus Rescue Crew has accomplished 363 rescues with over 26,000 volunteer hours to save 76,500 plants from being bulldozed, preserving a vast amount of cacti and other native plants that would otherwise have been destroyed during the development of Arizona real estate. Many TCSS members are part of the cactus rescue crew or have purchased rescued plants for their own yards. As our own spaces quickly filled with these special plants, TCSS members began to look for other places in Tucson where these plants could be appreciated, including parks, schools, libraries, and other public spaces.

Part of Pima County's award-winning Sonoran Desert Conservation Plan from 1999 included the creation of a Native Plant Nursery to help balance urban development. The goal of the Native Plant Nursery is to increase species diversity in Pima County public areas by growing plants from locally-collected wild seeds and then to make those plants accessible to the people and wildlife who can both benefit from living among our native resources. Today, the Native Plant Nursery is a 2-acre facility located at Pima Prickly Park with over 20,000 native plants representing 230 Sonoran Desert species, all destined for public projects. Nursery inventory also includes plants salvaged from areas being developed, which helps to preserve local genetics and keeps mature plants out of the landfill. Learn how the Native Plant Nursery is working with the Tucson Cactus and Succulent Society to lead the effort to reintroduce native species into the urban fabric of Tucson, Arizona, putting the desert back where it belongs.

Jessie Byrd is a Tucson native and grew up running around the desert. She is the Native Plant Nursery Manager for Pima County Natural Resources, Parks and Recreation, which specializes in growing native plants for public projects. She has salvaged thousands of cacti, both professionally and as a TCSS Cactus Rescue Crew volunteer. She has designed and constructed landscapes where these can be enjoyed by the public, including Pima Prickly Park. Jessie believes that using native plants in urban landscapes can help encourage biodiversity while also creating beautiful gardens. She earned a Master of Landscape Architecture from the University of Arizona and a BA in Biology from Bryn Mawr College.

Be sure to come and enjoy this special program presentation by Jessie. She will also be bringing *Cylindropuntia molesta* plants to be given away at the conclusion of the meeting. There will be great conversations, excellent food to enjoy and much more!

Thursday, March 3, 2016 at 7:00pm

“What are cephalia? Are they adaptive?”

The first part of this title is intentionally borrowed from the title of Franz Buxbaum's famous 1964 paper.

Presented by Root Gorelick



President's Message

Winter is half gone! My friend and Honorary Life Member of our Society, Dan Birt, has defined winter as that time from November 15 to March 15 when we should protect our plants from cold and frost. I try to do this religiously, it seems to work and it's easy to remember. I am so glad that there is only six more weeks of cold

weather (that's defined by me as anything under 70 degrees).

Another important date to remember is February 14. Yes it's Valentine's Day but it is also the day to use super bloom on all your Trichocereus Hybrids and Echinocereus to stimulate a great spring bloom. I wish I could remember to do this. That's why I am reminding you.

There is an exciting event about Saguaros that you might want to attend. All the information is in this newsletter, so be sure to check it out. Some of the information is coming from a research grant we funded for Dario Copetti on the Saguaro genome. He will do a meeting presentation later this year.

The Environmental Research Laboratory at the Tucson Airport has closed. One of the interesting facts is Harrison Yokum (deceased) work there for many years and planted numerous cacti, succulents and tropical plants in and around the facilities. We were invited to remove any of these plants that were of interest and move them to Pima Prickly Park. Numerous cutting and plant were removed and are being re-established in our park. For all of us who knew and really enjoyed our friendship with Harrison, we are so happy to have part of his collection at the Park.

Thanks to the group who gave up most of their Saturday to do this.

Sonoran XI information will be out soon. Save the dates, April 16 & 17.

Hope to see you at our February 4th meeting at Sky Island School, you will love the facility.

Thank you for your support

Dick Wiedhopf, President

Acknowledgement of Contributions

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Educational Outreach

Chris Bondante & Family

Research Fund

Elizabeth & Nancy Vlassis

Conservation Fund

Barbara Walker & Phil Feigin

Pima Prickly Park

Chris & Sandra Marshall

Publication Fund

Sue Haffner

Unrestricted General Fund

James & Felicia Kukula

Ravi Seth & Diane Maki-Seth

Anu Pundari

Fiona Clark & Jim Boggs

Sandi Kilkuts & Family

Nancy Tom & Family

Trina Trimble & Family

David Bishop & Charla Dain

Dean & Jenny Brick

Lisa & Frank Walters

Abbey Garden Rescue Sale

Back in October, Boyce Thompson staff trekked over to La Habra, CA and brought back 2 24' U-Hauls full of cacti and succulents from the former Abbey Gardens Nursery. Many of the plants have been subsumed into the Arboretum's plant collections but a good many went to our retail nursery for some TLC. These have been diligently cared for and repotted and are now ready for a special sale. On Saturday, March 5th, from 8:00 a.m. to 5:00 p.m. BTA will hold a special sale of these plants that should appeal to all cactus & succulent collectors. There are many haworthias not often seen, some special euphorbias and many others.

Boyce Thompson Arboretum is located on US Highway 60 just west of Superior.

Cathy Babcock

Director of Horticulture

Boyce Thompson Arboretum

37615 Highway 60

Superior, AZ 85173-5100

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cbabcock@cals.arizona.edu

FROM THE FLORILEGIUM

Some of Britain's most remarkable works of botanical illustration were created by Arthur Harry Church (1865-1937), a reclusive Oxford botanist who was a prolific writer and a talented and entertaining lecturer. Church's scientific accomplishments were well known during his lifetime, but his unique artistic achievements have only recently gained wide exposure.

Church was a competent artist from an early age, and he later used those skills to illustrate his botanical writings and lectures. The drawings he produced for his lectures on floral morphology and reproductive mechanism were the beginnings of his best known work, *Types of floral mechanism, a selection of diagrams and descriptions of common flowers arranged as an introduction to the systematic study of angiosperms*. Church's plan was to illustrate and describe 100 types of floral structures occurring in British gardens and to arrange them by blooming season, with the first volume presenting 12 types of spring flowers. The completed work contains 39 color plates of vertical sections of the flowers and numerous line drawings and floral diagrams (see *The Desert Breeze*, January 2016). This volume, published in 1908, was well-received but its sales were disappointing.

Planning to complete his project eventually, Church continued working on the illustrations until 1915. It was then that his wife died of food poisoning, and within a few months his youngest daughter succumbed to tuberculosis. This terrible and sudden loss, coupled with the deaths of so many of his students and colleagues in the Great War, caused Church, in the words of a close friend, to "hover on the brink of insanity". Gradually he recovered and began a period of intense productivity in his writings. Yet despite the completion of the second volume of *Types of floral mechanism* and of all the artwork for a third

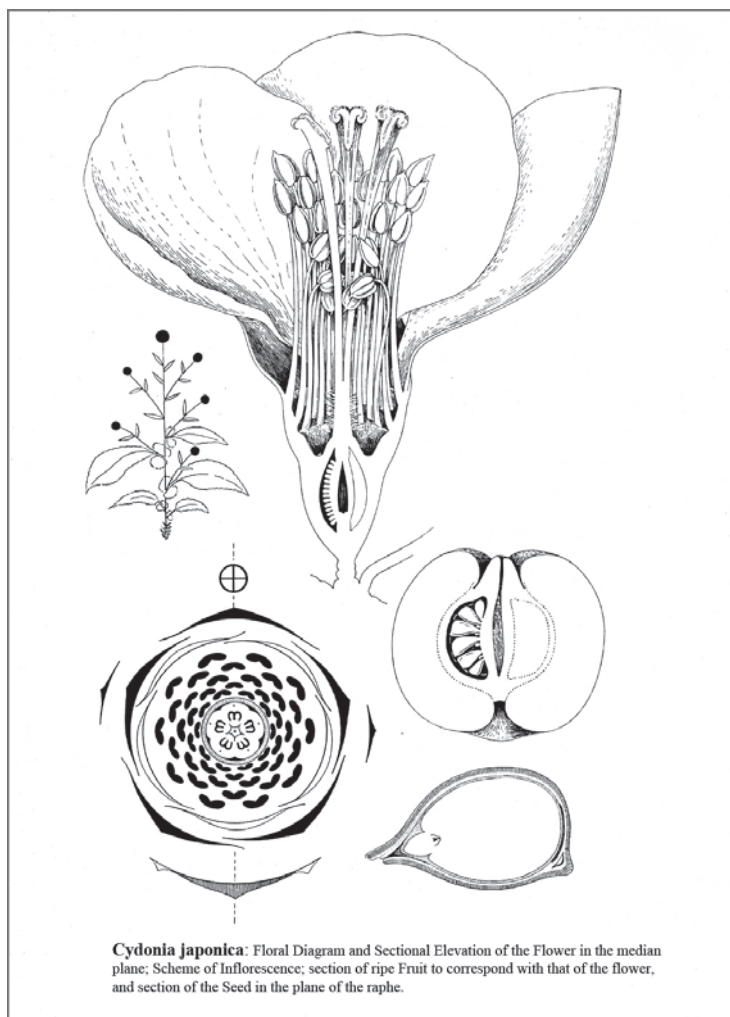
volume, his publishers declined further involvement with a project of such scale.

After Church's death, most of his papers, including 773 of his flower paintings, eventually made their way to London's Natural History Museum. In 2000, the Museum produced a biography of Church by British botanist and author David Mabberley, the first such work to include these amazing works of art. Arthur Harry Church: *The Anatomy of Flowers* contains a wealth of information about Church's life and writings and 57 exquisite color plates, most of which were previously unpublished.

Rarely does an artist reach Church's level of skill in portraying the detail and beauty of a sectioned flower. He was known among his students for his mastery of the sharp razor, and for botanical illustrators, these works are an inspiration and challenge to improve one's dissecting abilities.

Original copies of *Types of floral mechanism* are still available from rare book dealers. It can be also be downloaded from the Internet Archive (<https://archive.org/>), but sadly the colored plates are missing. Mabberley's superb book is out of print but is available from used book dealers.

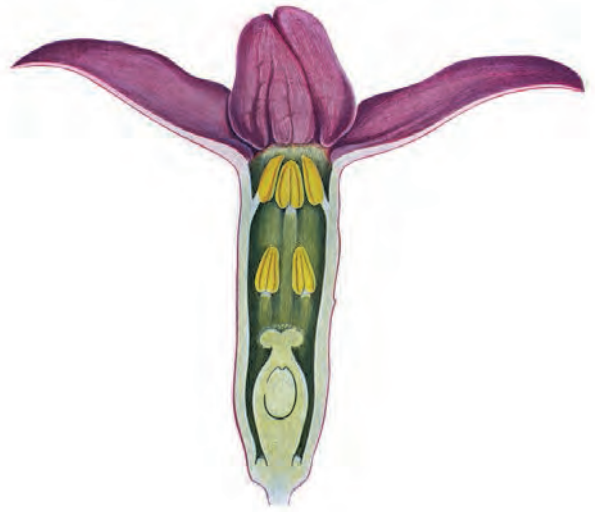
Shown here are two works depicting *Cydonia japonica*, the Japanese quince. Church's striking watercolor is paired with a pen and ink illustration of the same flower that includes a floral diagram and vertical sections of the flower, fruit, and seed. Four additional paintings from *Types of floral mechanism* are included here to illustrate the unique beauty and bold style of Church's works. —CLH



FROM THE FLORILEGIUM



Viola odorata



Daphne Mezereum



Ribes sanguineum



Helleborus foetidus

Saguaro Genome

January 27, 2016 12:00 pm

By Mike Sanderson Special to the Arizona Daily Star

All organisms on Earth are related to one another in a vast “tree of life.” Some of the best evidence for this lies in the similarities and differences in organisms’ genomes, the sequence of chemical “letters” that encode all the information necessary for organisms to develop, function and pass on their traits to offspring.

My research combines these two potentially enormous data sets – millions of species and billions of letters in each of their genomes – to try to understand the place of specific biological species in the tree of life.

Lately, we have turned to an icon of the Sonoran desert, the saguaro cactus, to gather genome sequence data and reconstruct where among the thousands of other species of cactus it belongs. Perhaps no plant is as firmly lodged in the imagination of people when they think of the deserts of North America than the saguaro, if for no other reason than their appearance on classic Bugs Bunny-Roadrunner cartoons or in Hollywood westerns.

Saguaros are exotic and charismatic creatures, among the largest, longest-lived cactus, and their exact origins remain a mystery. No cactus genome has yet been sequenced. The saguaro genome is relatively large compared with most sequenced plant genomes, with about 1.5 billion letters in its genome.

Together with a large consortium of Mexican and Arizona scientists, funded mainly by the University of Arizona College of Science and National Autonomous University of Mexico in Hermosillo, as well as colleagues at Arizona State University and a recent grant from the Tucson Cactus and Succulent Society, we have been gathering genome sequence data from saguaro samples across its geographic range in Sonora and Arizona.

The main genome sequence is being assembled from an individual plant from the Tumamoc Hill reserve in Tucson, which has a century-old legacy of studies of saguaros. One small chunk of the genome is now complete, the small separate genome of chloroplasts, which is the site of photosynthesis in plant cells.

Surprisingly, this chloroplast genome is the smallest yet found for any flowering plant that still undergoes photosynthesis — a fairly baffling finding. In the next year, we will assemble a draft sequence for the whole genome, identify a large fraction of its genes and map how these genes vary across the diversity of habitats found within the Sonoran Desert.

For me, much of the pleasure in this work comes from alternating between massive but esoteric computational challenges and the in-your-face biology of such an interesting and extreme organism as the saguaro. Genomes like this are assembled first by breaking them into billions of small pieces, sequencing each of those, and then using algorithms on large computers to put the puzzle together.

But, living where we do, all of the members of our team have the singular pleasure of being able to turn their eyes away from the

computer screen from time to time and look out their windows at this striking cactus, which is now beginning to give up its secrets.

About the scientist

Mike Sanderson is a professor in the Department of Ecology and Evolutionary Biology. His lab’s research is aimed at reconstructing the history of life on Earth, mainly plants, using a combination of genomics and high performance computing. This work is a necessary mixture of developing and testing new methods to solve problems in big data analysis and of applying them to interesting groups of plant species.

Experience science

100 Years of Saguaro Science: Celebration!

Join us to wish the National Park Service a happy 100th birthday in 2016.

Dr. Homer L. Shantz was serving as the 10th President of the University of Arizona when his advocacy helped create Saguaro National Park, one of the first and few national park units with a focus on science in its proclamation. Saguaro National Park, the University of Arizona College of Science, Friends of Saguaro National Park and Western National Parks Association are proud partners in our shared research on the unique plants and animals of our region.

When: 5:30 to 7:30 p.m., Tuesday, March 1

Where: Room S107, Agnese Nelms Haury Lecture Hall, Environment & Natural Resources 2 Building, 1064 E. Lowell St. on the UA campus.

Invited speakers:

- Mike Sanderson, professor, Department of Ecology and Evolutionary Biology.
- Don Swann, biologist, Saguaro National Park.
- Ray Turner will be awarded Saguaro National Park Lifetime Science Service.
- Introduction by Joaquin Ruiz, UA College of Science

Food and cold beverages will be served. Space is limited. Please RSVP to DianaR@strategies360.com



Cylindropuntia molesta at PPP, the parent of the free plants.

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trips@Tucsoncactus.org

Editor: Karen Keller • editor@Tucsoncactus.org

Deadline for November newsletter text or photos:

Thursday, February 18, 2016

TCSS Web Page:

www.tucsoncactus.org

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Everyone is Welcome!

Bring your friends, join in the fun and meet
the cactus and succulent community.



Cacti Rescued - Since 1999
363 Rescues - 26,095 Volunteer Hours

Please see our Website Calendar for the next
rescued cactus sale. They are scheduled at various
times during the year based on our inventory.

TCSS Club Members receive a 10% discount

We need your "Eyes and Ears" to help us find new Cactus
Rescue Crew sites. Please email us as much information
as you can from new project signs or from other sources
to Site@TucsonCactus.org. Attach a photo of the sign if
you can. Note, we do not remove plants from residences.

February 2016

Thursday, February 4, 2016 7:00pm

"Cactus Rescue: Using salvaged plants to create meaningful
landscapes"

Presented by Jessie Byrd

Tuesday, February 9 2016 7:00pm

Board meeting at the U of A College of Pharmacy



Sky Islands Public High School • 6000 E. 14th St.

February Meeting Refreshments

Those with family names beginning with
R,S, T, U, V, W, and X, please bring your choice of
refreshments to the meeting. Your generous sharing will
be greatly appreciated and enjoyed!



Desert Breeze

Newsletter of the Tucson Cactus and Succulent Society

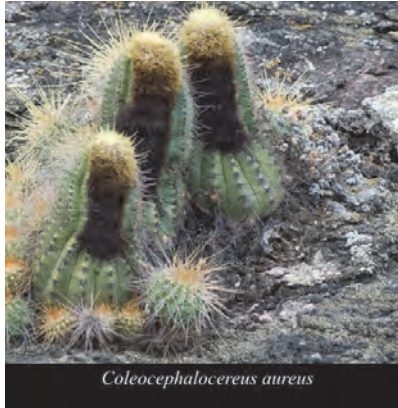
March 2016

Thursday, March 3, 2016 at 7:00 PM

“What are cephalia? Are they adaptive?”

The first part of this title is intentionally borrowed from the title of Franz Buxbaum's famous 1964 paper.

Presented by Root Gorelick



Coleocephalocereus aureus



Discocactus zehntneri subsp. *araneispinus*



Espostoa melanostele

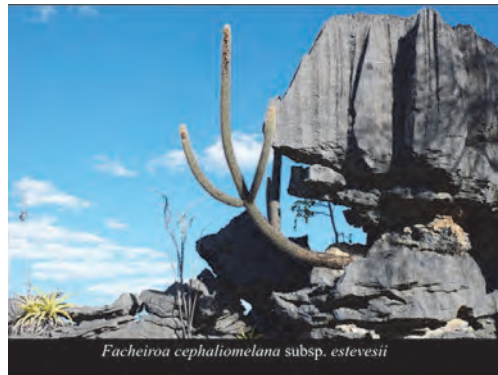
William Jackson Hooker, Alwin Berger, Britton & Rose, and Curt Backeberg used the terms cephalium and pseudocephalium, but only in 1964 did Franz Buxbaum try to provide reasonable definitions. Based on my sectioning of cacti, his definitions are not very useful. I provide a more modern description of the terms cephalium and pseudocephalium and then ask whether these specialized flowering structures are adaptive. I define cephalia by an underlying layer of cork and contiguous areoles arising from the growing point. These two traits preclude photosynthesis at the cephalium. Cephalia therefore seem to be maladaptive or at least non-adaptive. By contrast, pseudocephalia lack the cork layer and contiguous areoles, hence they undergo some photosynthesis from the pseudocephalium, hence their pseudocephalia are probably neither adaptive nor maladaptive. Others have proposed that cephalia and pseudocephalia

are maladaptive insofar as they cause the stem apex to tilt precariously and thereby preclude further branching, but I show this is probably not the case. I promise to mostly show pretty pictures, with hardly any words on slides, except for genus and species names.

I am a professor of biology, specializing in evolutionary theory, who is cross-appointed in mathematics & statistics and in interdisciplinary studies, and who has also been an instructor in

indigenous studies. The core of my research is in understanding the evolutionary origins of sex (from a feminist perspective) and understanding what generates diversity (surprisingly, not sex). As a theorist, however, I feel compelled to learn in-depth about real organisms, which for me has meant cacti, which I first saw lots of during graduate school at New Mexico State University and Arizona State University. I served two non-consecutive terms as editor of *Haseltonia*.

Please come and enjoy an excellent program where you will understand why this topic has been of curious interest over the years. Enjoy some great refreshments, win a great plant and also get a free plant!



Facheiroa cephalomelana subsp. *estevesii*

Thursday, April 7, 2016 at 7:00pm

Topic to be Announced

Presented by Ernesto Sandoval

Collections Manager, UC Davis Botanical Conservatory

TCSS 2016 SPRING GARDEN TOUR

The 2016 member garden tour will be Sat., April 2. 9:00 - 3:00. There are 8 gardens to tour for you to get ideas on what to grow and how to display your plants. All the gardens are in an area roughly bordered by North of River, South of Ina, West of Oracle and East of La cholla.

There are gardens of all sizes to view. In mid March directions and brief write ups of the gardens will be on the TCSS web site.. tucsoncactus.org There will also be directions and write ups available at the March general meeting.

Be sure to mark down the date, April 2 and bring a guest.



President's Message

The February 14, 2016 Arizona Daily Star ran a story in the Home + Life section about the aging members of Gardening Clubs in the Tucson area. The Gardeners of Tucson (Men's Garden Club) has disbanded after 56 years. We are the same age. The story is a familiar one that all of us must face. We get old and tired

and no one steps up to take over. If the membership in most Garden Clubs is aging, why are we doing so much better and why do so many people join our society?

Here is a list from the article of the membership of Gardening Clubs.

Name	Founded	Membership
Tucson Garden Club	1935	22
The Desert Garden Club	1940	43
Indian Ridge Garden Club	1958	17
Tucson African Violet Society	1958	45
Los Cerros Garden Club	1959	14
Rose Society of Tucson	1960	75
Tucson Cactus and Succulent Society	1960	1,035
Tucson Area Iris Society	1965	34
Tucson Organic Gardeners	1971	95
Tucson Bonsai Society	1972	75
AZ Native Plant Society, Tucson Chapter	1976	250
Tucson Orchid Society	1979	84
Green Valley Gardeners	1980	364
Community Gardens of Tucson	1990	450
Southern AZ Bonsai Enthusiasts	2001	5

Tucson, in the heart of the Sonoran Desert, is a logical place to grow cacti and succulent plants. A large group of professional growers and Nurseries makes this a destination for enthusiasts.

In 1995, TCSS hosted the largest convention ever of the Cactus and Succulent Society of America. This was the event that changed our Society. Many of us who were involved wanted to continue the convention experience. So in 1996 the Sonoran Conference was initiated. We knew we could do a lot more. When the opportunity came to rescue a few plants from a school site we started a rescue program. It was clear that this program was not only important to us but struck a nerve in the Tucson community that rapidly grew our membership.

We became more than a society, we became an umbrella organization for rescues, education grants and activities for school children and adults, conservation, research grants, conferences, shows, sales, botanical art, Pima Prickly Park, great monthly programs and more.

Our secret is with so much to do, who has time to age!

Thank you for your support
Dick Wiedhopf, President

"The Pima County Master Gardeners announce their 17th Annual Home Garden Tour on

April 16, 2016 from 9 am to 3 pm.

The distinctive and beautiful home gardens of four Master Gardeners will be featured along with practical demonstrations and talks at each home to include such varied topics as home composting, Grow Zones for water efficiency and plant selection, miniature succulent gardens, perennial container gardening and more. The Demonstration Gardens at the Cooperative Extension Service will also be open for touring.

Ticket sales begin March 1st and may be purchased: online at <https://extension.arizona.edu/17th-annual-home-garden-tour> ; at the Cooperative Extension Service 4210 N. Campbell Ave.; and at the following Tucson nurseries:

Bach's, EcoGro, Harlows, Mesquite Valley Growers and Rillito.

Tickets are \$15 in advance or \$20 on-line or the day of the tour. Tickets may also be purchased at each home garden and at the Extension's demonstration gardens on the day of the tour. Extensive plant lists for the gardens will be available on-line and on a limited basis at the gardens.

For more information call 626-5161"

Tony Knight

Acknowledgement of Contributions

The names below represent the Tucson Cactus & Succulent Society members and friends whose donations helped make this year a success. We extend our sincere thanks for your support.

Educational Outreach

Steve & Patty Harvey

Conservation Fund

Tessa & Kevin McDermott

Raymond & Jennifer Topp

General Fund

Monty & Karen Turner

Pima Prickly Park

David & Mary Liz Freund

Monty & Karen Turner

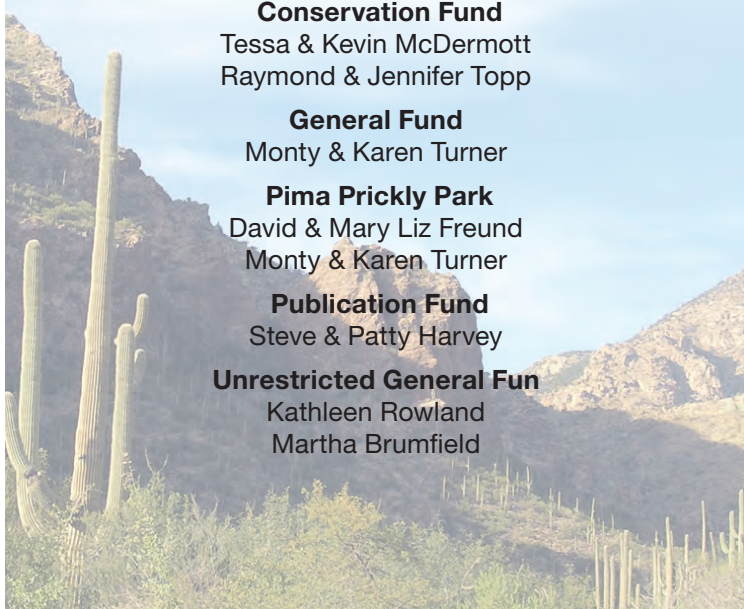
Publication Fund

Steve & Patty Harvey

Unrestricted General Fund

Kathleen Rowland

Martha Brumfield



FROM THE FLORILEGIUM

When you think of parasitic plants, you might imagine heavy clumps of mistletoe hanging from trees or tangles of yellow, spaghetti-like dodder smothering shrubs. Yet some of our loveliest wildflowers are parasites. Ratany (*Krameria* species) along with Indian paintbrush and owl clover (*Castilleja* species) are beautiful flowers and also hemiparasites--partial parasites that can photosynthesize and need only water from their hosts. The broomrape (*Orobanche* species), an unusual beauty, is a holoparasite, a full parasite that lacks chlorophyll and attaches to the roots of its host to take both food and water.

While some of these parasitic plants aren't very particular about their hosts, most species in the genus *Orobanche* have definite preferences for their host plants, and our desert broomrape, *Orobanche cooperi*, tends to attach itself to members of the *Asteraceae*, or sunflower family. The broomrape's seed is stimulated to germinate when near the roots of its preferred host. After attaching to the host plant's roots, it begins to form a bulbous base that remains hidden underground until the flower stalk emerges. The emerging plant will not be green, as it lacks chlorophyll, but will range in color from yellowish-brown to orange, red, blue, or purple.

Margaret Pope's illustration of *Orobanche cooperi* was prepared for the Arizona Native Plant Society's poster, "Sonoran Desert

Wildflowers". Because the broomrape isn't a commonly noticed wildflower, the society asked members to contact Margaret if they knew of a plant that she could use for reference. Luckily, a member in the Catalina Foothills had one growing at her home in an undisturbed area under a palo verde tree. Margaret's drawing shows the portion of the plant that would appear above ground. This inflorescence is covered with dark violet scale-like leaves and a dense array of yellow-throated tubular flowers.

The second illustration is of *Orobanche lutea* (syn. *Orobanche rubens*) from *Flowers of Germany, Austria and Switzerland* (1885) by Otto Wilhelm Thomé. This illustration shows the flower stalk and reproductive parts of the flower and also reveals the underground tuber attached to the roots of a clover plant.

Orobanche cooperi was named for James Graham Cooper (1830-1902), a physician and naturalist who worked on the northernmost route of the Pacific Railroad Survey in 1853 in the Washington Territory, specifically with the survey party led by Captain George McClellan. Cooper later became a noted ornithologist, as was his father, William Cooper, for whom the Cooper's hawk, *Accipiter cooperii*, was named by Charles Lucien Bonaparte, nephew of Emperor Napoleon.



Orobanche cooperi © Margaret Pope
From "Sonoran Desert Wildflowers" (2001)



Orobanche lutea Otto Wilhelm Thomé
Flora von Deutschland, Österreich und der Schweiz (1885)
Image from the Biodiversity Heritage Library. Digitized by the New York Botanical Garden | www.biodiversitylibrary.org

Gardeners' Spring Fair

Sunday, March 20th — 9 am to 3 pm

In the Courtyard at Continental Shopping Plaza in Green Valley

Continental Road — Exit 63 off I-19

Educational Lectures

Open to the public — No Charge — Limited seating

10 am	Chuck Parsons	Taking the mystery out of Sonoran Desert gardening
11 am	Megan Todd	Tips for successfully growing tomatoes
1 pm	Jon Weeks	The Annual Cycle of Cactus Care
2 pm	Leslie Campbell	Benefits of Native Herbaceous Plants in Arid Landscapes

Vendors Selling Plants and Garden Related Items

Dave Palzkill — Dryland Plants	Jon Weeks — Landscape Cacti
Jackie Garrison's Garden Pottery	Jeff Moore — Arid Adaptations
Mark Sitter — B&B Cactus Selling plants, pots, books and garden art	Greg Starr — Starr Nursery Selling plants and signed books
Berni Jilka — Nighthawk Natives Nursery Selling native plants, and grasses	Kay Sobol — Local glass artist Selling potted glass cactus and SW glass creations
Mike Ellis — Blue Sky Plants	Arid Lands Greenhouses
Kathy Stone Selling handmade pots and providing potting service, you buy a plant & pot and take it home potted!	Pottery by Jay Groothusen A Green Valley Clay Studio Potter
Emily Rockey — The Fairfax Companies Introducing a cactus/succulent potting mix	Tucson Cactus & Succulent Society <i>The Field Guide to Cacti and Other Succulents of Arizona</i> https://www.facebook.com/tcssfieldguide
Green Valley Gardeners Selling Spring Garden Tour Tickets for April 9th & Plants	Tucson Master Gardeners Selling 17th annual Home Garden Tour Tickets for April 16th
Rio Rico High School FFA Students An Inter-generational Collaboration — Selling plants	Green Valley Master Gardeners Selling plants, ollas & raffle tickets — Will answer questions
Rescue plants from Tucson Cactus & Succulent Society	



Green Valley Gardeners

A Service Club Made Up of Gardeners



Saturday and Sunday, April 16 & 17, 2016

Hotel Tucson City Center Innsuites Conference Suite Resort • 475 N. Granada Avenue, Tucson, Arizona

[illegible]

Sonoran XI Program Schedule

Friday, Saturday and Sunday, April 15, 16 & 17, 2016

Hotel Tucson City Center Innsuites Conference Suite Resort • 475 N. Granada Avenue, Tucson, Arizona

Day and Time	Event	Location
Friday, April 15		
8:00 am to 5:00 pm	Set-up Registration	Front Lobby
	Set-up All Signage	All Areas
	Set-up Book Sales, Art Sales, Art displays	Gold Room
	Set-up Plant and Pottery Sales	Outdoor Sales Area
	Set-up Plant Show	Silver Room
	Set-up Speakers and Meals	Copper Room
	Set-up Silent Auction and Plant Raffel	Front Lobby
	Set-up Workshops	Assigned Rooms*
	Set-up Displays	Silver Room
6:30 pm - 8:00 pm	Plant Sales Open - 15% Discount for Members and Registrants	Outdoor Sales Area
Saturday, April 16		
8:00 am - 5:00 pm	Registration	Front Lobby
8:00 am - 5:00 pm	Books, Plants, Pottery and All Other Sales	Gold Room and Outdoor Sales Area
8:00 am - 6:00 pm	Plant Show	Silver Room
8:00 am - 5:45 pm	Silent Auction Bidding	Front Lobby
9:00 am - 10:15 am	Guest Speaker - Rob Romero: "Those Extraordinary Plants from the Chihuahuan Desert"	Copper Room
10:30 am - 12:00 pm	Workshops Session 1	Assigned Rooms*
12:00 pm - 2:00 pm	Lunch and Guest Speaker - Guillermo Rivera: "Argentina and the Monte Desert"	Copper Room
2:15 pm - 3:45 pm	Workshops Session 2	Assigned Rooms*
5:30 pm	Silent Auction Ends - Bid winners plant collection 5:30 to 6:00 PM	Front Lobby
5:30 pm	Cash Bar	
6:15 pm - 9:00 pm	Dinner and Guest Speaker "Program Title To Be Determined"	Copper Room
Sunday, April 17		
8:00 am - 12:00 noon	Registration	Front Lobby
8:00 am - 1:30 pm	Books, Plants, Pottery and All Other Sales	Gold Room and Outdoor Sales Area



Sahara mustard invading Tucson area



In the last 10 years, Sahara mustard (*Brassica tournefortii*) has become much more common in Tucson, and some fear that it may rival Buffel grass as a major threat to the Sonoran Desert. While many here tolerate other invasive Mustard Family cousins like London rocket, Sahara mustard gets bigger so chokes off even more vegetation

and becomes even more of a fire hazard when the annual dies, in time to be spread around by monsoon winds.

A native of North Africa and the Middle East, Sahara mustard was first seen in the US in 1920 in the Coachella Valley. First noted in Tucson in 1978, it was still rare in 1991. But during the early 2000s Sahara mustard greatly expanded its range from low areas of the Mohave and Sonoran Deserts to reach the Colorado Plateau and Texas. The seeds sprout easily along roadsides and other disturbed habitats, then spread into wild land areas. It can grow in sand dunes and extremely poor soils.

I learned about it at an Arizona Native Plant Society meeting last year so was suspicious when some bright green mustard seedlings emerged in an area sprinkled last fall with a freebie Southwest Wildflower Mix. Sahara mustard sprouts earlier than desert annuals so beats them to available water, and mine were already crowding out penstemons and poppies. It sets seed earlier. Some of the seedlings that I pulled on February 4 were not only blooming (at 2 inches high!) but even setting seed (at 10 inches).

The annual mustard can reach 4 ft. and have a diameter of 3ft. Each plant has the potential for 5,000 to 16,000 more!

Herbivores (even goats) avoid eating it because it is high in oxalic acid. Californian locavores who love broccoli and kale have been unable to make it tasty for humans. A biological control agent is difficult as there are many Mustard family plants are grown for food, and native mustards used by wildlife.

Each of us can help deter Sahara mustard by pulling in our gardens and encouraging others to do as well. Just spraying and leaving in place is a problem as Sahara mustard's chemicals

deter other plants from growing, and seeds have long viability.

Because it has a tap root, Sahara mustard is easier to weed than Buffel grass, especially when pulled at the seedling stage. But wear gloves! The easiest diagnostic for Sahara mustard is to feel the stems and leaves which get rougher as they grow, unlike most mustards which are smooth. Other ways to recognize it is that leaves are darker green from other mustards, and its flowers a paler yellow. Many photos are available online (see below).

Sahara mustard seedpods do not break apart as readily as other mustards, so that gives another opportunity to get rid of seeds after the plant has died, but only if the whole plant is placed in a trash bag that is sealed and disposed of properly.

A mustard pulled in time (and bagged) saves 1000s next year! As the Morongo Basin Conservation Association says, "Hold the Mustard."

For more information, www.desertmuseum.org/invaders/invaders_saharamustard.php

Rescue February 13, 2016



Dick being interviewed



Dick becomes the interviewer

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Thursday, March 24, 2016

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March 2016

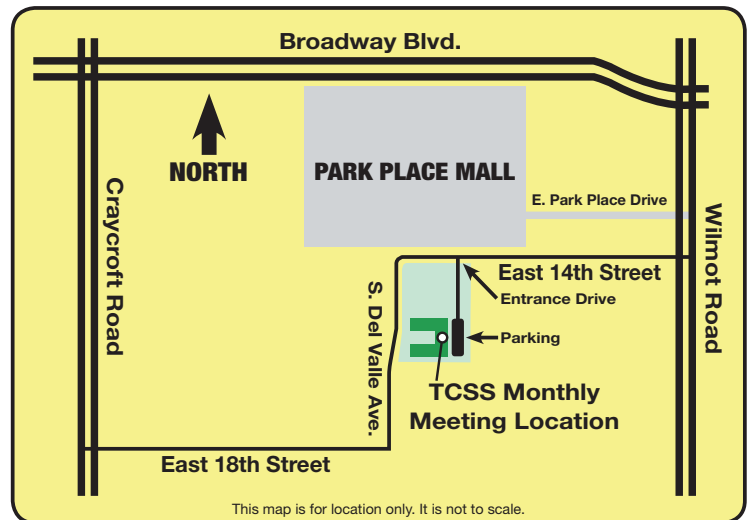
Thursday March 3, 2016 7:00pm

"What are cephalia? Are they adaptive?"

Presented by Root Gorelick

Tuesday March 8 2016 7:00pm

Board meeting at the U of A College of Pharmacy



Sky Islands Public High School • 6000 E. 14th St.

March Meeting Refreshments

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A- F, please bring your choice of refreshments to the
meeting. Your generous sharing will
be greatly appreciated and enjoyed!



Desert Breeze

Newsletter of the Tucson Cactus and Succulent Society

April 2016

Thursday, April 7, 2016 at 7:00 PM

"Plant Hormones, Grafting and Growth of Desert Plants"

Presented by Ernesto Sandoval, Collections Manager, UC Davis Botanical Conservatory



Ernesto Sandoval has been wondering and seeking questions to why plants grow and look the way that they do for a long time. Now he explains and interprets the world of plants to a variety of ages and experiences from K-12 to professionals and Master Gardeners. He regularly lectures to a variety of western Garden Clubs throughout the year and particularly to Succulent Clubs throughout California and elsewhere since that group of plants is his particular passion and within his general interest and devotion to plants. He describes himself as a "Jose of all plants, master of none." Ernesto thoroughly enjoys helping everyone, and gardeners in particular, to understand why and how plants do what they do.

When he was about 13 he asked his dad why one tree was pruned a particular way and another tree another way. His dad answered bluntly "because that's the way you do it." Since then he's been finding the answers to those and many other questions by getting a degree at UC Davis in Botany and working from student weeder/waterer to Director over the last 25 years at the UC Davis Botanical Conservatory. He's long left the "mow blow and go" monoculture landscape gardening world of Los Angeles and has immersed himself in the world of polyculture and biodiversity by growing several thousand types of plants at the UC Davis Botanical Conservatory, many of them succulents. Several of his favorite garden projects involved converting lawns and or water loving landscapes to drought tolerant and diversity filled gardens! He likes to promote plant liberation by encouraging gardeners of all sorts to grow more plants in the ground when possible. He loves the technical language of Botany but prefers to relate information in more understandable methods of communication! By helping people to understand the workings of plants he hopes to help us better

understand how to and why our plants do what they do and how we can maximize their growth, or at least appreciate what they do, with less effort and a better understanding.

Everyone who is interested in improving their succulent education will want to be in the audience during this program by Ernesto. Come and join everyone for an excellent evening with food, raffle plants and free plants.



Sky Islands Public High School • 6000 E. 14th St.

Thursday, May 5, 2016 at 7:00pm

Program presentation - Topic to be announced

Presented by Lucas C. Majure

Biologist of New World Succulents, Desert Botanical Garden



President's Message

In 1995, TCSS hosted the national convention of the Cactus and Succulent Society of America (CSSA). Our president was Chuck Hanson and he brought us all together to put on the largest and best convention ever. When it finished there was a group of TCSS members who were primed for doing another large event. During

our 1995 September Silent Auction, we decided that TCSS needed to hold a conference in the even years to celebrate this great convention, as a thank you to TCSS members for their participation and extoll the Sonoran Desert. I will admit I was running a 104 temperature and so must have been out of my mind to agree to do this Sonoran Conference. Well, 20 years have passed, I am still out of my mind and we are doing what is now Sonoran XI.

The first conference was held at Foothills Mall which was almost totally empty, so we had use of storefronts for workshops, shows etc. There was a public meeting room where talks were held. The Mexican Restaurant (one of the few businesses left) supplied the food. It was terrific. Our first dinner speaker was Petey Mesquitey, (Peter Gierlach) and it is wonderful that he will

be our Saturday night dinner speaker at Sonoran XI. You just can't miss this!

We just keep doing this every 2 years and when I say we I mean a huge list of past and present members who make this event possible. A special thanks for this year to Vonn Watkins our VP who puts all the speakers and workshops together, Doug Rowsell who manages all the set-ups and AV operations, and Dale Johnson who organizes the vendors. There are so many others who are critical to the success of this event and I thank you for your support and really appreciate all that you do.

HELP!

You are important to make the conference great and I need your help and participation. Whatever you can do will contribute to the success of Sonoran XI. It is important that you bring your favorite plants for the show or contribute a plant or other materials for the silent auction. It is important that you support the 20 + vendors under the big tent. We hope that some of you will join us for lunch and dinner. We still have some great journals, books and our Field guide for sale. We need volunteers to help with every activity. Check out the list below and let us know how and when you can help.

Thank you for your support

Dick Wiedhopf, President

Opportunities to Volunteer

Registration-Hotel Lobby

- Set-up on Friday
- Help man the area, Friday, Saturday and Sunday
- Handle concerns with meals, workshops and information

Gold Room Sales.

Not available until after 8pm on Friday night.

- Organized and ready to set up later on Friday night or early Saturday Morning.
- Help man the sales table for Saturday and Sunday

Silver Room Plant show

- Need 2 drivers and 2 assistants to pick up plants etc on Friday and return on Sunday. Trucks with auto lifts will be rented.
- Accept label and organize displays
- Man the entrance for 2-3 hour shifts on Saturday and Sunday from 8am to 6pm Saturday and 8am to 3:30pm Sunday. This includes giving out beans for voting.

Rescue Plant Sales

- Loading plants from Pima Prickly Park and Amphi for the sale Friday and returning any plants on Sunday.
- Help customers with rescue plants, loading, marking, answering questions, sales.
- Sale 8am to 5pm Saturday and 8am to 1:30pm Sunday.

Cashiering - Plant & Pottery Sales in the Tent

- Assisting in vendor set-up on Friday all day. 6pm to 7:15 special sale to members and registrants. Sale 8am to 5pm Saturday and 8am to 1:30pm Sunday.

Silent Auction in the Hotel Lobby

- Set-up items and tables as needed. List plants and bid sheets, Assign bid numbers as needed
- Collect winner's money and manages the removal of materials. Silent Auction ends at 5:30pm

Workshops and Meals

- Make sure workshop room are in order and help the leader with their materials, collect signed tickets and return to the Copper Room during meals for door prizes.

A couple of hours and/or participation in any of the activities is what is needed.

Contact us at info@tucsoncactus.org or Call us at 256-2447 or sign-up for the conference events.

Thank you



Tucson Cactus and Succulent Conference
Saturday, April 16 • 8am-5pm & Sunday,
April 17 • 8am-3:30pm
 (Sales on Sunday ends at 1:30pm)

Cactus and Succulent Plants, Pottery, Books & Art Sale

Featuring

ARID ADAPTATIONS
 ARID LAND GREENHOUSES
 ARID OASIS
 BLUE SKY PLANTS
 DANS DESERT PLANTS
 DESERT SENSE D:F RANCH
 DRYLAND PLANTS
 ECOGRO
 FLOR DE MAYO

GARDEN INSIGHTS
 JAN BELL POTTERY
 JIM JONES POTTERY
 LANDSCAPE CACTI
 LOOKING SHARP CACTUS
 MILES 2 GO NURSERY
 NIGHTHAWK NATIVE
 NURSERY

STARR NURSERY
 STICKY SITUATIONS
 SUCCULENTIA
 TCSS BOOKS & JOURNALS
 TCSS RESCUE CACTUS
 THE CAM PLANTS

Hotel Tucson City Center

475 N. Granada Avenue • Tucson, Arizona 85701 • <http://hoteltucsoncitycenter.com>
 Presented by the Tucson Cactus and Succulent Society

Visit us on the web for more information: www.tucsoncactus.org

Sonoran XI Workshop Schedule

Saturday and Sunday, April 16 & 17, 2016

Hotel Tucson City Center • 475 N. Granada Avenue, Tucson, Arizona

[illegible]

Sonoran XI Program Schedule

Friday, April 15, 2016 (Set-up and Special Plant Sale) • **Saturday and Sunday, April 16 & 17, 2016**

Hotel Tucson City Center • 475 N. Granada Avenue, Tucson, Arizona

Day and Time	Event	Location
Friday, April 15		
8:00 am to 5:00 pm	Set-up Registration	Front Lobby
	Set-up All Signage	All Areas
	Set-up Book Sales, Art Sales, Art displays	Gold Room
	Set-up Plant and Pottery Sales	Outdoor Sales Area
	Set-up Plant Show	Silver Room
	Set-up Speakers and Meals	Copper Room
	Set-up Silent Auction and Plant Raffle	Front Lobby
	Set-up Workshops	Assigned Rooms*
	Set-up Displays	Silver Room
6:00 pm - 7:15 pm	Plant Sales Open - 15% Discount for Members and Registrants	Outdoor Sales Area
Saturday, April 16		
8:00 am - 5:00 pm	Registration	Front Lobby
8:00 am - 5:00 pm	Books, Plants, Pottery and All Other Sales	Gold Room and Outdoor Sales Area
8:00 am - 6:00 pm	Plant Show	Silver Room
8:00 am - 5:45 pm	Silent Auction Bidding	Front Lobby
9:00 am - 10:15 am	Guest Speaker - Rob Romero: "Those Extraordinary Plants from the Chihuahuan Desert"	Copper Room
10:30 am - 12:00 pm	Workshops Session 1	Assigned Rooms*
12:00 pm - 2:00 pm	Lunch and Guest Speaker - Chuck Hanson: "Madagascan Succulents and the Arid Orchid Safari"	Copper Room
2:15 pm - 3:45 pm	Workshops Session 2	Assigned Rooms*
5:30 pm	Silent Auction Ends - Bid winners plant collection 5:30 to 6:00 PM	Front Lobby
5:30 pm	Cash Bar	
6:15 pm - 9:00 pm	Dinner and Guest Speaker - Petey Mesquitez: "Wild Plants, Wild Animals and Wild Places to Be"	Copper Room
Sunday, April 17		
Stories and songs from the borderlands		
8:00 am - 12:00 noon	Registration	Front Lobby
8:00 am - 1:30 pm	Books, Plants, Pottery and All Other Sales	Gold Room and Outdoor Sales Area
8:00 am - 3:30 pm	Plant Show	Silver Room
8:30 am - 9:45 am	Guest Speaker - John Durham: "Out of Harm's Way" Cacti Conservation in the Sonoran Desert	Copper Room
10:00 am - 11:30 am	Workshops Session 3	Assigned Rooms*
11:45 am - 1:15 pm	Workshops Session 4	Assigned Rooms*
1:15 pm - 3:15 pm	Lunch and Guest Speaker - Bob Webb: "Arid and Semi Arid South African Succulents"	Copper Room
3:30 PM	All Conference Events End	All Areas

*Assigned Workshop Rooms: Buckley, El Conquistador, Mission, Pershing and St Augustine - See Sonoran XI Workshop Schedule



TCSS Education Committee April 2016

How TCSS Outreach Makes a Difference??

Events at Schools and Classrooms and Pima Prickly Park

TCSS supports hands on science learning centers and STEMAZING teacher workshops

School Grants

TCSS awards grants for school cactus and succulent gardens using TCSS Rescue Plants

Southern Arizona Research, Science and Engineering Foundation - SARSEF

TCSS awards student science projects for excellence!

education@tucsoncactus.org



Our amazing volunteers deserve a special thanx from all our TCSS members...

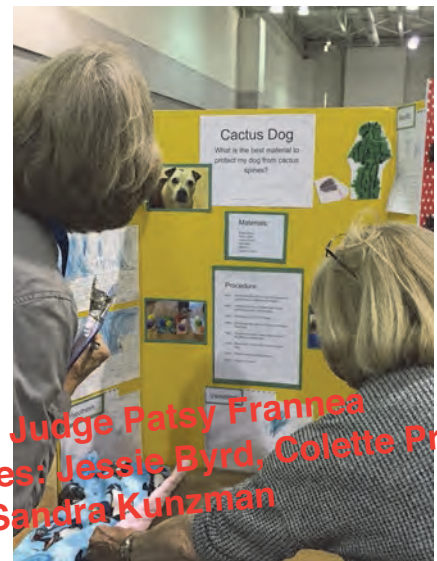
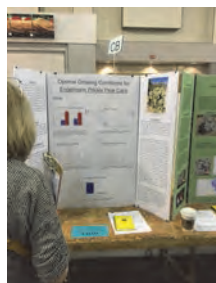
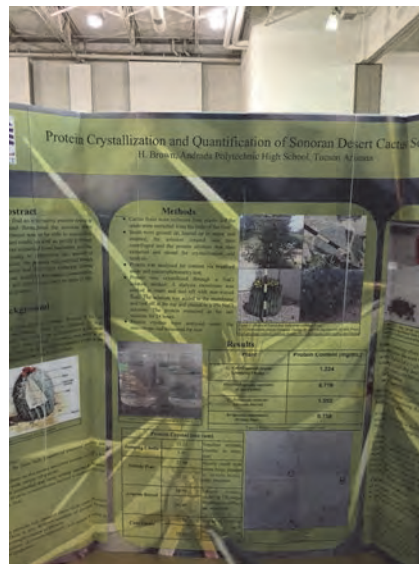
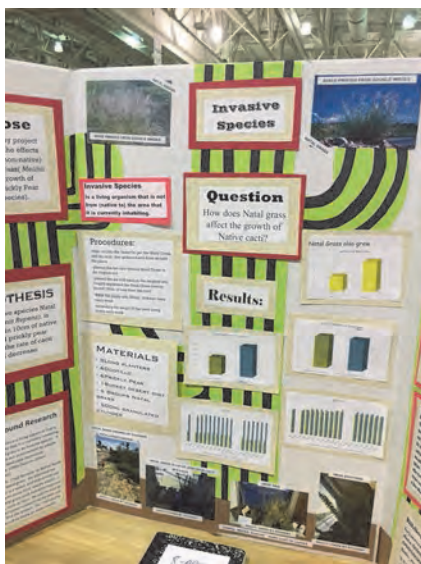
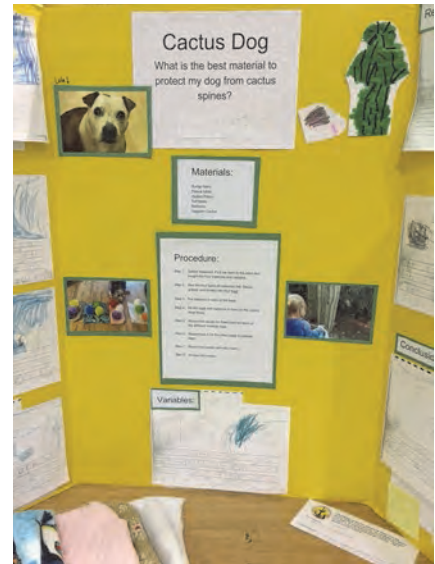
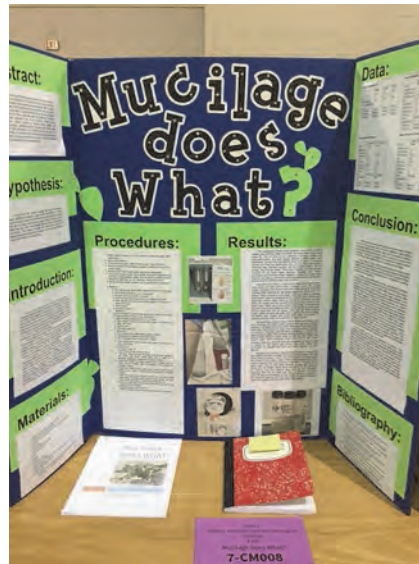
Bill Holcombe, Kris Thompson, Teresa Curtis, Patsy Frannea, Sandra Kunzman, Colette Price, Jessie Byrd, John and Susan Durham.

In recent months, We have hosted 9 school/community events, we are working on awarding 2 school grants, we have given 5 excellence awards at SARSEF Science Fair.

Good News/Bad News....at this time my shed has "O" that is zero Build-a-Cactus kits left. We have used all 1000 we had in the shed. We are proud of all the energy and effort to support Tucson students in their "learning and discovery" about cacti!

Thank you everyone for support, Caryl Jones

Here are pictures..... outreach in action. Below see SARSEF Science Projects and Volunteers in action. Thank to the Tucson Book Festival volunteers for promoting TCSS educational outreach. **Meet the amazing winners at our April TCSS Meeting!**

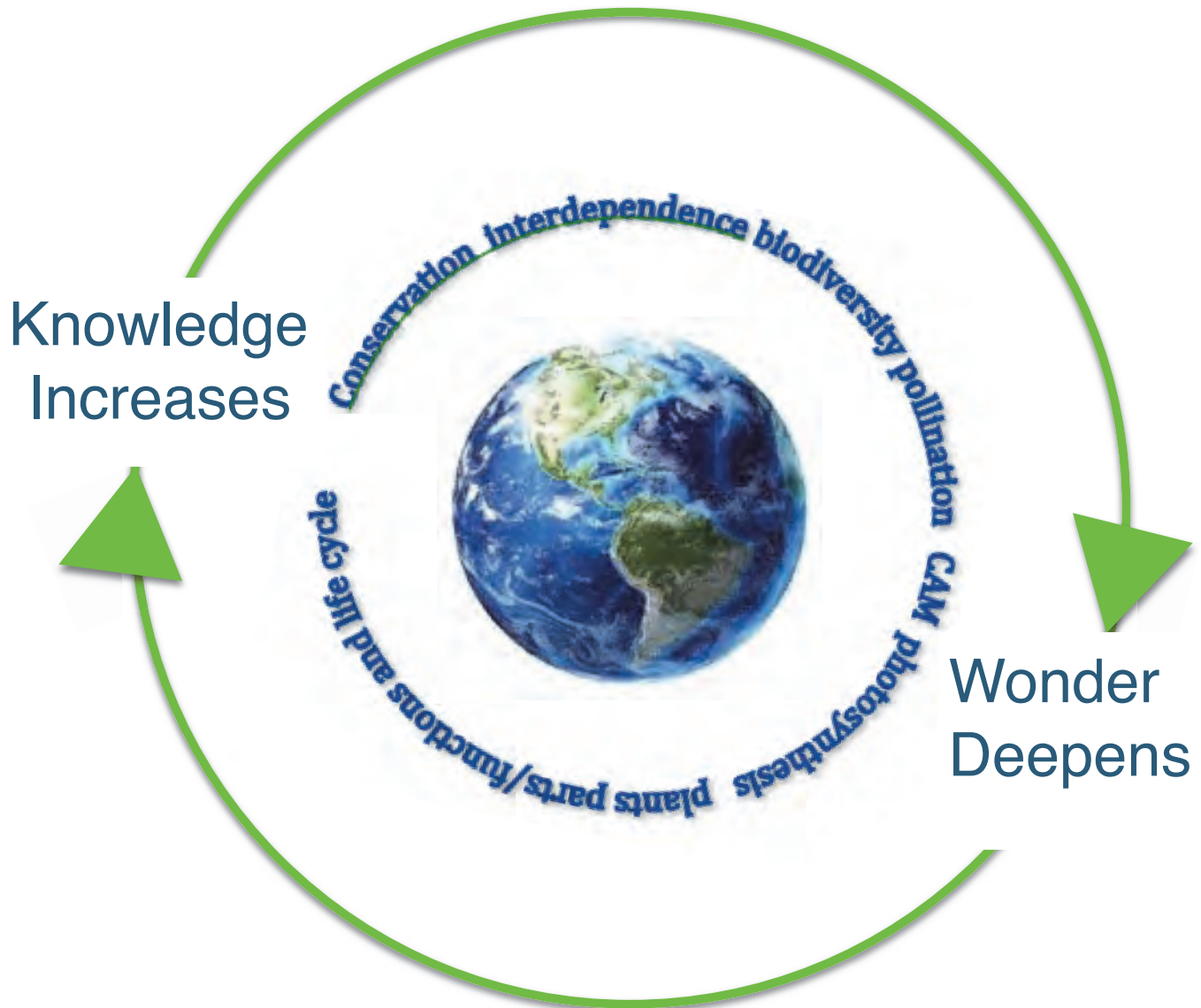


- 1st PLACE: "Healthy and Bug Free" Vincent Santino - Lulu Walker 5th grade
 2nd PLACE: "Mucilage Does What?" Jared Antone - Gregory School 7th grade
 3rd PLACE: "Cactus Dog" Lilah Vosper – Agua Caliente Elem Kindergarten
 HONORABLE MENTIONS:
 "Invasive Species" Sara Blevins – La Cima Middle School 8th grade
 "Protein Crystallization and Quantification of Sonoran Desert Cactus Seeds" Hatley Brown – Andrada Polytechnic HS



TCSS Educational Outreach Committee Volunteering for our Tucson Community children!

This is a causal loop that tells the story of why we do outreach. We make a difference! education@tucsoncactus.org



HOW DOES TCSS EDUCATIONAL OUTREACH serve our Tucson Community?

We teach a hands-on BUILD-a-CACTUS activity and other related Sonoran Desert Ecosystem learning centers in classrooms, at school and community events.

We award school grants for cactus gardens, provide novice classes to our members and work with STEMAZING Institute to provide teacher workshops.

Funding for the TCSS Educational Outreach services is from the TCSS Cactus Rescues.

For more information or to join our TCSS EDUCATIONAL OUTREACH COMMITTEE?

Contact Caryl Jones at education@tucsoncactus.org.

tucsoncactus.org

News Release

(Please laugh along with me!)



Build-A-Cactus Closes Doors

TUCSON (March 4, 2016) – Reliable sources report that local enterprise, Build-A-Cactus (B-A-C), is no longer in operation. At tonight's SARSEF Innovator Night at the TCC, children late to the event were disappointed and unable to take a cactus model home with them – only look at realia and imagine what could have been. TCSS (parent group of B-A-C) board member, Terry Curtis, tried to calm angry parents and crying children. When reached for comment, TCSS board president Dick Wiedhopf was said to be cultivating cactus on a desert island and was unavailable for comment.

B-A-C spokesperson, Caryl Jones, denied claims and stated that she was out of the country and unaware of the recent report. She indicated that low inventory led to a temporary suspension of service at local schools and science fairs and vowed to correct the situation.

Despite Jones' claim, in a secret warehouse north of town, investigators found no sign of cactus kits, only empty boxes, a few magnifying glasses and a stuffed packrat. Further investigation found Jones' credibility to be in question since she has been known to frequent the company of a sketchy character named Barry McCormick who is said to be an adventurer, a deep-sea diver and treasurer hunter.

Build-A-Cactus was best-known as a leading plant science STEM program.

TCSS is a 501(C) responsible for rescuing over 76,000 cactus throughout Southern Arizona



Sonoran XI Conference 2016

Plant Show & Silent Auction

Plant Show Information:

The Plant Show Committee will be accepting plants Friday, April 15 from 8:00 am – 6:00 pm

Show Rules:

1. You must own the plant for at least six months before the show date.
2. Plants *legally* collected in the wild may be entered.
3. Basically, the entry should look attractive.
4. There is no limit as to the size of the plant.
5. You may bring as many plants as you wish.
6. It would be helpful if you would email or send your proposed list of show plants April 11 to:

TCSS Sonoran XI Show
PO Box 64759
Tucson, AZ 85728-4759
Email: info@tucsoncactus.org

The Show Committee will determine if a plant is allowed as an entry according to the criteria listed. The decision of the Show Committee is final.

General Guidelines:

1. If possible, avoid watering your entries for at least two days before the entry date to prevent dampness on tables.
2. Containers should be clean and unbroken, and free from salt accumulation and stains. A top dressing is recommended but not required.
3. To facilitate setup, please get your plants to the show as early in the day as possible on Friday, April 27th.
4. Only Cacti and Succulents will be accepted for entry in the show. There are no specified plant categories.
5. All entries will be voted on by TCSS members and the public.
6. You do not have to be registered for Sonoran X to enter your plants. **Ideally each TCSS member should enter at least one or more plants to the show.**
7. **Any well-grown plant that is special to you is a candidate for the show. The plant does not have to be rare or unusual.**
8. This is not a judged show and winners are chosen by the public who vote by placing beans in a box by each plant.

NOTE: If you need help transporting your plant show entries or if you have any questions, need additional information or would like to volunteer to help at the show please contact TCSS by April 16th at 520-256-2447 or email to: info@tucsoncactus.org

Silent Auction

Ends Saturday April 16, 2016 at 5:30pm

Donations of interesting plants, pots, art and related materials are encouraged and welcomed. Please bring your donations on Friday April 15 or before Noon on Saturday, April 16. See the note below for consigned donations.

Bring your donation to the Front Lobby of the Hotel where volunteers and tables will be set-up. For more information contact us at the above address, phone or email.

Thank you.

Note: Some items are consigned to the auction in which case the consignee receives the minimum bid and TCSS receives the amount above the minimum. These items will have a starting bid of at least \$20.00. Framed art prints are not consigned but may have a starting bid greater than \$20.00.

TCSS BOARD

Officers

President: Richard Wiedhopf • president@Tucsoncactus.org

Vice President: Vonn Watkins • vp@Tucsoncactus.org

Secretary: Susan Durham

secretary@Tucsoncactus.org

Treasurer: Linda Bartlett

treasurer@Tucsoncactus.org

Board of Directors:

board@Tucsoncactus.org

(Ending Dec. 31, 2017)

Donna Ellis

Tanya Quist

Noe Mayotte

Bill Salisbury

(Ending Dec. 31, 2016)

Keimpe Bronkhorst

John Durham

Linda Heisley

Dale Johnson

(Ending Dec. 31, 2016)

Teresa Curtis

Peter Ertman

Caryl Jones

Val Little

CSSA Affiliate Rep:

Bill Holcombe (2015)

Cactus Rescue: Donna Ellis

cactus@Tucsoncactus.org

Education: Caryl Jones • education@Tucsoncactus.org

Free Plants: Donna Ellis • plants@Tucsoncactus.org

Floilegium: Margaret Pope • art@Tucsoncactus.org

Librarian: Joie Giunta • librarian@Tucsoncactus.org

Prickly Park: Linda Heisley • park@Tucsoncactus.org

Programs: Vonn Watkins • programs@Tucsoncactus.org

Refreshments: Patsy Frannea • refreshments@Tucsoncactus.org

Technology: technology@Tucsoncactus.org

Research: Doug Rowsell • research@Tucsoncactus.org

Garden Tours: Bill Salisbury • tours@Tucsoncactus.org

Field Trips/tours Rob Romero/Joie Giunta

trips@Tucsoncactus.org

Editor: Karen Keller • editor@Tucsoncactus.org

Deadline for May newsletter text or photos:

Thursday, April 20, 2016

TCSS Web Page:

www.tucsoncactus.org

Webmaster: Keimpe Bronkhorst • webmaster@Tucsoncactus.org

For additional information call: (520) 256-2447

Everyone is Welcome!

Bring your friends, join in the fun and meet
the cactus and succulent community.



Cacti Rescued - Since 1999
363 Rescues - 26,095 Volunteer Hours

Please see our Website Calendar for the next
rescued cactus sale. They are scheduled at various
times during the year based on our inventory.

TCSS Club Members receive a 10% discount

We need your "Eyes and Ears" to help us find new Cactus
Rescue Crew sites. Please email us as much information
as you can from new project signs or from other sources
to **Site@TucsonCactus.org**. Attach a photo of the sign if
you can. Note, we do not remove plants from residences.

April 2016

Thursday, April 7, 2016 7:00pm

"Plant Hormones, Grafting and Growth of Desert Plants"

Presented by Ernesto Sandoval, Collections Manager, UC
Davis Botanical Conservatory

Tuesday, April 12, 2016 7:00pm

Board meeting at the U of A College of Pharmacy

Friday, April 15, 2016 7:00pm

Sonoran XI Conference Set-up and Special Plant Sale

Saturday April 16 - Sunday April 17, 2016

Sonoran XI Conference

Hotel Tucson City Center

475 N. Granada Ave. Tucson AZ 85701.

April Meeting Refreshments

Those with family names beginning with
G- L, please bring your choice of refreshments to the
meeting. Your generous sharing will
be greatly appreciated and enjoyed!



Desert Breeze

Newsletter of the Tucson Cactus and Succulent Society

May 2016

Thursday, May 5, 2016 at 7:00 PM

“Untangling the complex evolutionary history of the promiscuous prickly pears and other cacti, where did they all come from?”

Presented by Lucas C. Majure, Biologist of New World Succulents, Desert Botanical Garden, Phoenix, AZ

Lucas grew up in central Mississippi where he developed a love for all things natural and a deep connection with the flora of the southeastern United States. It was there that his fascination with cacti began during his master's work at Mississippi State University. He then migrated to the University of Florida where he earned a Ph.D. working on the evolutionary history of the prickly pear cacti. He is now a research botanist at the Desert Botanical Garden in Phoenix, where he has continued to focus on prickly pear cacti throughout the Americas, but with keen focuses on continental North America and the Caribbean region. He currently has ongoing projects on the cactus floras of Cuba and Hispaniola in the Greater Antilles, as well as numerous projects in the southwestern United States.

For anyone interested in seeing Lucas and learning about his research and current projects, please plan to attend this presentation. You will also enjoy being with lots of friends, enjoy some great refreshments, win some great plants as well as obtaining a free plant during your departure.



Opuntia lutea, PV, Costa Rica



Melocactus matanzanus



Sky Islands Public High School • 6000 E. 14th St.

Thursday, June 7, 2016 at 7:00pm

Program presentation

“Mexico, The Hidden Treasures of Coahuila”

Presented by Woody Minnich



President's Message

Sonoran XI was a great success thanks to the many members who volunteered. I always worry about events like this as to how many members will help. You are amazing and appreciated. From all the comments received everyone who attended any of the events thought highly of our efforts.

It is very clear that we do need someone in charge of volunteers who would coordinate these efforts. It is just a matter of keeping a record of willing members and their interests. We also need to do some training so that volunteers feel more comfortable and knowledgeable about the whole effort.

Sonoran XI included many separate events all at the same time and all working together.

We started out on Friday night with a first, a special sale to members and registrants. This was a 15% off sale and the purpose was to support our 23 plus vendors by making sure our members and registrants had an opportunity to make first purchases. The Society absorbed the 15% discount on all purchases.

Did you see that we had a 40 X 100 ft. tent in the parking lot of Hotel Tucson in which all the vendors were located? There were some last minute space issues at the Hotel and this was the very best answer to the problem. It actually worked out for the best and everyone liked the tent concept. It provided the vendors and the customers easy access to load and unload. We also brought in, with the help of some great volunteers, more than 300 rescued plants that had been stored at other locations. All but a few very small Saguaros sold. That was Fantastic. The sale went great all Saturday and till 1:30 on Sunday.

This year besides full registration, it was possible to sign up for individual meals, programs and workshops. There were more than 180 participants at one or more events. The programs and workshops were terrific. We were able to accommodate everyone who wanted a particular program.

There were 2 lunches and speakers and our special Saturday night dinner followed by a very special speaker. Peter Gierlach better known as "Petey Mesquitey" thrilled the guests with his special humor, songs, poetry and thoughts about the desert we live in. It was incredible! That's the only way I can describe my feelings. The second most important thing about his presentation was that Petey was the dinner speaker at Sonoran I, 20 years ago. Margaret Pope and I are the only ones left who planned that event and were here for the Saturday night performance.

The food was great at both the lunches and dinner and the Hotel Staff did a great job to accommodate all our needs. We have a very special friend at the Hotel who has been involved with 10 out of the 11 conferences and makes us feel at home.

During all these activities we still had a wonderful show and silent auction (which raised over \$1,200). We didn't rent trucks this year but still had our members bring in great plants that the public judged. It was wonderful.

So thank you to all the Vendors, workshop presenters, speakers, donors of silent auction plants and to all those who brought in plants for our show plus special thanks to the chairpersons who made this all possible. Thank you Dale Johnson (vendors), Vonn Watkins (speakers and workshops), Doug Roswell (facilities and equipment) Joie Giunta (plant show and silent auction), Donna Ellis (rescue sales), Marti Harow (registration), Maxine Goodman (publicity) and all their volunteers.

I need to thank so many others who generously gave their time during the conference, Thank you, Thank you, Thank you.

Let's do it again!

Dick Wiedhopf, President

Acknowledgement of Contributions

The names below represent the Tucson Cactus & Succulent Society members and friends whose donations helped make this year a success. We extend our sincere thanks for your support.

Education

Vernon & Diane Kliever

Florilegium

Mary Ann Jones

Pima Prickly Park

Lynn McKevers Andrews & Family

Unrestricted General Fund

Kevin & Helen Barber

Scott Sherman

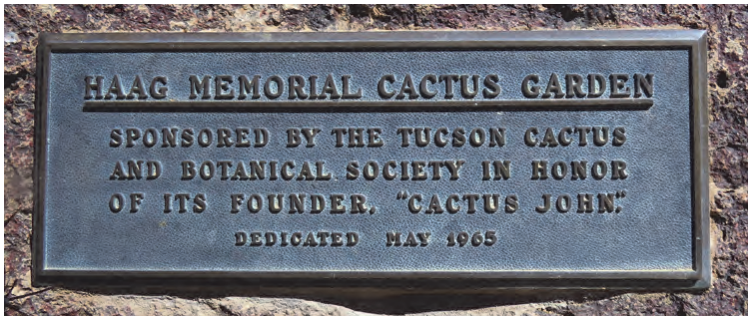


Lucas Majure, *Opuntia basilaris*, Utah

The Arizona-Sonora Desert Museum's Haag Cactus Garden Celebrates its 50 Years With a New Look



The Haag Cactus Garden is home to 138 species of cacti - Credit Nancy Serensky



A plaque dedicated to founder Cactus John Haag. Credit M Paganelli

Dedicated in May 1965, this unique garden is named in honor of "Cactus" John Haag, founder of the Tucson Cactus & Succulent Society and curator of plants at the Arizona-Sonora Desert Museum from 1957-1959.

Home to 138 species of cacti, including some of Mr. Haag's personal collection and several rare and endangered species, the garden was created to help educate people about cacti and other succulent plants of the Sonoran Desert Region. Celebrating its 50th birthday, the garden has undergone some wonderful enhancements under the leadership of Arizona-Sonora Desert Museum Horticulturist Jason Wiley.

Working with a number of volunteers, Wiley has spent the past two years completely reworking the garden, with an all-new look and a broader array of species. "We've been working very hard on getting the Cactus Garden looking more dramatic, inspiring and manicured," says Wiley.

Three architectural oxidized metal planters at the entrance are just one of the enhancements to the Garden. These dramatic and sculptural planters clearly delineate the garden's entrance, welcoming guests and providing a visual contrast to the soft colors and contours of the vegetation.

Since May of 2014, over a thousand new specimens have been added to the garden –an increase of more than 40 percent. Some of these new additions include several visually stunning "Flying Saucer" (Trichocereus hybrid) Torch Cacti, which add drama and beauty to the Garden. These cacti have been cleverly placed so that they are highly visible from the entrance, but far enough back into the Garden so that guests are drawn in to get a closer look at the breathtaking blooms. Other additions include barrels, hedgehogs, Thelocactus, and several unusual forms of Senita: a "Wooly Rhino" whose blond bristles go all the way to the ground; and "Jim's Giant," which has enormously fat arms. Wiley has also planted numerous golden hedgehogs rescued from the Silver Bell Mine where a leach field is being installed. The garden is also home to the Pima Pineapple Cactus (Coryphantha robustispina), and Echinocactus horizonthalonius nicholii, two of the Sonoran Desert's endangered species.



The Chihuahuan snowball (Thelocactus macdowellii) is just one of many cacti in the garden-credit ASDM

Continued on next page

Continued from previous page

Another aesthetic addition is a “river” of Creeping Devil (*Stenocereus eruca*) that will flow through the Garden. The display created by these dramatic, ground-hugging cacti provides some visual continuity running throughout the garden, showcasing these rare examples of desert flora. Since the “river” is still a work in progress, Wiley is seeking donations of cuttings or specimens of this unique southwest succulent.

Also contributing to the Garden’s aesthetics is what you don’t see: the popup sprinklers that dotted the area. In a continuing process, much of the garden was converted to drip irrigation, which not only eliminated the old popups but also improved the efficiency of the watering system. This style of irrigation dramatically increases the depth into the soil that can be watered without it running off, and prevents any minerals from depositing onto the specimens over time and making them appear dull.

Other subtle changes include the addition of soil in the barrel cactus area (8 yards of Native Plant Mix) that increases the height of the barrel mounds by 12-24 inches in different areas.



*A stream of Creeping Devils (*Stenocereus eruca*) enhance a dry wash - credit M. Paganelli*

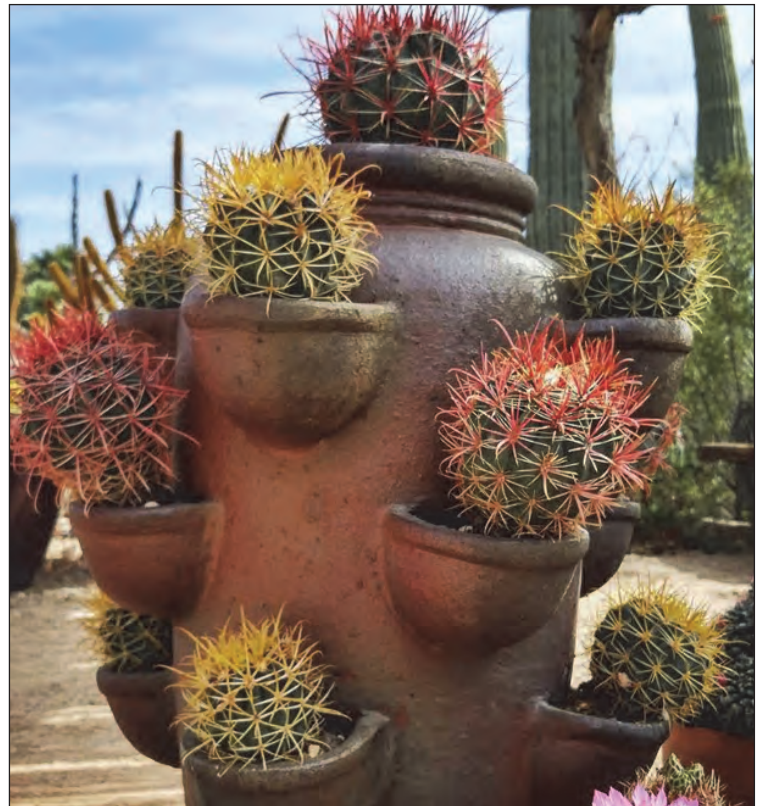
This makes the topography much more interesting and also improves the soil for the growth of the new specimens. Several areas have also been topdressed with new rock and local pecan shells for a finished manicured look. Both of these added materials will also help with any evaporation from the ground and erosion. The pecan shells around non-Tucson native cacti will provide relief from the heat and keep surface light from sunburning the plants.

These exciting developments have resulted in a 320% increase in Garden visitation, with guests spending much more time walking the paths, exploring and learning.

Future plans for the Garden include adding more mass plantings of cacti, contouring the topography, adding architectural elements, and educating guests through additional signage. Wiley’s personal goal is “to inspire people to plant dramatic and sustainable succulent gardens while also adding habitat for both humans and wildlife to live together, with an emphasis on regionally appropriate plants.”

No doubt Mr. Haag would be proud of his namesake garden today as the Desert Museum continues to build upon his vision. The 1965 Cactus Chatter Bulletin predicted “John’s garden will be a source of lasting pleasure and education to generations of visitors.” This year a number of supporters have contributed to making these exciting Garden renovations possible. With ongoing support, the Garden will continue to blossom and grow for the next 50 years.

(For more information, please contact Cree Zischke, Arizona-Sonora Desert Museum Director of Philanthropy, 520-883-3039, czischke@desertmuseum.org)



A strawberry pot with red and yellow barrels is a garden feature. Credit Jason Wiley



Vibrant Flying Saucers (*Trichocereus Hybrid*) lend color to the landscape - credit Jason Wiley



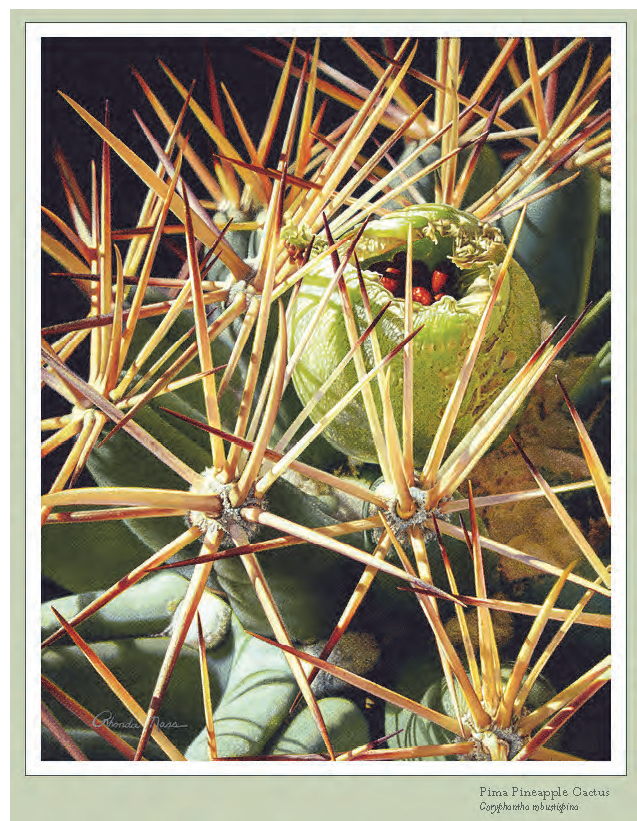
Nichols Golden Hedgehogs Rescued from Silverbell Mine now have a new home - Credit Jason Wiley



Wildflowers are interspersed with endangered *Echinocactus horizonthalonius nicholii* - Credit Jason Wiley



Catching the eye catching CoreTen oxidized metal planters at the entrance to the Garden - credit Jason Wiley



Pima Pineapple Cactus
Cylindropuntia reticulata

The endangered Pima Pineapple Cactus - credit Rhonda Nass

TO ALL TCSS MEMBERS.....We are organizing..... at this time..... a BUILD-A-CACTUS kit building production line. Join us and bring a friend.



TCSS Education Committee



TCSS Education Committee



TCSS Education Committee

Please consider joining your TCSS friends for fun and an active, busy, and productive volunteering for the TCSS Education OUTREACH on Sunday, May 22.

We have supplies/materials, boxes and a plan to prepare 1000 kits that will last us one year. We expect it to take 4 hours to make 1000 kits and box them for use at our outreach events.



We need your help and will appreciate it too! Snacks and drinks will be provided. We even have 3 raffle prizes that you would love to win!

Pick a shift and email Caryl to sign up ASAP!

Shift 1..... 9:00 - 11:30

Shift 4..... 9 - 12

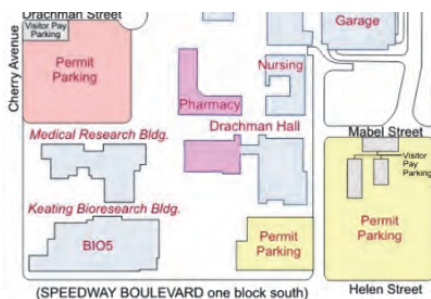
Shift 2..... 10:00 - 12:30

Shift 5.... 10 - 1

Shift 3..... 11- 1:30

Shift 6.... ??????

cryljones13@mac.com or education@tucsoncactus.org



**University of Arizona
College of Pharmacy
1295 N Martin Ave**

**Signs will clearly mark the way to the 3rd floor.
Parking is very convenient.... off Helen St.**



**10 foot tall Cardon (*Pachycereus pringlei*)
donated by Stuart and Wendy Bengson was transplanted
from their property to the University of Arizona campus.**



Donor with Cardon at it's old home on the northwest side.



Old Pueblo Cactus't ransplant crew preparing plant for transport.



Loading plant on to truck



Cardon secured on two wheeled cart.



Moving into place at UA



Setting upright.

Donor with Cardon in its new home near the Tree Ring Lab on UA campus.

TCSS BOARD

Officers

President: Richard Wiedhopf • president@Tucsoncactus.org

Vice President: Vonn Watkins • vp@Tucsoncactus.org

Secretary: Susan Durham

secretary@Tucsoncactus.org

Treasurer: Linda Bartlett

treasurer@Tucsoncactus.org

Board of Directors:

board@Tucsoncactus.org

(terms expire December 31 of year indicated)

Teresa Curtis (2016)

Peter Ertman (2016)

Caryl Jones (2016)

Val Little (2016)

Donna Ellis (2017)

Tanya Quist (2017)

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Bill Salisbury (2017)

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CSSA Affiliate Rep:

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Cactus Rescue: Donna Ellis

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Free Plants: Donna Ellis • plants@Tucsoncactus.org

Floilegium: Margaret Pope • art@Tucsoncactus.org

Librarian: Joie Giunta • librarian@Tucsoncactus.org

Prickly Park: Linda Heisley • park@Tucsoncactus.org

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Technology: technology@Tucsoncactus.org

Research: Doug Rowsell • research@Tucsoncactus.org

Garden Tours: Bill Salisbury • tours@Tucsoncactus.org

Field Trips/tours Rob Romero/Joie Guinta

trips@Tucsoncactus.org

Newsletter Editor: Karen Keller • runbunny@cox.net

Deadline for June newsletter text or photos:

Thursday, May 19, 2016

TCSS Web Page:

www.tucsoncactus.org

Webmaster: Keimpe Bronkhorst • webmaster@Tucsoncactus.org

For additional information call: (520) 256-2447

Everyone is Welcome!

Bring your friends, join in the fun and meet
the cactus and succulent community.



Cacti Rescued - Since 1999
363 Rescues - 26,095 Volunteer Hours

Please see our Website Calendar for the next
rescued cactus sale. They are scheduled at various
times during the year based on our inventory.

TCSS Club Members receive a 10% discount

We need your "Eyes and Ears" to help us find new Cactus
Rescue sites. Please email us as much information as
you can from new project signs or from other sources to
Site@TucsonCactus.org. Attach a photo of the sign if
you can. Note, we do not remove plants from residences.

May 2016

Thursday, May 5, 2016 7:00pm

"Untangling the complex evolutionary history of the
promiscuous prickly pears and other cacti, where did they all
come from?"

Presented by Lucas C. Majure, Biologist of New World
Succulents, Desert Botanical Garden, Phoenix, AZ

Tuesday, May 10, 2016 7:00pm

Board meeting at the U of A College of Pharmacy



*Trichocereus hybrid,
flying saucer*
Photo by
Karen Keller

May Meeting Refreshments

Those with family names beginning with
M- Z, please bring your choice of refreshments to the
meeting. Your generous sharing will
be greatly appreciated and enjoyed!



Desert Breeze

Newsletter of the Tucson Cactus and Succulent Society

June 2016

Thursday, June 2, 2016 at 7:00PM

“Mexico, The Hidden Treasures of Coahuila”

Presented by Wendell S. (Woody) Minnich



Mexico is thought by many to be the richest region in the world for cacti. For all those individuals who travel in search of rare and unusual cacti, their first choice is often Mexico. The Sierra Madre Oriental is considered the center of diversity for Mexican genera, ranging from Ariocarpus to Aztekiums, Echinocereus, Ferocactus, Geohintonia, Gymnocactus, Mammillaria,

Obregonia, Pelecephora, Thelocactus, Turbinicarpus and many, many more. Because of the plethora of plants found in the states of Tamalipas, Nuevo Leon, San Luis Potosi and Hidalgo, most field workers have just decided to ignore the little explored Coahuila.

For most of us, Coahuila and its neighboring state of Chihuahua were often only used as drive-throughs on our way to the succulent rich south. In recent years, many of the serious plant explorers have started finding new back country roads in these two states. These new roads have graciously opened up some of the rarely explored areas to extremely remote regions, and some of these back country roads (trails) are not even found on the maps! Coahuila, as close as it is to the USA, actually has some of the least explored and most remote regions in all of Mexico.

On our trip through Coahuila, we drove for many hours without ever seeing other vehicles or back country people. There were no urban or agricultural developments as these wild places are still virtually untouched! The valleys and mountains of these expanses will surely offer many new species for the field worker willing to do some serious exploring. Near the roads, if you wish to call them roads, I saw only a few dried-up old ghost towns where apparently some tough old Mexicans, probably from the Poncho Villa era, once resided.

From the unknown territories of Coahuila, there have been numerous new cacti and other succulents discovered and rediscovered. The crown jewel of these new plants is the fantastic Mammillaria luethyi. It was lost for over 60 years since its original siting, growing in a rusted tin can on a dusty ranchito porch. All of us exploring Mexico had searched for this very special Mammillaria, until only a few years ago, Luethy found it in northern Coahuila. The Sierra del Carmen, which abuts the Rio Grand and the Big Bend National Park, has also been the origin of other new species. Close to this area, we discovered a

new, very beautiful Echinomastus, or possibly Gymnocactus? Also from this region we found a very handsome red Sedum, as well as Echinocereus longisetus, and the northern most of the Echeverias, Echeveria strictaflora. In a remote dry lake bed, Laguna la Leche, we admired the amazingly cryptic Escobaria abdita. Wow, just some of the treasures of Coahuila!



This trip was also to be an adventure in seeing some of the brand new Agaves, Echeverias, Astrophytum, Echinocereus and Mammillarias. We scored on almost everything we went to see, and never, in the 45 years that I have traveled Mexico, have I seen it so green. This talk will also feature many cacti and other succulents that have never been seen in books or presentations. Come explore Mexico with me!

Woody, as he is commonly called, has been in the cactus hobby for some 45 years and has become well known for his participation in many of the cactus and succulent clubs. He is an honorary life member of nine clubs as well as a life member and Friend of the CSSA (Cactus & Succulent Society of America.) He has served in almost all positions of leadership from president, to newsletter editor, to show chairman and so on. He is also known for his extensive field work studying primarily the cactus family. He has traveled throughout Africa, Argentina, Australia, Bolivia, Brazil, Chile, Madagascar, Mexico, Namibia, New Zealand, Peru, Socotra, the United States and Yemen. From these trips and his nursery experience, he has developed an extensive knowledge of the cactus family as well as many of the other succulent genera.

continued on next page



Woody is also known for his many presentations. His photography is considered to be special and his commentary very entertaining and educational. He is a recognized international speaker and has spoken for plant conventions - organizations all over the USA, as well as in England, Germany, Australia, New Zealand and Mexico. Woody has also authored a number of articles for various newsletters, the CSSA journal and his photographs are well published. Woody is the creator-

originator of the first color version of the CSSA journal "Cacti and Succulents for the Amateur" that also featured show plants, shows and the growers of the pictured plants.

He is also known for his cactus and succulent nursery, Cactus Data Plants. CDP was started in 1975 and is still in operation today. Cactus Data Plants specializes in show specimens and rare cacti and other succulents with particular emphasis in Ariocarpus, Astrophytum, Mammillaria, Gymnocalycium, Turbinicarpus, Melocactus, Copiapoa, Fouquieria, Pachypodium, Euphorbia, Cyphostemma, Adenium and Adenia. Woody and his wife Kathy live in the beautiful mountains south of Santa Fe New Mexico, in a region called Cedar Grove. He has a small 1,200 sq. ft. greenhouse and a few cold frames where he grows his unique plants. He is always on the move and travels frequently to do presentations and shows throughout the western United States. Woody is the proud parent of three children, Leah, Denver and Sarah, all of whom are now grown and out in the big world. Woody is also the proud grandparent of three grandsons, Indiana, Ashton and Logan. He is a retired high school teacher of 32 years where he taught Graphic Arts, Architecture, Art and Health.

For a truly spectacular program presentation, please do not miss this one! Give Woody a great, welcome back to Tucson! Also be sure to enjoy being with lots of friends, enjoy great refreshments, win some beautiful plants and be sure to get a free plant during your departure.



President's Message

"The Field Guide to Arizona Cacti and Other Succulents"

SOLD OUT!

Now is your only opportunity to have your name listed in the 2nd Edition of the Field Guide. This is a great gift idea for family and friends to receive this wonderful book in which their names appear.

You must reply by June 30, 2016 to be included.

The Field Guide to Arizona Cacti and Other Succulents is an important updated treatment of the taxonomy, distribution and status of these Arizona native plants and is the first comprehensive undertaking of the subject in 30 years. That is why the original publication of 2,500 copies has sold out. The team of contributing writers, editors and support staff, all are TCSS members, provided all the documentation, photography and artwork featured in the book. The Field Guide was first released in early 2015 and embodies the TCSS charter ideals of education and conservation.

The 2nd edition will correct technical errors, fix omissions and update information. All donor information from the 1st edition will also appear in the 2nd edition.

Now is an opportunity to help support this outstanding publication with your donation. Consider the expertise and experience of the authors, the quality of the photography and artwork, along with the dedication of the production group when you make your decision.

Donor levels start at \$100. Each donor to the 2nd Edition will receive a copy of the field guide with their name chosen in print.

Opuntia Level	\$100
Mammillaria Level	\$500
Ferocactus Level	\$1,000
Peniocereus Level	2,500
Saguaro Level	\$5,000
Crested Saguaro Level	\$10,000

Access the TCSS Website to donate or send your donation to: TCSS Field Guide, PO BOX 64759, Tucson, AZ 85728-4759. Please include the information below

Name _____ Donation _____

Address _____ City _____ State _____

E-mail address _____ Phone _____

Name to appear in book _____

FROM THE FLORILEGIUM

"Every well-educated person is eager to know something, at least, of the wonderful organic forms which surround him in every sunbeam and every pebble; and books of natural history are finding their way, more and more, into drawing-rooms and school-rooms, and exciting greater thirst for a knowledge which, even twenty years ago, was considered superfluous to all but the professional student." Written in England in 1855 by the English writer and historian Charles Kingsley, the observation could also have applied to the growing interest in nature that would soon take hold in America.

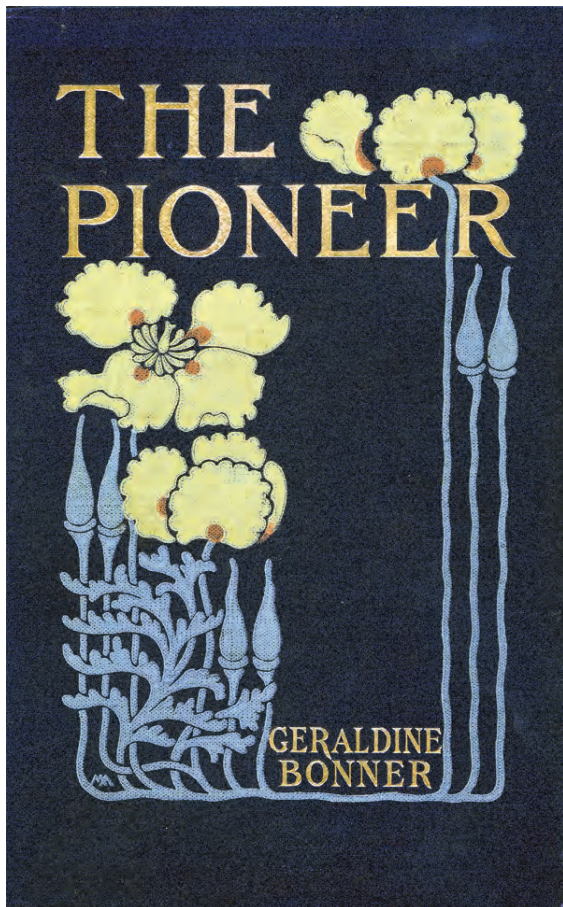
One of the first publications for amateur naturalists in the U.S. was "How to Know the Wildflowers: a guide to the names, haunts, and habits of our common wild flowers". Published in 1893 by Frances Theodora Parsons (under the pen name of Mrs. William Starr Dana), this very successful guide was followed three years later by Parsons's "How to Know the Ferns". The illustrator for these guides was Marion Satterlee whose excellent line drawings fulfill the basic requirement for illustrating a field guide—clear and concise drawings that can be seen easily in a small format and that convey the identifying characteristics of the plant.

The publication of field guides proliferated on the East Coast and soon followed the western expansion of the country as travelers and settlers became interested in the vast botanical wealth that they encountered. Guides to Colorado's wildflowers were the first to be published, then books for California and the Rocky Mountains. What was lacking at the turn of the century was a guide that would serve to identify wildflowers for the entire western region. The first book to do this was published in 1915. "Field Book of Western Wild Flowers" was written and illustrated by Margaret Armstrong (1867-1944) who had no formal training in either botany or art.

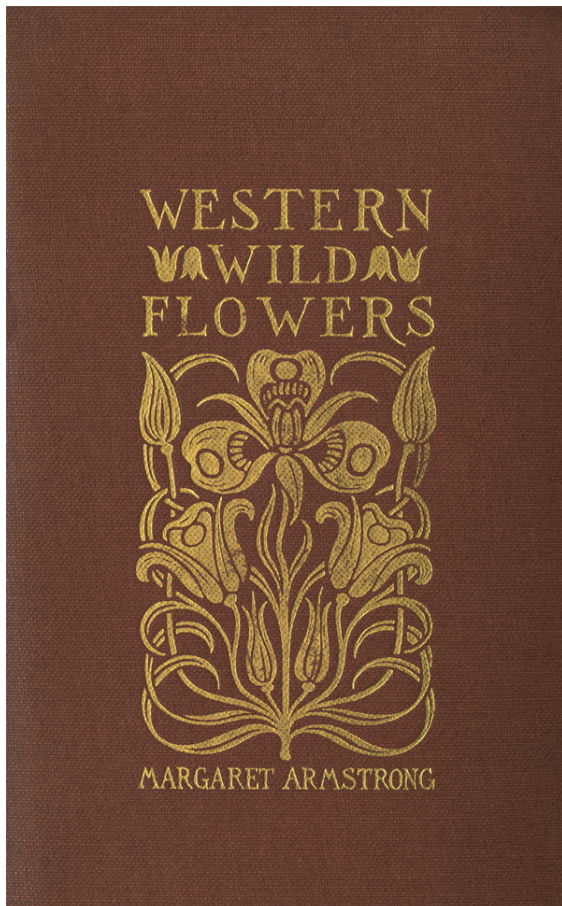
In spite of her lack of formal art studies, Armstrong became one of America's foremost designers of the ornate book covers that were in vogue at the turn of the century. In 1890, Armstrong began designing covers in her distinctive Art Nouveau style with an emphasis on nature motifs. By 1910, the dust-jacket had replaced these beautiful covers, and Armstrong went on to other pursuits. While traveling in the West, Armstrong found the existing regional wildflower guides to be inadequate and decided to write one herself that would encompass the entire West. With Professor John James Thornber of the University of Arizona serving as botanical advisor, Armstrong wrote the text and prepared all of the illustrations in a relatively short amount of time. All of the illustrations were drawn from live specimens—a total of 48 watercolors and 500 line drawings—all produced between 1911 and 1915.

Although the text of the book is sufficiently technical to correctly identify the flowers, it is also full of engaging observations. Take for instance Armstrong's candid description of the jumping cholla: "The distant effect of this plant is a pale, fuzzy mass, attractive in color, giving no hint of its treacherous character—more like a wild beast than a plant." Or of the saguaro: "These tree-like plants are wonderfully dignified and solemn in aspect, with none of the grotesque or ferocious effect so common among their relations." Even in the midst of today's abundance of wildflower guides, Armstrong's work is worth seeking out, for both her unique artwork and perspective.

Shown here are examples of her art that compare her stylized portrayals of wildflowers used for book covers to her paintings of the same flowers included in "Field Book of Western Wild Flowers".



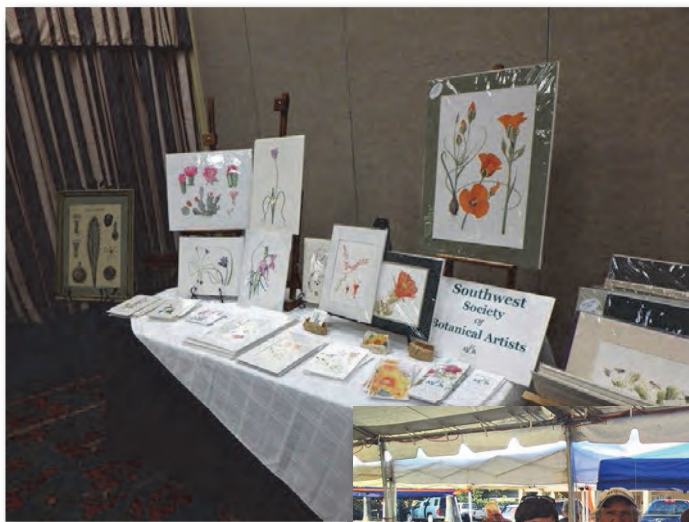
Eschscholzia californica,
California poppy



Calochortus luteus var. *oculus*, Butterfly tulip

Sonoran XI

Photos by John Durham



Sonoran XI

Photos by John Durham





Patsy Frannea
Joe Frannea
Barry McCormick
 Noe Mayotte
 Kris Thompson
 Teresa Curtis
 Bill Holcombe
 Margaret Holcombe
 Sandra Kunzman
 Bill Holcombe Jr
 Lois Boone
 Barbara Lizarraga
 Caryl Jones
 Cindy Krzemien
 Dick Wiedhopf
 Les Rancourt
 Ruth Rancourt
 Joey Barbee

What a great team of VOLUNTEERS
 helping our TCSS Educational
 Outreach Committee assemble
 1000 (yes 1000) Build-a-Cactus Kits.

What a fun production line we made
 to complete the challenge!

The "Extra Mile Award" and big
 thanx goes to Joe, Patsy and Barry
 for painting/cutting/burning/bending
 the wires, sponges, soil squares and
 ropes. Sincerely appreciated!!

Caryl Jones

education@tucsoncactus.org



TCSS Garden Tour is a Success

On April 2 the spring TCSS Garden Tour was very successful with good weather and over 200 members and guests viewing 8 beautiful gardens.

I want to thank the over 40 volunteers that made the tour run smoothly. I also want to thank the hardest working committee ever!!! Due to my health problems, this committee really stepped up.

Some of their responsibilities:

Patsy Frannea: garden write ups

Ed Bartlet and Joey Guinta: Photos

Rim and Marij Tallat/Kelpsa: recruiting volunteers

Robert and Donna Ellis: Map and directions and placement of street signs

I assigned the volunteers to their assignments and organized committee meetings.

I also want to give a special thank you to the 8 garden owners for opening their gardens. (I know you all worked overtime to make them look their best!!) Without them, there would be no garden tour.



PIMA PRICKLY PARK

Did you know that Pima Prickly Park has an “honorary” MASCOT? No, it is not a cactus or a succulent. It is an OWL! There is a remarkable story behind our “Prickly” more to come later!

Owl Contributed by Cathy Robson

Cari Wright

SEE WHAT'S HAPPENING !



Pics of the 4/30 WORK DAY



TCSS becomes an Affiliate member of the Bromeliad Society International.

“On behalf of the BSI Board, I would like to welcome the TCSS as an Affiliate of the Bromeliad Society International.”

Martha Goode, BSI Affiliate Chair

Acknowledgement of Contributions

The names below represent the Tucson Cactus & Succulent Society members and friends whose donations helped make this year a success. We extend our sincere thanks for your support.

Pima Prickly Park

Linda Turner

Jim & Judy Steffen

Honoring Cathy Robson & Linda Heisley
For their service in promoting and maintaining the Park

Conservation Fund

Betty Bengtson

General Fund

Edgar Rawl

On our 4/30 WORK DAY, 24 volunteers showed up ready and willing...including half a dozen U of A Juniors from Maddie Zambrano's MANRRS organization at the U of A. This was AWESOME! MANY THANKS to EACH of you wonderful volunteers! We couldn't have done it without you!

- Our new bench area was rocked and planted. Dozens of prickly pear were put in the West Bank of the path to Saguarohege.
- Approximately 175 plants moved out of the Hoop House !
- More exciting news: A special “Shout Out” to our new volunteer Tom Ganser who jumped in working on the Hummingbird Area drip system, as well as watering the new plantings!

Again, a heartfelt THANK YOU to each and every one of you who have volunteered to make our Pima Prickly Park the best ever!

Linda Heisley

TCSS BOARD

Officers

President: Richard Wiedhopf • president@Tucsoncactus.org

Vice President: Vonn Watkins • vp@Tucsoncactus.org

Secretary: Susan Durham

secretary@Tucsoncactus.org

Treasurer: Linda Bartlett

treasurer@Tucsoncactus.org

Board of Directors:

board@Tucsoncactus.org

(terms expire December 31 of year indicated)

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Donna Ellis (2017)

Tanya Quist (2017)

Noe Mayotte (2017)

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Free Plants: Donna Ellis • plants@Tucsoncactus.org

Floilegium: Margaret Pope • art@Tucsoncactus.org

Librarian: Joie Giunta • librarian@Tucsoncactus.org

Prickly Park: Linda Heisley • park@Tucsoncactus.org

Programs: Vonn Watkins • programs@Tucsoncactus.org

Refreshments: Patsy Frannea • refreshments@Tucsoncactus.org

Technology: technology@Tucsoncactus.org

Research: Doug Rowsell • research@Tucsoncactus.org

Garden Tours: Bill Salisbury • tours@Tucsoncactus.org

Field Trips/tours: Rob Romero/Joie Guinta

trips@Tucsoncactus.org

Newsletter Editor: Karen Keller • runbunny@cox.net

Deadline for June newsletter text or photos:

Thursday, June 23, 2016

TCSS Web Page:

www.tucsoncactus.org

Webmaster: Keimpe Bronkhorst • webmaster@Tucsoncactus.org

For additional information call: (520) 256-2447

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363 Rescues - 26,095 Volunteer Hours

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June 2016

Thursday, June 2, 2016 7:00pm

"Mexico, The Hidden Treasures of Coahuila"

Presented by Wendell S. (Woody) Minnich

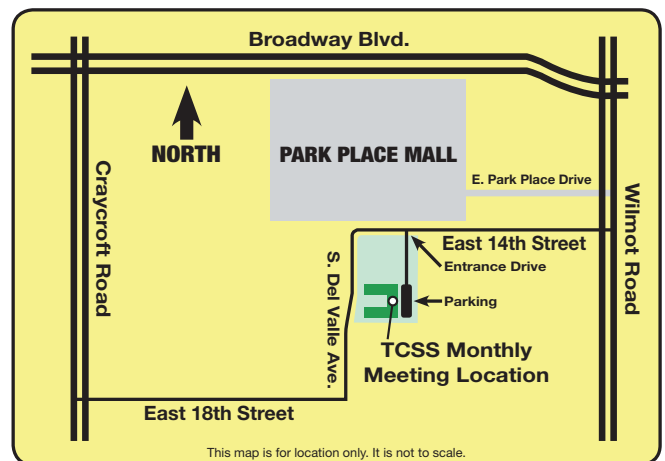
Tuesday, June 14, 2016 7:00pm

Board meeting at the U of A College of Pharmacy

TCSS Program Presentation - July 7, 2016

**"Freaky Flowers: Exploring the crazy beauty and
fascinating history of Echinopsis flowers"**

Presented by Greg Krehel



Sky Islands Public High School • 6000 E. 14th St.

June Meeting Refreshments

Those with family names beginning with
A- G, please bring your choice of refreshments to the
meeting. Your generous sharing will
be greatly appreciated and enjoyed!



Desert Breeze

Newsletter of the Tucson Cactus and Succulent Society

July 2016

Thursday, July 7, 2016 at 7:00PM

“Freaky Flowers: Exploring the crazy beauty and fascinating history of Echinopsis flowers”

Presented by Echinopsis enthusiast Greg Krehel



Greg's presentation will feature:

- A selection of Greg's EchinopsisFreak timelapse videos of flowers blooming and wilting.
- Details on the timelapse creation process.
- A selection of Greg's focus-stacked still images of Echinopsis flowers.
- Details on the focus-stacking process.
- An overview of the interesting history of Echinopsis hybridization.
- Some tips and tricks for acquiring, growing, and getting great blooms from Echinopsis.

Greg Krehel: Upon retiring from software production a few years back, Greg reconnected with his childhood love of cacti and unwittingly stumbled onto the stunning flowers of the Echinopsis genus. The brief lifespan of these flowers led him to take up photography for the first time and resulted in his EchinopsisFreak.com website containing a host of time lapses and still images of these amazing flowers. Greg's work has been featured by National Geographic, the New York Times, Wired, the Singapore Botanic Gardens, and others.

The July program will feature some amazing video presentations featuring some very beautiful cacti that everyone needs to have



in their garden! Be sure to be at this presentation. Other features from this excellent program will include your chance to win some really beautiful plants, enjoy great refreshments, talk with many other cactus and succulent fans and also receive a free plant provided by the TCSS.

continued on next page



President's Message

Hot days, cool nights, big rains, high humidity, what a great time for cacti and some succulents. It sure is difficult at times for us but we adapt and survive. More than 1,060 members of the Tucson Cactus and Succulent Society pursue our passion for plants and the Southern Arizona lifestyle. That sure sounds nice but

we are just crazy nerds who go out and save hundreds of native cacti at the worst times of the year and never complain. We work in our gardens or volunteer at Pima Prickly Park. What a special group of people and I am so grateful to be a part of all that we do.

I hope many of you were able to attend the bloomings of the Queen of the Night (*Peniocereus greggii*) at the Pima County Native Plant Nursery at Pima Prickly Park. Many thanks to Jessie Byrd for making this event possible.

The "Monrad Ferocactus Garden" at Pima Prickly Park is moving forward with the design phase. We hope to have preliminary designs in the next couple of weeks to review and share with all of you. This will be an exciting project that we hope to get planted this fall. A lot more information will be in the August newsletter.

Speaking about August, it's time for our annual Blooming Barrel Sale. We will have more than 200 barrels available, plus

hedgehogs, mammillarias and other cacti and succulents. We always invite our vendors to sell plants as customers wait for admittance to the sale area. Our mailing list for postcard and email list is over 3,000 interested folks. This is always a great sale and we always need volunteers to help with the sales.

I have been asked to extend the time for folks to donate and have their names included in the 2nd Edition of "The Field Guide to Cacti and other Succulents of Arizona." If you want to be included in this new edition please mail in your donation and information by July 31, 2016. We have already received more than 15% of the cost of printing the new edition. Thank you.

For more than 50 years, September is the time for our Good Time Silent Auction. This is multiple silent auctions of plants, pots and related items. More important we have ICE CREAM and all the topping. There is also a "for free" area where you can bring cutting and extra plants, pots etc. We limit access to the free stuff until after the first silent auction has completed so that everyone has an equal opportunity to enter the area. We depend of each member to bring nice plants for the auction. Now is the time to root a cutting and pot an extra special plant for this event. The money raised supports projects designated by the Board.

This is looking to be a great summer.

Thank you for your support.

Dick Wiedhopf, President

TCSS Program Presentation

Thursday, August 4, 2016

Presenting Ad Konings

Coauthor of "Cacti of Texas in their Natural Habitat"

Acknowledgement of Contributions

The names below represent the Tucson Cactus & Succulent Society members and friends whose donations helped make this year a success. We extend our sincere thanks for your support.

Pima Prickly Park
LINNEA GENTRY

2nd Edition "Field Guide"

EDIE CAMPBELL
ALICE CAMPBELL
LINDA & DAVE HEISLEY
WILLIAM THORNTON
RICHARD & PATRICIA WIEDHOPF
DAVID YETMAN
JODY WILSON
CHERYL & BOB HOUSE

FROM THE FLORILEGIUM

While working with the University of Arizona Campus Arboretum to establish the Joseph Wood Krutch Garden Florilegium, we have learned much about Joseph Wood Krutch and have come to understand why the garden was dedicated to him. Krutch had traveled to the Southwest a number of times as a tourist and felt a kinship with the Sonoran Desert. During his travels he found himself in some “mood” and wanted to explore the charm exerted by this country of cactus and mesquite and creosote bush. In 1951, he decided to spend a 15-month sabbatical in Tucson to immerse himself in the land and its plants and animals which would enable him to truly see and learn about the Desert Southwest. In his book, *THE DESERT YEAR*, first published in 1952, he tells us what he came to know and feel about the Sonoran Desert.

In order to truly see the desert life around him, he found he needed to continually observe and be aware of the land and its plants and animals. Although he found this continuous observation and awareness a challenge, he believed it was the only way of truly living with the land. Krutch realized this land did not have universal appeal. It was not easy and luxurious. To some it was merely stricken. He believed that all life in the desert finds the dryness to be normal. For plant life, this dryness creates a natural spacing where plants are not crowded together, enabling one to easily walk about the land. He discusses the

way all living things adapted and learned to endure the austerity of the desert combining oddness of form with ways to flourish under what seemed to be impossible conditions. Referring to these adaptations as the wisdom of the desert he believed, we could learn from this wisdom by living with what the desert had to offer.

THE DESERT YEAR was awarded the John Burroughs Medal for Natural History. It is a remarkable book about our desert written by a man who understood long before the environmental movement began the importance of humans learning to live with their environment.

I highly recommend that everyone read more about *THE DESERT YEAR* and Joseph Wood Krutch in the following two articles, “**A Florilegium of the Historic Joseph Wood Krutch Garden at the University of Arizona**” by Tanya Quist and Linnea Gentry and “**Student of an Arid Land: Joseph Wood Krutch and the Sonoran Desert**” by Linnea Gentry at the following link <http://www.tucsoncactus.org/html/publications.html#Florilegium>. Both articles, additional photographs, and information about the Joseph Wood Krutch Garden Florilegium can be accessed from the Florilegium's home page <http://www.art-botanical.org>.
– Margaret Pope



Amphi Rescue

Photos by John Durham





PIMA PRICKLY PARK

DID YOU KNOW?

* "Prickly", a Great Horned Owl, is Pima Prickly Park's "honorary" Mascot. The story behind our Mascot is a remarkable one. He was found in the park impaled on a fishhook barrel cactus with hooks going through

his chest, wings, and feet ! A couple who had been walking their dog in the park spied him and quickly got the attention of Cathy Robson, a TCSS volunteer in the park. Through the efforts of all three, he was freed and taken to a local wildlife rehabilitation facility. After being in rehab for several weeks, he was released into the wild where we hope he is flying free!

- You can "Adopt a Patch" of Pima Prickly Park! Curious? Contact Linda Heisley who is our Volunteer Coordinator to find out more: lindaheisley@msn.com
- Jessie Byrd organized a Pima Prickly Park "bloom weekend" (6/17, 18, 19) and presented over 100 blooms which were primarily at the Nursery. She has an amazing collection! Several visitors had never been to the park and after their visit wanted to volunteer ! Please share the email for the park with anyone wanting more information: park@TucsonCactus.org

WHAT'S HAPPENING?

- We are excited about our new bench area.
- Amazing blooms are popping up all over the park.
- Pollinators are taking advantage of our desert flowers.
- Watering...watering....watering!!!! A million thanks to our AMAZING volunteers who are watering at the park in this brutal heat!!!
- A very special SHOUT OUT to Louise who did the watering for 2 weeks while Cathy and Linda were out of town !!

SPECIAL RECOGNITION!

Our own Cathy Robson received the top Horticulture Educational Award for the Tucson Garden Club's Standard Flower Show April 2-3 and for the The Desert Garden Club's Flower Show on April 5th. Her entry for each was in the category of an Educational Exhibit which she did on Pima Prickly Park. The purpose of this exhibit was to "instruct and inform the public on goals and objectives in aiding the protection and conservation of natural resources, promote civic beauty, and/or encourage improvements on roadsides and parks." Congratulations, Cathy !!!

Caryl Jones and her great "crew" presented a phenomenal educational experience at Pima Prickly Park facilities for the 2016 STEMAzing Project for teachers. The participants were able to tour the park in the early morning and had the experience of seeing a rattlesnake! The three day Workshop was held in Tucson on 6/14,15,16. Congratulations Caryl for your vision and leadership!!!

SUGGESTED SUMMER "READS"

Many of us who have yet to escape to cooler environments this summer are staying inside with a good book. Some suggested "reads" are: "Last Child in the Woods...Saving

Our Children from Nature-Deficit Disorder" by Richard Louv... recipient of the Audubon medal. Great ideas/reasons for engaging children of all ages(including ourselves) in activities involving nature and the great outdoors. (I especially like the making of a "sock garden"!!) "Cooking the Wild Southwest"... Delicious Recipes for Desert Plants" by Tucson resident Carolyn Niethammer. Yes...it IS a cookbook...with wonderful COOL recipes for HOT summer days in the Old Pueblo! (Note: Prickly Pear syrup can be purchased at Native Seeds/SEARCH on Campbell.)

JUST A REMINDER:

As always...PLEASE be careful in the HEAT...too many tragedies happen when we are not prepared with enough hydration! ...as with our park, water...water...water!!!!



TCSS BOARD

Officers

President: Richard Wiedhopf • president@Tucsoncactus.org

Vice President: Vonn Watkins • vp@Tucsoncactus.org

Secretary: Susan Durham

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Garden Tours: Bill Salisbury • tours@Tucsoncactus.org

Field Trips/tours Rob Romero/Joie Guinta

trips@Tucsoncactus.org

Newsletter Editor: Karen Keller • runbunny@cox.net

Deadline for June newsletter text or photos:

Wednesday, July 20, 2016

TCSS Web Page:

www.tucsoncactus.org

Webmaster: Keimpe Bronkhorst • webmaster@Tucsoncactus.org

For additional information call: (520) 256-2447

Everyone is Welcome!

Bring your friends, join in the fun and meet
the cactus and succulent community.



Cacti Rescued - Since 1999
363 Rescues - 26,095 Volunteer Hours

Please see our Website Calendar for the next rescued cactus sale. They are scheduled at various times during the year based on our inventory.

TCSS Club Members receive a 10% discount

We need your "Eyes and Ears" to help us find new Cactus Rescue sites. Please email us as much information as you can from new project signs or from other sources to **Site@TucsonCactus.org**. Attach a photo of the sign if you can. Note, we do not remove plants from residences.

July 2016

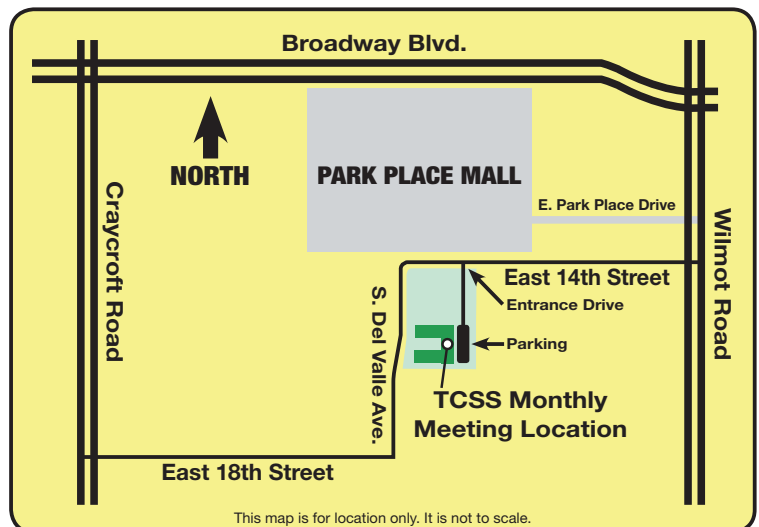
Thursday, July 7, 2016 7:00pm

"Freaky Flowers: Exploring the crazy beauty and fascinating history of Echinopsis flowers"

Presented by Greg Krehel

Tuesday, July 12, 2016 7:00pm

Board meeting at the U of A College of Pharmacy



Sky Islands Public High School • 6000 E. 14th St.

July Meeting Refreshments

Those with family names beginning with
H- M, please bring your choice of refreshments to the
meeting. Your generous sharing will
be greatly appreciated and enjoyed!



Desert Breeze

Newsletter of the Tucson Cactus and Succulent Society

August 2016

Thursday, August 4, 2016 at 7:00PM

“Cacti of Texas”

Presented by Ad Konings



The cacti of Texas can be divided into three major geographical sections and the one with the most diversity occurs in the so-called Trans-Pecos area (West Texas). The other sections are the subtropical South Texas, and the wetter Central and East Texas. Inside the Trans-Pecos we find Marathon Basin in which several endemic species are found, but most Trans-Pecos cacti also occur in northern Mexico and some also in New Mexico. I will discuss in more detail the group of species affiliated with the Texas Rainbow (Echinocereus dasyacanthus), with the Green-flowered Hedgehog (E. viridiflorus), with the Claret-cup Cactus (E. coccineus), and with Sneed's Cory (Escobaria sneedii). The latter group is mostly restricted to higher elevations and it appears that some mountain ranges in the area have evolved their own (sub)species. Three of the cactus species that are endemic to the Marathon Basin are miniature plants that are difficult to spot in habitat outside of the blooming season, but when flowering appear to be much more common in their particular distribution area.

(Unassuming and often armed with spines a small cactus often goes unnoticed in its natural habitat. This, however, radically changes after rains provide the juice of life; flowers, sometimes larger than the plant itself, materialize in a matter of days and seize the moment to propagate in their normally hot and dry environment. Rarely a cactus flower is open for longer than seven hours, usually during the hottest time of the day, after which it wilts before the night falls. Because most cacti in any given area are synchronized by the irregular rain showers,

most bloom on exactly the same day—an arresting spectacle. For most visitors to the desert such a mass blooming is a once-in-a-lifetime event, not easily forgotten, which adds to the excitement of being in a desert.)

Cacti have fascinated Ad Konings since he and his wife Gertrud moved to El Paso, Texas, in 1996. A few years later it became more than a fascination and both have traveled extensively throughout the state in order to locate and photograph each and every cactus species in its natural setting. With over 16 years of cactus hunting (shooting with a camera exclusively!) under his belt, he is one of the very few people who have seen and photographed each of the 132 Texas species in the wild. Ad is a biologist by profession (University of Amsterdam, Netherlands) and specializes in underwater observation and photography of cichlids (tropical freshwater fish) and has authored more than 20 books relating to these fishes. He is currently treasurer of the El Paso Cactus and Rock Club and also editor of their quarterly newsletter.

Please make August 4th an attendance mission for you and your family. This will be an excellent program that everyone should see. Be sure to make this a priority, participate in getting an excellent raffle plant and also select a FREE plant per person when leaving.



President's Message

Four major events are being planned for the rest of the year. The Board has approved the following dates, so mark your calendars.

Sunday, August 14, 2016- Blooming Barrel Sale- Amphi Land Lab

Sunday, September 11, 2016- Good Time Silent Auction- Sky Island School

Saturday, October 15, 2016 –Novice workshop-Sky Island School

Sunday, December 4, 2016-Holiday Party-Sky Island School

Sunday August, 14, will be our annual Blooming Barrel Sale. We counted 255 Barrels *Ferocactus wislizeni*, 100 Hedgehog *echinocereus fasciculatus* and too many *Mammillaria grahamii* to count. The mamms will be packaged at 15 heads in a box for one price. It could be 15 plants or several multi-headed plants but you will be able to pick the box of your choice. This will be the best selection of larger barrels in a very long time. The sale will start at 8:00am and end at 10:00am. We want to find homes for all these plants, so bring a friend or neighbor. You don't have to be a member to buy plants at the sale. We will be sending out a postcard and emails in early August. Remember, come early and get a number to enter as we allow about 15 buyers at a time so that everyone is safe and we can help all the buyers. We will invite member vendors to set up and sell their plants from about 7:30 on. So while you are waiting for your turn to enter the sale you can find some really interesting plants to purchase from our vendors.

Donna Ellis (Rescue Coordinator) and Robert Ellis have done a great job in getting this whole process from rescue to sale organized. They have been assisted by our great rescue crew

volunteers and a special thanks goes to Joe Bannon, Tom Ganser, Linda Heisley and Cathy Robson for all their extra help in making this possible.

We will need lots of sales help as usual so I hope to see you there.

The September Good Time Silent Auction has been a tradition for more than 50 years. It's time to get plants ready for this event. The more unusual the better. Plants, pottery, and botanical art are all welcome donations to the auction. If you have an item that is of high value, you can put a starting bid of \$20.00 or more and request that you receive the starting bid. If the item sells for more than the starting bid, you get the starting bid and the society gets the balance. This will encourage some rare and valuable items being available. It is also a great opportunity to give away all those extra plants, pots and other garden accessories that have been hanging around the yard in our FOR FREE area. The profits from the auctions will support one of our special projects just as 25% of rescue cactus sales support the school education programs. All the information about the silent auction will be on our website and in the next newsletter.

You are more than welcome to bring friends and neighbors to either of these events.

This is a good year for Fig beetles (*Cotinis mutabilis*), those inch long metallic green bugs that love cacti fruit. Our member Gene Murphy was astonished to see them covering and eating his prickly pear fruit. If you have some photo's of the beetle, we would love to print them in the next newsletter.

Thank you for your support.

Dick Wiedhopf, President

Acknowledgement of Contributions

The names below represent the Tucson Cactus & Succulent Society members and friends whose donations helped make this year a success. We extend our sincere thanks for your support.

General Fund
KEVIN MICHELS

2nd Edition "Field Guide"

LINDA WAUGH

DIANNE MAKI-SETHI & RAVI SETHI

KEIMPE BRONKHORST & REBECCA BUSHNER

TCSS Program Presentation

Thursday, September 1, 2016

Presenting Jim Weedin

Coauthor of "Cacti of the Trans-Pecos & Adjacent Areas"

Barrel in Bloom, Arivaca

Photo by Karen Keller



FROM THE FLORILEGIUM

Perhaps the most unusual of the early illustrations of Sonoran Desert plants are those by John Mix Stanley, particularly his “*Cereus giganteus*”. Stanley made these drawings while traveling with the U.S. Army’s expedition from Kansas to California in 1846 at the beginning of the Mexican-American War. An account of that excursion, written by Lt. Col. William H. Emory and illustrated by Stanley, was published in 1848 as “Notes of a Military Reconnoissance [sic]”, a widely-distributed government report that helped fuel the public’s enthusiasm for western expansion.

Emory’s report includes 26 of Stanley’s drawings of landscapes, natural history specimens, and Native American portraits. While he was an experienced and accomplished portraitist, his skill at botanical painting was not of the same caliber. These images are indeed striking, but so are their inaccuracies. Given that Stanley was such a skilled artist, why were the botanical subjects in “Reconnoissance” rendered so poorly?

The obvious reason is that these drawings were made during a military expedition, not a scientific one. The trip from Santa Fe to San Diego was completed in roughly five months, so time for field sketching was necessarily limited. Add to that the fact that the desert plants encountered along the route were completely unfamiliar, and recording them with total accuracy would have required more time than was available. Finally, there may have been complicating factors with reproduction of the drawings for publication.

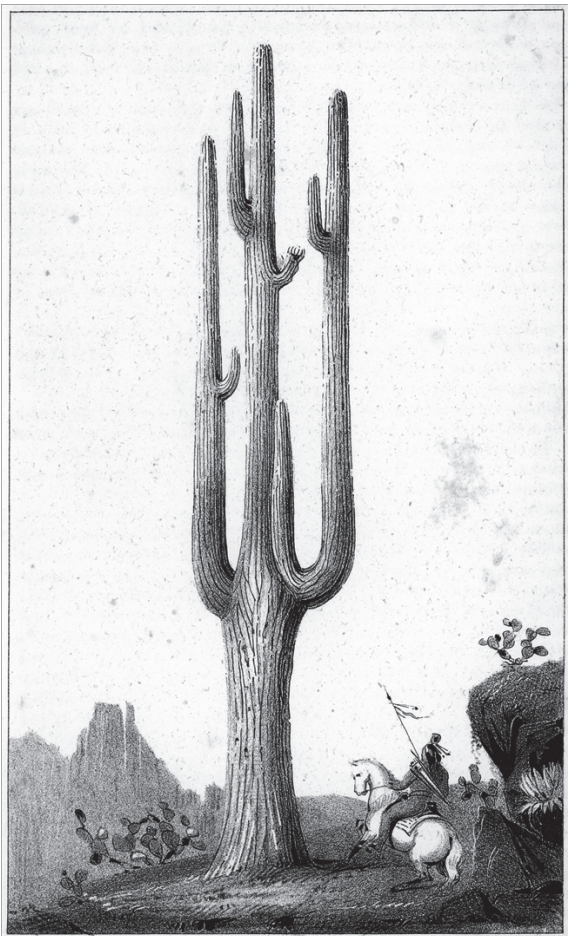
After the military expedition reached San Diego in January of 1847, Stanley spent several months refining his field sketches, and later that year he delivered a number of completed oil paintings to Emory for use in his report. The lithographer for the

final expedition report would have had only these oil paintings (each roughly 9”x12”) to work from to prepare the black-and-white drawings for the printing plates. This could explain the lack of accurate botanical detail in the finished lithographs, as trying to derive sufficient information from such small paintings in order to produce detailed line drawings would involve a great deal of guesswork. Stanley’s field sketches may have contained greater and more accurate botanical detail, but as they have not survived, it’s impossible to know.

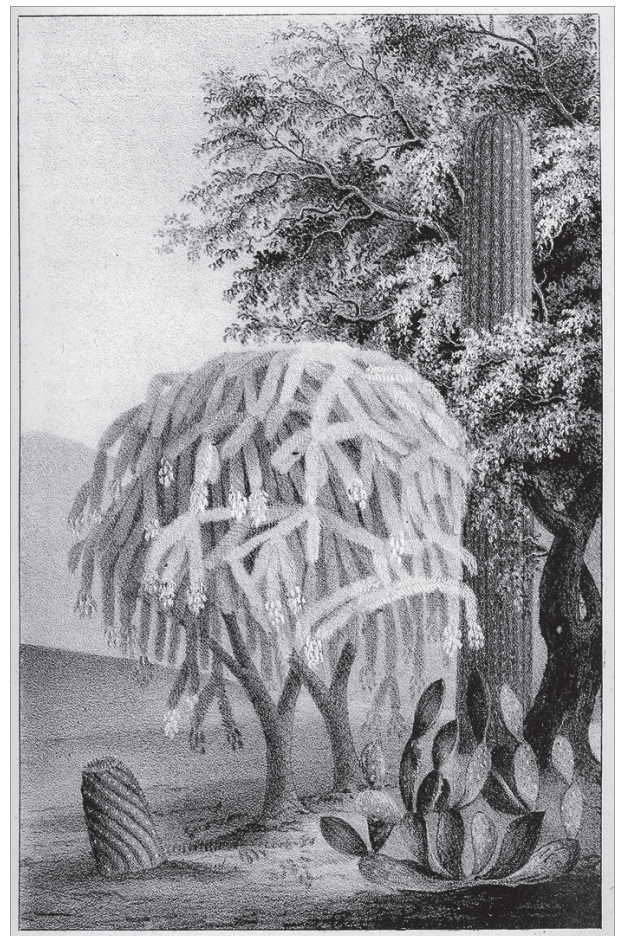
Stanley later combined three of his “Reconnoissance” drawings to produce a larger oil painting (roughly 30”x42”), and it seems likely that he would have used his field sketches to prepare this later work. “*Cereus giganteus*”, “Chain of Natural Spires on the Gila”, and “Vegetation [sic] on the Gila” provide the bulk of subject matter for Stanley’s 1855 oil painting, “Chain of Spires along the Gila”. Many of the inaccuracies from the lithographs carry over into the later composite work, and that may indicate that the original field sketches were never particularly accurate.

This later work, shown here along with the three earlier lithographs, not only distorts the botanical subjects but also depicts the desert as a sort of verdant paradise (hardly the description found in Emory’s report). While the painting is not a true representation of the area, it was very successful with Stanley’s audiences and created a promise of the lush beauty to be found in the western deserts.

You can see enlargements of the details of Stanley’s works along with biographical information on the artist and additional information about Emory’s expedition on the Florilegium Program’s web site (http://art-botanical.org/historical_surveys.html). —CLH



*Cereus
giganteus*

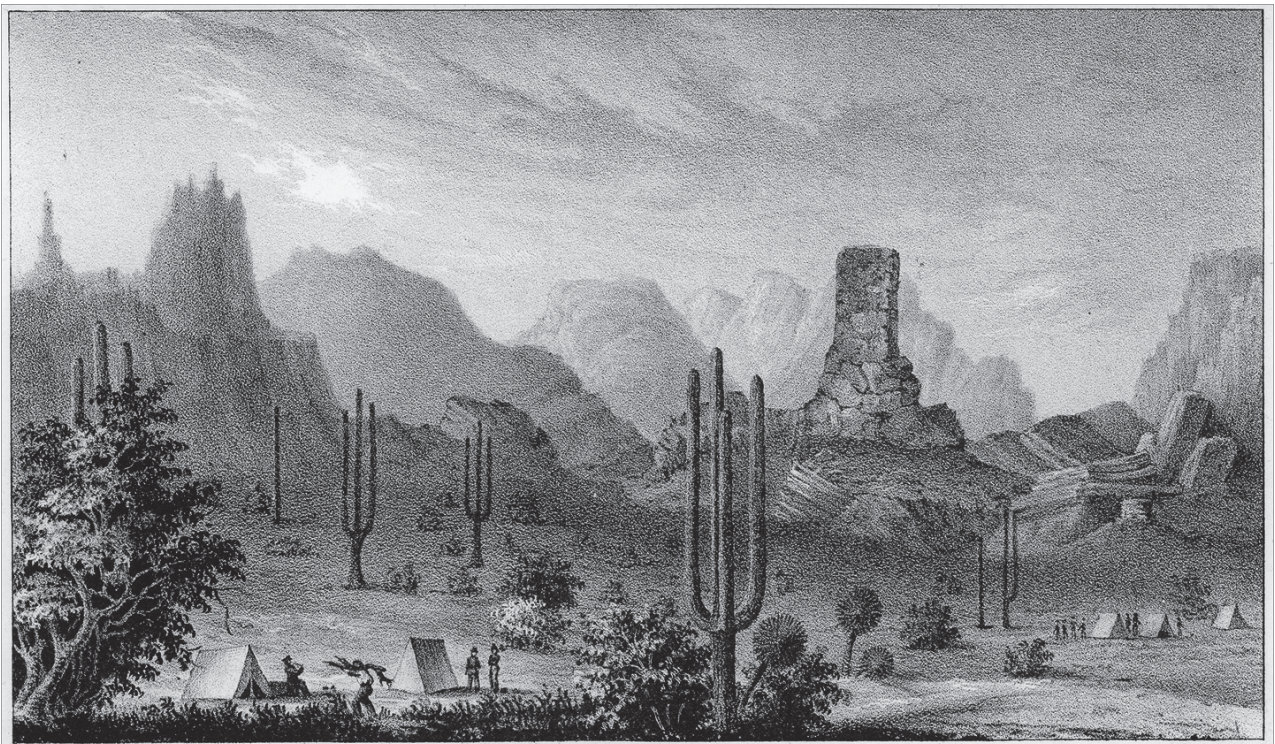


*Vegetation
on the Gila*

FROM THE FLORILEGIUM



Chain of Natural Spires on the Gila



Chain of Natural Spires on the Gila



Are you a **LIFELONG LEARNER**? Do you love cacti? Are you available **October 15th** for a half day of **NOVICE/BEGINNERS** hands-on learning and activities all related to our **Sonoran Desert Cacti and Succulents**.

We have experts planning great sessions on the botany (life cycle, pollination, photosynthesis, parts/function), care (watering, nutrition, potting and planting, design) in our hot/cold or dry/wet desert. Seating will be limited, experts will be top notch, and you will be pleased and surprised at all the ideas and information..... **JUST FOR YOU!**

education@tucsoncactus.org

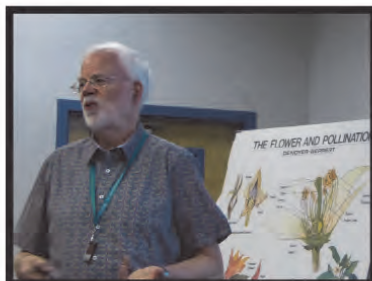
thank you!



THANK YOU.....TCSS for funding this STEMAZing workshop for teacher. This includes a donation to fund the AZ Field Guide for every teacher... thank you again all our authors and editors.

THANK YOU.....TCSS Members for presenting informative, hands-on, interactive science based sessions at the STEMAZing workshop for teachers. Jessie Byrd, Margaret Pope, Kris Thompson, Cari Wright, Bill Peachey, Ted Fleming

THANK YOU... Pima County Natural Resources, Parks and Recreation for your time, facilities and **EXPERTISE**... Julie Strom and Steve Russell and for sure, **THANK YOU** to all the other presenters we provided the teachers a 5 star workshop!





PIMA PRICKLY PARK

DID YOU KNOW?

100 Years ! On August 25, 2016, the U.S. National Park Service will celebrate a century of stewardship of America's national parks.

September 22, 2012 was the grand opening of our own Pima Prickly Park. In the next issues of the Desert Breeze, we will explore the park's development through a series of photos taken by Ed Bartlett. The Then and Now series will highlight the various areas of the Hoop House, Saguarohege, Butterfly Garden, Cholla Maze, Agave Garden, and the Bee Tree. You will be amazed!

Note: As the new "cub reporter" for PPP's news and "happenings", I am excited about writing this monthly article and reporting to you the activities and events taking place in the park. Linda Heisley and Cathy Robson are the amazing "boots on the ground" there for my information!

Cari Wright

WHAT'S HAPPENING?

- On July 14th, Linda, Cathy, Tom, and Louise tagged rescue plants destined for the Amphi site. They tagged 30 barrels, 40 hedgehogs, and flats of mams. The plants were then transferred to the site in preparation for the August Blooming Barrel Sale.
- Watering continues at the Hoop House, surrounding areas, and the hill area for the new bench.
- Tom has finished mapping the drip lines in the hummingbird garden.
- Blooms are amazing in the park!



SUGGESTED SUMMER READS

Award winning biologist, author, and educator, Sean B. Carroll's "The Serengeti Rules" presents some important revelations about our natural world. It is (in my opinion) a good book to read for anyone interested in the future of our planet.

"Vitamin N...500 Ways to Enrich the Health & Happiness of Your Family & Community" is Richard Louv's most recent book addressing "Nature-Deficit Disorder". It is packed with more suggestions and activities that both educate and entertain.

"Selections of SUCCULENCE"...from the Tucson Cactus and Succulent Society. This is TCSS' very own cookbook! Fantastic recipes and amazing photos! If you are fortunate enough to have a copy, the Chile Rellenos Souffle (page 31), submitted by Diane Szollosi, is outstanding!

TCSS BOARD

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Research: Doug Rowsell • research@Tucsoncactus.org

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trips@Tucsoncactus.org

Newsletter Editor: Karen Keller • runbunny@cox.net

Deadline for September newsletter text or photos:

Wednesday, August 24, 2016

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Webmaster: Keimpe Bronkhorst • webmaster@Tucsoncactus.org

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August 2016

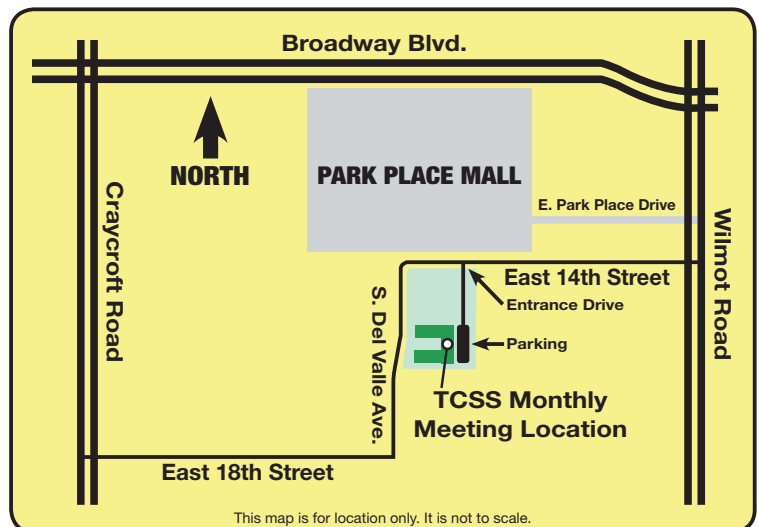
Thursday, August 4, 2016 7:00pm

"Cacti of Texas"

Presented by Ad Konings

Tuesday, August 9, 2016 7:00pm

Board meeting at the U of A College of Pharmacy



Sky Islands Public High School • 6000 E. 14th St.

August Meeting Refreshments

Those with family names beginning with
N- S, please bring your choice of refreshments to the
meeting. Your generous sharing will
be greatly appreciated and enjoyed!



Desert Breeze

Newsletter of the Tucson Cactus and Succulent Society

September 2016

Thursday, September 1, 2016 at 7:00PM

“NOVEL CACTI IN THE NORTHERN CHIHUAHUAN DESERT OF TEXAS”

Presented by Jim Weedin



The Cactus Family in Trans-Pecos Texas is a dynamic flora of ca. 120 taxa, including 77 species in 21 genera.

This mountain and basin region in the Chihuahuan Desert covers 32,000 square miles of desert, grassland and mountainous areas up to 8,749 feet in elevation. Geology and climate create variable edaphic factors enhancing distribution and speciation. The biosphere reserve anchored by Big Bend National Park and Big Bend Ranch State Park are now adjacent to large preserves in Mexico. Conservation and horticulture are receiving increased attention especially at the Chihuahuan Desert Visitor's Center outside of Fort Davis, Texas.

Jim Weedin is a biogeographer specializing in the Cactus Family of the Rocky Mountains, especially far-west Texas. He has a B.A. in Geography from the University of Texas at Austin and an M.S. in Biology from Sul Ross State University in Alpine, Texas. He co-authored two books on Trans-Pecos Texas cacti as well as publications on chromosome numbers as an aide to taxonomy. He recently retired from 33 years of teaching at the Community College of Aurora, Colorado. He is a member of the CSSA and TACSS. Jim also scientifically collects fossil plants and is gathering historical information on his great uncle Tom Weedin (Florence, Arizona), who helped shepherd Arizona from Territory to Statehood.

Be sure to attend this special September program. There will be lots of great refreshments, conversation and excellent raffle plants. Also get your TCSS free plant offering as you depart for the evening.



September Meeting Refreshments

Special announcement – we will be providing Sliced Smoked Brisket at this meeting. Perhaps a dish to coordinate with the Brisket would enhance the event

Those with family names beginning with N- S, please bring your choice of refreshments to the meeting. Your generous sharing will be greatly appreciated and enjoyed!

Thanks so much! Kris Thompson



President's Message

News Flash: Our membership today is 1,105. WOW!

Fall is just around the corner! That means it's plant sale time again in the Sonoran Desert. Many of the botanical gardens and organizations will be having their sales in the next month or so. Check them out and

participate, it's the thing to do.

On September 11, we have our Good Times Silent Auction at our Sky Island School site. Set-up starts at 1:00pm and the event starts at 3:00pm. This is the event at which you can get rid of all those extra plants so you can make room for the new one you acquire at the auction and at all the other plant sales you attend.

There are 4 major activities going on. A plant sale with all donated plants marked at \$2.00, \$5.00 and \$10.00. There is a free area for plants and garden related items that starts

right after the end of the first silent auction so that everyone in attendance has an equal chance to get free stuff. There will be several silent auctions, one after another, depending on how many plants you donate to the auction. Finally, and most important ICE CREAM and All THE TOPPINGS. It just doesn't get better than this.

More information will be available at the September meeting, on our website (Tucsoncactus.org) and in this newsletter. I hope to see you there.

Our Blooming Barrel Sale on August 14 was a great success and I want to thank all the volunteers and attendees. Our rescue crew has been really active in August so we have a lot of plants available. There could be another sale in early October.

Don't forget to sign-up for the Novice Workshop in October. The class size is limited so don't procrastinate and be left out.

Thanks for all your support.

Dick Wiedhopf, President

Paramount hybrid Echinopsis, "Scarlet O'Hara"

This is a plant with a history. It's an original Paramount Hybrids purchased at Johnson's Cactus Nursery in the mid 50s. It's been outdoors in Tucson ever since. Survived temps of 17 (with cover) to 117 F and our historic flood of 1983. It may not have the most spectacular flowers but is, by far, the most prolific bloomer in my collection.

When the plant started showing signs of rot I performed surgery to save what I could. Fortunately the operation was

successful. Although considerably smaller, the original plant is growing and a number of rooted pups will be offered at our upcoming silent auction. Come out and take home a piece of history.

Harry Johnson and his nursery are long gone but his legacy lives on.

Bill Thornton

Good Time Silent Auction

Sunday, September 11, 2016

Sky Islands Public High School, 6000 E 14th Street

3:00pm to 5pm

Say good bye to summer and hello to the wonderful fall planting time. This event has been a Tucson Cactus Succulent Society tradition for more than 50 years.

This is a celebration: Silent auctions, Free Plants, \$2, \$5, \$10 sale tables and Ice Cream with all the toppings. Bring your excess plants, pots etc for the free plant tables. All we ask is that your plants are free of disease and insects. Better plants will go on the \$2.00, \$5.00 and \$10.00 tables and special plants for the silent auctions, your choice.

Bid sheets and price stickers will be available at the September meeting, at the event and on our website for your convenience. The Board has adopted the same policy as we had at Sonoran XI with a high value special silent auction plants. These items will have an opening minimum bid of \$20.00 or more set by the donor. If the item sells for at least the opening bid the donor receives the opening bid price and any amount above that goes to the society. There are always special and or rare plant that will peak you interest.

In the past, we have had at least 3 separate silent auctions during the afternoon. Pots, plants, special cuttings, books, tools etc. are welcome donations for these silent auctions. Free Plants will be available starting a 3:30pm in order to give everyone an opportunity to take some home. We will start the set-up at 1:00pm and the party will start at 3:00pm with the first silent auction ending at about 3:15pm and then about every 25 minutes there after. All you have to do is sign-in, get a bid number and then keep bidding until you hear "PENCILS DOWN".

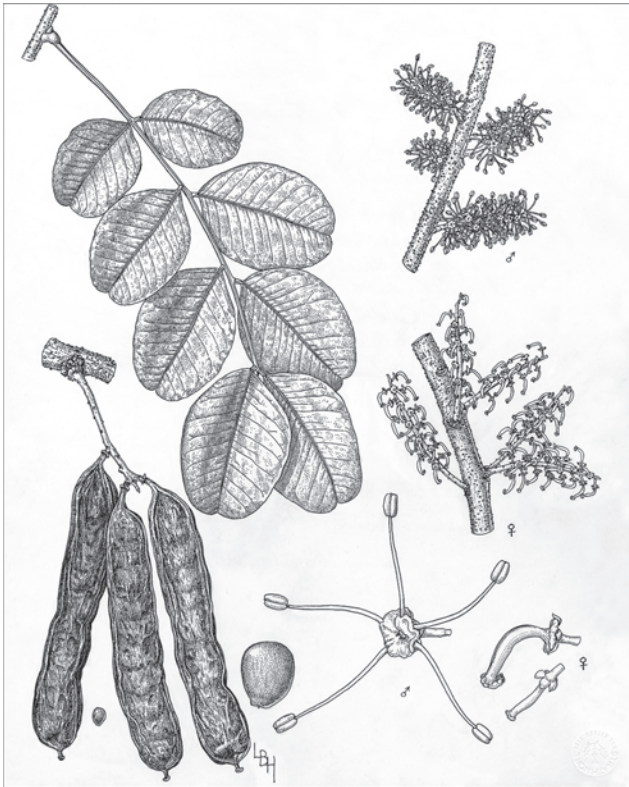
We need volunteers for set-up, sales, and clean-up. Come help and have fun, ask questions, talk with friends, etc., etc., Please feel free to bring your family and friends to this event. You don't have to be a member or bring plants or buy them, just come and enjoy the event. Everyone is welcome. More information will be available at www.tucsoncactus.org or call (520) 256-2447.

FROM THE FLORILEGIUM

The botanical illustrations collection at the University of Arizona Herbarium contains several unpublished drawings by artist Lucretia Hamilton. A number of these works were prepared for an allergenic plants publication that Hamilton was working on with Dr. Ervin Schmutz, Professor of Range Management at the University of Arizona and Hamilton's co-author of *Plants that Poison*. These drawings, produced near the end of Hamilton's

career, show the masterful control that she had achieved with the pen and ink medium. Compositionally, the works are superb. The book was never completed, and Hamilton's illustrations have not been widely viewed.

Shown here are drawings of the carob and pecan trees, both heavy pollen producers.



Ceratonia siliqua, Carob tree
© 1978 Lucretia Breazeale Hamilton



Carya illinoensis, Pecan
© 1978 Lucretia Breazeale Hamilton

Nature's Wondrous Diversity - Mammillaria grahamii

By Doug Dawson

On July 17, 2014, while I was participating in a cactus rescue sponsored by the Tucson Cactus and Succulent Society, I was in the process of salvaging some of our Arizona native: *Mammillaria grahamii*. I stumbled upon a rarity I had never seen in all my years of putting down footsteps in the wilds of our state. Until that moment, all of the *Mammillaria grahamii*'s I had seen had those beautiful pink flowers. On this rescue day, I found one in bloom with a perfectly white bloom. I found a second one with nearly white blooms but with a pale central pinkish stripe on the bloom. This really excited me, since it may be a variant which is extremely rare. On these cactus rescues, you dig plants for the rescue and are also allowed to buy a few for your own collection. I purchased the state collection tags for these two Mam's and now have them at home. I will cross them to hopefully produce more of the white-bloom variety and eventually make them available to our members.

News flash: On July 24, 2016, the 2 plants finally bloomed on the same day! I carefully cross-pollinated them and am crossing my fingers that in a few weeks those cute little red seed peppers will emerge. Then off to planting a few red cups of the mature seed and wait and wait and wait for about 3 years to see what happens. Wish me luck.



2016 Blooming Barrel Sale

Photos by John Durham





PIMA PRICKLY PARK

DID YOU KNOW?

Our Pima Prickly Park was once a gravel pit! The 9.4 acre lot has been jointly developed by Pima County Natural Resources, Parks and Recreation, and TCSS. The park was officially opened in 2012. Envisioned as a

place to commune with nature, volunteers have dedicated their time and energies to turn a gravel pit into an ever developing desert oasis.

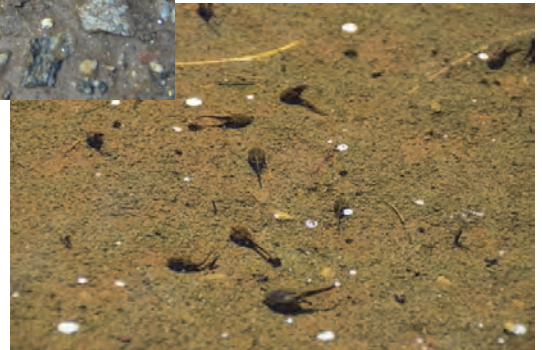


We will take a visual tour of the development of the various spaces within the park courtesy of photos by Ed Bartlett. Let's begin this issue with the Hoop House. NOTE: The Hoop House is an eco-friendly "orphanage" for cactus and succulents that TCSS has rescued from construction sites or has received through contributions from Tucson residents. Depending on size, plants are tenderly trimmed, potted, and watered ... waiting to be strong enough to be transplanted within the park. Others are "ground ready" and are placed throughout the park.

WHAT'S HAPPENING?

Scaphiopus Couchi have enjoyed "Playa de Prickly" thanks to the heavy monsoon rains! These *spade-toed toads* emerged from their subterranean estivation to breed during our summer thunderstorms. Interestingly, the "cue" for adult emergence is not moisture. The low frequency sound of thunder or vibration of rainfall alerts the toads! The temporary "pond" created in the park's sinkhole was indeed a perfect spot for a new generation! The photos were contributed by Linda Heisley and Kris Thompson. NOTE: *Scaphiopodidae* are endangered American spade foot toads. "if you wait until the frogs and toads have croaked their last to take some action, you've missed the point."

Kermit the Frog (*Frogs* by David Badger) • Blooms are amazing in the park!



Thursday, October 6, 2016 at 7:00pm
Program Presentation by Tom Van Devender
Program title to come.

TCSS BOARD

Officers

President: Richard Wiedhopf • president@Tucsoncactus.org

Vice President: Vonn Watkins • vp@Tucsoncactus.org

Secretary: Susan Durham

secretary@Tucsoncactus.org

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(terms expire December 31 of year indicated)

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Free Plants: Donna Ellis • plants@Tucsoncactus.org

Floilegium: Margaret Pope • art@Tucsoncactus.org

Librarian: Joie Giunta • librarian@Tucsoncactus.org

Prickly Park: Linda Heisley • park@Tucsoncactus.org

Programs: Vonn Watkins • programs@Tucsoncactus.org

Refreshments: Patsy Frannea • refreshments@Tucsoncactus.org

Technology: technology@Tucsoncactus.org

Research: Doug Rowsell • research@Tucsoncactus.org

Garden Tours: Bill Salisbury • tours@Tucsoncactus.org

Field Trips/tours Rob Romero/Joie Guinta

trips@Tucsoncactus.org

Newsletter Editor: Karen Keller • runbunny@cox.net

Deadline for September newsletter text or photos:

Wednesday, September 22, 2016

TCSS Web Page:

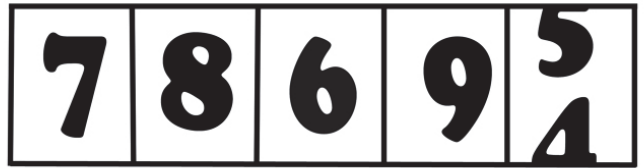
www.tucsoncactus.org

Webmaster: Keimpe Bronkhorst • webmaster@Tucsoncactus.org

For additional information call: (520) 256-2447

Everyone is Welcome!

**Bring your friends, join in the fun and meet
the cactus and succulent community.**



Cacti Rescued - Since 1999
370 Rescues - 27,212 Volunteer Hours

Please see our Website Calendar for the next rescued cactus sale. They are scheduled at various times during the year based on our inventory.

TCSS Club Members receive a 10% discount

We need your "Eyes and Ears" to help us find new Cactus Rescue sites. Please email us as much information as you can from new project signs or from other sources to **Site@TucsonCactus.org**. Attach a photo of the sign if you can. Note, we do not remove plants from residences.

September 2016

Thursday, September 1, 2016 7:00pm

"Novel Cacti in the Northern Chihuahuan Desert of Texas"

Presented by Jlm Weedin

Tuesday, September 13, 2016 7:00pm

Board meeting at the U of A College of Pharmacy



This map is for location only. It is not to scale.

Sky Islands Public High School • 6000 E. 14th St.

Acknowledgement of Contributions

The names below represent the Tucson Cactus & Succulent Society members and friends whose donations helped make this year a success. We extend our sincere thanks for your support.

Florilegium

Linda Gale Drew

2nd Edition "Field Guide"

Robbie Willingham

David A Palzkill



Desert Breeze

Newsletter of the Tucson Cactus and Succulent Society

October 2016

Thursday, October 6, 2016 at 7:00PM

"History and Evolution of the Sonoran Desert"

Presented by Thomas R. Van Devender



midden-Desert Almond Canyon

Many of the adaptations in desert animals evolved in response to new extreme condition of light, heat, and aridity in dry topical forests that first appeared in the middle Eocene (40 mya), long before the deserts of North America existed. The uplift of the Sierra Madre Occidental in the late Oligocene-early Miocene (25-15 mya) caused many important changes. Tropical forests were no longer present coast-to-coast. Biotic communities were segregated out in elevational zones alone elevational gradients of rainfall and temperature for the first time. New vegetation types dominated by oaks and pines appeared on mountain tops. Immigration of new groups from Eurasia had dramatic impacts on the biota, including the replacement of primitive boas by colubrid, viperid, and elapid snakes, which radiated throughout North America. New species evolved on mountaintops, with more primitive ones persisting in tropical lowlands. Evolutionary radiations in plants established the Asteraceae, Fabaceae, and Poaceae as floristic dominants. In the middle Miocene, a drying trend changed tropical deciduous forests isolated northwest of the Sierra Madre Occidental first to thornscrub, then to desertscrub as the Sonoran Desert formed (8 mya). At the same time, the land that is now Baja California split from mainland Mexico and began moving to the northwest in splendid evolutionary isolation. The uplift of the Sierra Nevada a million years ago formed the Mohave Desert, the youngest North American desert.

In the Pleistocene, changes in global climates restricted the Sonoran Desert to the lowest areas along the Colorado River and in central Sonora and southern Baja California for 80-90%



Basaseachi Falls



Screaming Saguaro

of the last two million years. With cooler summers and shifts to winter rainfall, woodlands dominated by pinyons, junipers, and shrub oaks expanded widely into the desert. During each of 15-20 interglacial periods, desertscrub expanded and woodland retreated. Well-preserved plant and animal fossils in indurated packrat middens documented changes in vegetation and climate for the last 40,000 years. The Wisconsin-Holocene transition was at 11,000 years ago. The early Holocene (11-8.5 ka) was a transition period with junipers and oaks still at low elevations when saguaro and brittlebush returned. Sonoran desertscrub developed in the middle Holocene (8.5-4.0 ka), but was different than today with catclaw acacia and blue paloverde on rocky slopes. Modern desertscrub formed about 4000 years ago with the arrival of foothills paloverde, desert ironwood, and organ pipe cactus in Organ Pipe Cactus National Monument. Vegetation composition was never stable as climate fluctuated continuously. Hohokam cultures thrived during a wet period about a thousand years ago. The last 500 years were the hottest and driest period in the entire record.

continued on next page

October Meeting Refreshments

Those with family names beginning with A- G, please bring your choice of refreshments to the meeting. Your generous sharing will be greatly appreciated and enjoyed!

Thomas R. Van Devender was the Senior Research Scientist at the Arizona-Sonora Desert Museum for 25 years, where he conducted research on a broad range of natural history topics. He has published well over a hundred publications on a range of topics, including natural history, paleoecology, desert grasslands, desert tortoise ecology, local floras, ethnobotany, herpetofaunas and the Madrean Archipelago. Tom is interested in the natural history of many areas in Sonora, especially the Madrean the Sky Island mountain ranges, the la Frontera zone within 100 km of the Arizona border, the Yécora area in the Sierra Madre Occidental, and tropical deciduous forest in the Álamos area.

In May 2015, he began as the Director of Biodiversity Programs at GreaterGood.org, where he organized biodiversity inventories to Sonoran Sky Islands in the Madrean Discovery Expeditions (MDE) program and manage the Predator Conservation Program. From 2009 to 2014, he was the Manager of the Madrean Archipelago Biodiversity Assessment (MABA) project at Sky Island Alliance. MABA documented the diversity of animals and plants in the 32 isolated Sky Island ranges and complexes in Sonora, Mexico. These biological records and high-resolution images are available to support conservation activities in the region. Tom organized twelve binational expeditions with large volunteer groups of taxonomic specialists, land managers, college

professors and students, local residents, photographers, and journalists to make new observations in high-diversity areas in Sky Island ranges in Sonora. The MABA (Madrean.org) and the new MDE (Madreandiscovery.org) databases are the best sources of biological records in the Madrean Archipelago.

If you want to know more about the Sonoran Desert, please attend this excellent program presented by a truly remarkable person. You will enjoy lots of excellent refreshments, win some great plants and go home with a free plant provided by the TCSS.



Pack Rat Color Cartoon



President's Message

It's the last quarter of the year and we have more than 1120 members in TCSS. WOW! Before you know it the year will be over but there is still a lot of activities happening. The 2nd edition of the "Field Guide" will be going to press in the next week or so. The price will remain the same. There

are some new photos, a new species is included and maps have been updated. We are all but sold out of the first edition (2,500).

The Good Times Silent Auction was outstanding. Thank you to everyone who brought plants, pots etc. There were some wonderful item and everyone really enjoyed the afternoon especially the ice cream, prickly pear sorbet and all the topping. As usual, great volunteers helped in making everything go smoothly.

We still have 100 or more barrel cacti available at our sales area plus the potential of several rescues before the end of the month so we will be having a Halloween Barrel Sale. Come early and help us decorate some "cactus creatures." We are planning on Sunday, October 30. Watch your emails for more information.

Designing the Ferocatus garden at Pima Prickly Park has begun and this will be really spectacular. Also we will be planting the entrance to the Park with a group of large Hesperaloe funifera and nocturna which we will be moved from their current location. This will be a great addition.

We have had made new cactus slings (used to move rescued

plants) and about 20 in blue are available for purchase. They cost \$40.00 each and will be available at the meetings and rescues till all are gone. They are great to have at home to move larger plants (not prickly pears or chollas). Our club slings are orange in color so there will be no confusion between the two. Please see Donna Ellis.

Check out the details of the Sonora Coastal trip. This will be of interest to many of you.

Remember, elections of Officers and Board Members, Holiday Party and Membership Renewal will be coming up in November and December.

Thank you as always for your tremendous support of TCSS

Dick Wiedhopf, President

I found this barrel by accident on a detour around a traffic snarl on Grant Rd. 30 heads and still growing. Homeowner says it came up volunteer in his yard and is 28 years old. Seems like fast growth for *F. wislizenii*. Does anyone know if seeds from this barrel will grow into multi headed plants?

Bill Thornton: cactusworld@msn.com



Fall Plant Sales

TCSS Halloween Barrel Sale

Sunday October 30, 8:00am to 10:00am
No limit on Barrels.
4342 North 4th Avenue

Desert Botanical Gardens - Phoenix

October 14, 2016 - October 16, 2016

Members Preview:

Friday, Oct 14 | 7 a.m.-5 p.m.

Open to General Public:

Saturday, Oct. 15 | 7 a.m.-5 p.m.

Sunday, Oct. 16 | 7 a.m.-3 p.m.

Events Plaza Parking Lot

No admission charge to enter Plant Sale

Boyce Thompson Arboretum -Superior

WHAT: Annual Plant Sale October 7 - 23, 2016

WHERE: Boyce Thompson Arboretum is a 320-acre Arizona State Park located at highway 60 milepost #223 near the historic copper mining town of Superior; just 45 miles due east of Mesa or about 90 minutes drive northeast of Tucson via Oracle Road to highway 79 north to highway 60 east

WHEN: The sale continues daily during business hours from 8:00 a.m. to 5:00 p.m. through Sunday, October 23

HOW MUCH: \$10 adult admission (\$5 ages 5-12) to enter the grounds, even if the visit is simply to buy plants during the plant sale event. *** Please note that admission is waived for all University of Arizona faculty, staff and students who bring their CatCard or another valid UA identification

Tohono Chul Park

Fall Plant Sale – Members Only Preview at Propagation Area, East Side of grounds

Oct 12 @ 12:00 pm – 6:00 pm

Oct 15 @ 9:00 am – 5:00 pm - Open to public

October 16, 2016 @ 10:00 am – 4:00 pm - Open to public

Visit Tohono Chul's Fall Plant Sale for an extensive offering of both the typical and the unusual, native, cold-hardy, and arid-adapted plants from agaves to Zauschneria and everything in-between. Our Members' Only Preview hours have been extended due to the ever-growing popularity of this event.

We encourage you to bring your own wagon, but we will have plenty on hand if you don't have one. Don't forget to check out our propagation greenhouse. In the propagation greenhouse there will be a special selection of aloes like the Ghost Aloe.

Be aware that the plant sale is located on the east side of the grounds in the Propagation Area at 7211 N. Northern Avenue, which is the first street just west of the Ina and Oracle intersection.

Arizona Sonora Desert Museum – Sorry this has passed

REMINDER

Holiday Party and Gift Exchange

There will not be a meeting on Thursday December 1, 2016, our traditional Holiday Celebration will occur on Sunday, December 4, 2016 at our Sky Islands school locatin. The Society supplies the entrees, place setting and drinks, and you supply your favorite Salad, Vegetable, Starch or Desert to share with other members.

We have a gift exchange (value at least \$10) of plants or related garden items. They need to be wrapped so that recipients can't identify them when they make their selection. If you bring a gift, you get a gift.

Additionally, there will be a short Annual Meeting, Election results, Awards and Table dish gardens created by Doug Rowsell, and other plants to be given away.

More information and reservations information will be in the next newsletter and mailed to every member.

Your family is always welcome.

Timelapse of Echinopsis Scarlet O'hara

There is a time lapse video of my Echinopsis Scarlet O'hara blooming, and provided by Greg Krehel who spoke to the club a few months ago and shared some fabulous videos.

This is an offset from one of Harry Johnson's Paramount Hybrids purchased at his nursery in the mid 50's. It's been outdoors in Tucson ever since and survived temps from 17 F (with cover) to 117 F. The parent plant now has offspring on both coasts, Solana Beach, CA and Jacksonville, FL.

https://vimeo.com/183694383/d33100690b?utm_source=email&utm_medium=vimeo-cliptranscode-201504&utm_campaign=28749

Bill Thornton

A Very Special Trip

Succulents of Coastal Sonora

Tom and Ana Lilia are offering a trip along the coast of the Gulf of California in Sonora during March of 2017 to see the amazing diversity of succulents. Please take a look at the tentative schedule, come to our regular meeting on October 6 where you can talk with them and get more insight to this opportunity.



Description:

- Guides Ana Lilia Reina-G. & Tom Van Devender (yecora4@comcast.net)
- 7 day trip: March 17-23, 2017. February 15 registration deadline
- Limited participation (18-20)
- Your personal high-clearance vehicles - participants need own car and personal insurance
- Free zone – no car permits or visas
- Participants pay for own food and lodging (6 nights) - plus guide fees for 7 days at \$560/person
- Fouquierias (4): columnaris, diguetii, macdougalii, splendens
- Columnar cacti (6): *Carnegiea gigantea*, *Lophocereus schottii*, *Pachocereus pectin-aboriginum*, *P. pringlei*, *Stenocereus alamosanus*, *S. thurberi*
- Gulf of California views
Plant walks to see regional species. Seabirds.
Transition from Sonoran Desert to coastal thornscrub
Seafood

Tentative itinerary:

Day 1 Tucson-Pinacate-Puerto Peñasco-Puerto Libertad

Sights: Organpipe NM pass through, Pinacate Visitor Center, *Lophocereus schottii* dunes, coastal drive
Lodging: Puerto Libertad

Day 2 Punto Cirio-Puerto Libertad

Sights: boojum trees, cardón forest, sand dunes, Gulf of California views
Lodging: Puerto Libertad

Day 3 Puerto Libertad-Bahía de Kino

Sights: coastal travel with two or three rich succulent desertscrub stops. Lodging: Bahía de Kino

Day 4 Bahía de Kino-San Carlos

Sights: giant cardón forest, *Fouquieria diguetii* dunes, sunset from Mirador.
Lodging: San Carlos

Day 5 San Carlos

Sights: morning beach walk?, Nacapule palm canyon, Mirador view of Gulf, seafood, boat ride?
Lodging: San Carlos

Day 6 San Carlos-la Guásima-Miramar

Sights: very diverse succulent scrub in coastal thornscrub, Guaymas waterfront and seafood.
Lodging: Hotel Playa de Cortes in Miramar

Day 7 Miramar-Tucson

Sights: *Fouquieria macdougalii* Sonoran desertscrub north of Hermosillo

FROM THE FLORILEGIUM

It's finally fall in Tucson, and that means peak butterfly season and peak blooming time for many of our beautiful butterfly plants, such as the passion vine. While it doesn't provide nectar for butterflies, the passion vine is the sole food source for the caterpillars of the showy Gulf fritillary butterfly.

Three passion vine species are native to Arizona: *Passiflora arizonica*, *Passiflora mexicana*, and *Passiflora bryonioides*. A fourth species, *Passiflora arida*, is a native of the Sonoran Desert in Mexico that has spread into Arizona (it's sometimes erroneously labeled in area nurseries as *Passiflora foetida*). The hands-down favorite with the fritillary caterpillars is the robust *Passiflora caerulea*, a South American native that is more readily available in local nurseries than the others. Growing several of these plants will provide plenty of foliage for the hungry caterpillars and increase your chances of actually getting to see the plant in bloom.

And what an incredible blossom it is—with a history to match. The legend of the passion flower began around 1550 when Cieza de León, a Spanish conquistador, returned home from Peru with the granadilla plant, now thought to be *Passiflora ligularis*. A Spanish physician, Nicolás Monardes, published an account of the plant in one of his herbals and suggested that the plant's flower structure could be viewed as a representation of the crucifixion of Christ. The flower became a useful visual tool for instructing converts in the New World, and as time passed, the details of the flower's correlation to the Passion became ever more elaborate: the flower's ten petals and sepals represent the ten apostles who were present at the crucifixion; the stalk rising from the center of the flower (the androgynophore) is the column where Christ was tied and lashed; the filaments that encircle the stalk represent the crown of thorns; the five anthers signify the five wounds to Christ's torso, hands, and feet; and the three stigmas represent nails. (This is an abbreviated version. There's MUCH more.) In 1737, Linnaeus named the genus *Passiflora*, or Passion flower, thus enshrining the religious association in the plant's name.

Beginning in the late 1700s, colored illustrations of exotic passion flowers were published in the many botanical and gardening periodicals of the day. Catering to the public's enthusiasm for the unusual plants, gardeners and nurserymen began the propagating and hybridizing the flowers for European gardens. Today there are some 600 species of passion flowers and more than 700 hybrids and cultivars.

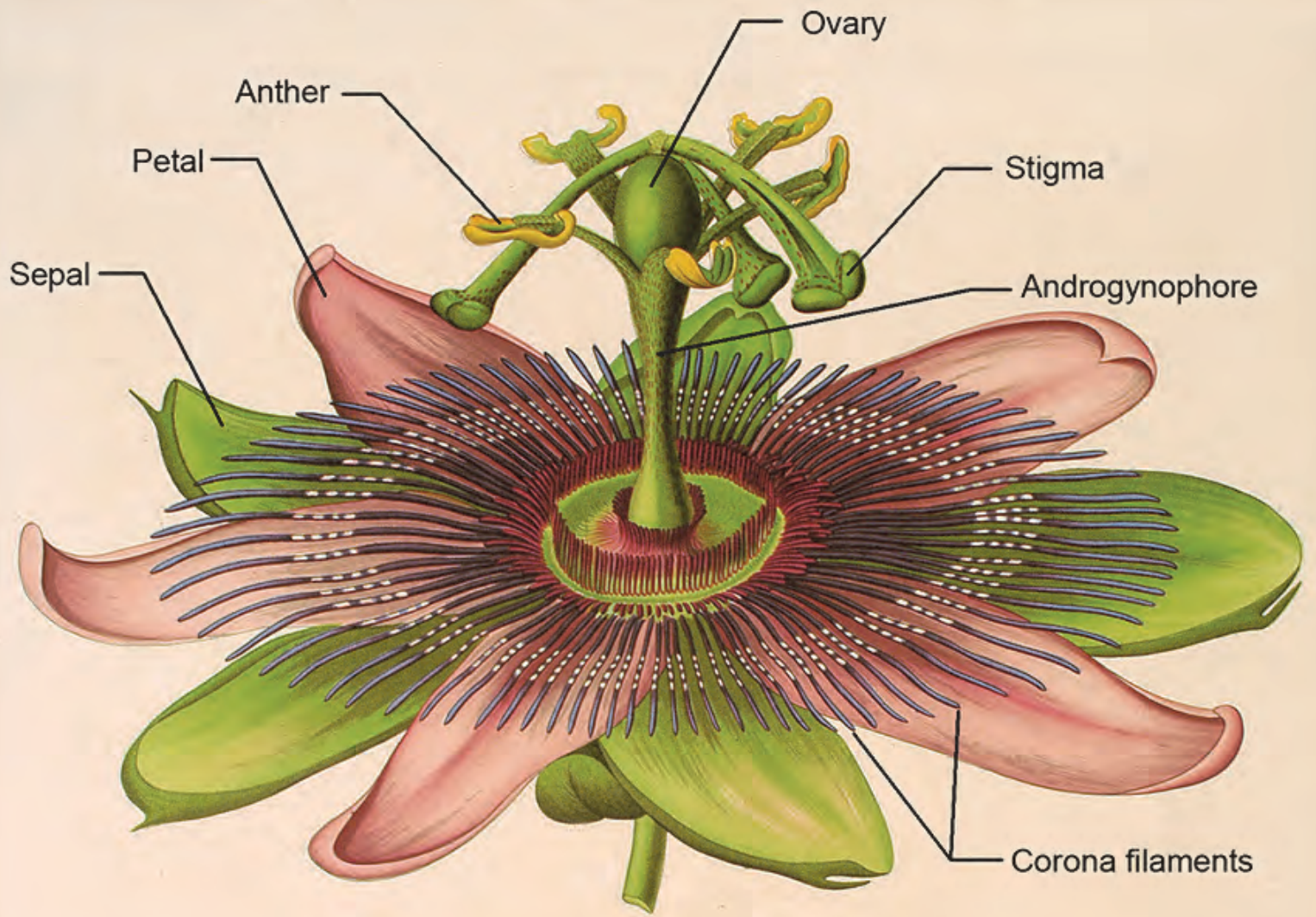
Shown here alongside the structural diagram of a typical passion flower is a watercolor of *Passiflora arida* by Tucson artist Martha Thompson that was included in the Florilegium

Program's 2013 exhibit, Botanical Art of the Sonoran Desert: Past & Present. Martha was born and raised in the Port of Guaymas, Sonora, Mexico. After graduating from high school, she was granted a scholarship to the United States that brought her to Tucson to learn English as a second language. In 1995, she married and returned to Tucson where, in 2001, she took her first art class through the Pima County Parks and Recreation program. As a developing fine artist, Martha was influenced by her friend and mentor Larry Wollam, who helped her develop the knowledge and love of graphite and watercolor techniques. Nature has become her most enjoyable and inspirational subject.

She has multiple paintings in the permanent traveling and teaching art collection of the Arizona-Sonora Desert Museum. "I am passionate about painting things I love, specifically to serve as an educational tool. I am honored to be part of this collection about threatened and endangered flora, fauna, and habitats of the Sonoran Desert because it represents my home on both sides of the border."



Passiflora arida © 2013 Martha Thompson Watercolor





PIMA PRICKLY PARK

DID YOU KNOW?

Saguarohege is the second topic for our "Then and Now" series as we explore the development of Pima Prickly Park.

The focus for the park has been...and continues to be...to create a space for the largest and most complete collection in the United States of Opuntoids and relevant succulents. With this objective in hand, the scoping document/proposal for the design of Pima Prickly Park was written and designed by Jessie Byrd. In the proposal she stated "A sacred place in the Opuntoid garden, the Saguarohege garden will celebrate the ancient relationships between people and the Sonoran Desert. A pathway experience to the center of Saguarohege will provide visitors with a new perspective on the Opuntoid garden and a heightened awareness of their own place in the desert."

Joe Frannea shared with me that the original set of "Saguarohege" saguaros was planted in the later designated park space by Robie Pardee. Robie reportedly had a great affinity for Tucson's Native Americans and their respect and connection to the environment. Joe stated that the "music through the (saguaro) needles sang to them." Lovely. ... And, as is said, "a picture is worth a thousand words" (and now we can include video). Enjoy the following links for a visual encounter with Saguarohege. (Even better...visit Saguarohege near sunset!!!!) ----Cari Wright

<http://www.tucsoncactus.org/html/pimapricklypark/saguarohege.html>



WHAT'S HAPPENING?

Linda Heisley shared Pima Prickly Park's newest additions: "The plants were rescued from Tucson International Airport as ground was cleared for a solar parking project. We ended up with 10 sotols, a couple of Hesperaloes, one Ocotillo & some grasses. Don Ellis drove a 26 ft. truck to the park. The size of the plants make an immediate WOW presence." Now that the weather is becoming more hospitable for a walk in the park...come and see first hand the new plantings ...and enjoy Saguarohege!....Cari Wright



Nomination for Board of Directors Members and Officers

The Board of Directors has elected the following individuals to the nominating committee. They are Teresa Curtis: waferzdog@gmail.com, Peter Ertman: pgde00@gmail.com, Dale Johnson: aanddj@gmail.com, and Bill Salisbury: chicagoracing38@comcast.net.

The purpose of the nominating committee is to insure there are at least one candidate for every open position.

You are encouraged to consider running for any of the open offices. You may nominate yourself by contacting one the members of the nominating committee or you may nominate another individual that you would like to see serve in one of the positions.

At the November meeting a list of candidates will be presented to the meeting and also in the newsletter from the Nominations Committee. Nominations from the floor will be accepted as long as the nominee is present or has submitted that they will accept a nomination. Once all nomination are approved, a written ballot will be sent to every current individual membership and two ballots to every current family membership. Results of the election will be announced at the Holiday Party on December 4, 2016

This mailing will also include membership renewals and Holiday Party reservations. A Self-addressed envelope will be included for your convenience.

The following Officers (2 year terms) and Board of Directors (3 year terms) end December 31, 2016.

President: Richard Wiedhopf
Vice-President: Vonn Watkins
Secretary: Susan Durham
Treasurer: Linda Bartlett
Board of Director Members: Teresa Curtis, Peter Ertman, Caryl Jones, Val Little

Thank you for your support.

TCSS BOARD

Officers

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Vice President: Vonn Watkins • vp@Tucsoncactus.org

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secretary@Tucsoncactus.org

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board@Tucsoncactus.org

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Noe Mayotte (2017)

Bill Salisbury (2017)

Keimpe Bronkhorst (2018)

John Durham (2018)

Linda Heisley (2018)

Dale Johnson (2018)

CSSA Affiliate Rep:

Bill Holcombe (2015)

Cactus Rescue: Donna Ellis

cactus@Tucsoncactus.org

Education: Caryl Jones • education@Tucsoncactus.org

Free Plants: Donna Ellis • plants@Tucsoncactus.org

Floilegium: Margaret Pope • art@Tucsoncactus.org

Librarian: Joie Giunta • librarian@Tucsoncactus.org

Prickly Park: Linda Heisley • park@Tucsoncactus.org

Programs: Vonn Watkins • programs@Tucsoncactus.org

Refreshments: Patsy Frannea • refreshments@Tucsoncactus.org

Technology: technology@Tucsoncactus.org

Research: Doug Rowsell • research@Tucsoncactus.org

Garden Tours: Bill Salisbury • tours@Tucsoncactus.org

Field Trips/tours Rob Romero/Joie Guinta

trips@Tucsoncactus.org

Newsletter Editor: Karen Keller • runbunny@cox.net

Deadline for September newsletter text or photos:

Wednesday, October 26, 2016

TCSS Web Page:

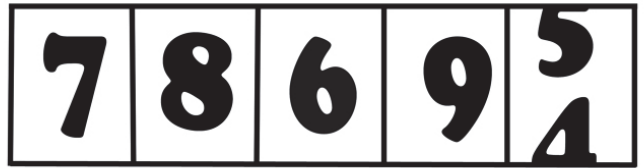
www.tucsoncactus.org

Webmaster: Keimpe Bronkhorst • webmaster@Tucsoncactus.org

For additional information call: (520) 256-2447

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Cacti Rescued - Since 1999
370 Rescues - 27,212 Volunteer Hours

Please see our Website Calendar for the next rescued cactus sale. They are scheduled at various times during the year based on our inventory.

TCSS Club Members receive a 10% discount

We need your "Eyes and Ears" to help us find new Cactus Rescue sites. Please email us as much information as you can from new project signs or from other sources to **Site@TucsonCactus.org**. Attach a photo of the sign if you can. Note, we do not remove plants from residences.

October 2016

Thursday, October 6, 2016 7:00pm

"History and Evolution of the Sonoran Desert"

Presented by Thomas R. Van Devender

Tuesday, October 11, 2016 7:00pm

Board meeting at the U of A College of Pharmacy



Sky Islands Public High School • 6000 E. 14th St.

November Program Presentation

Haworthias and Gasterias

Presented by Dr. Robert Webb and Toni Yokum



Desert Breeze

Newsletter of the Tucson Cactus and Succulent Society

November 2016

Thursday, November 3, 2016 at 7:00PM

“Haworthia and Gasteria: Gems of South Africa”

Presented by Bob Webb and Toni Yocum



Gasteria batesiana Barberton



Haworthia chocolate



Gasteria Royal

Species within the related genera Haworthia and Gasteria are highly prized among succulent plant collectors around the world. Native mostly to South Africa, with small populations in Namibia and Mozambique, these gems of southern Africa range from easy to grow to very difficult in cultivation. More than 70 species of Haworthia are recognized by Bruce Bayer, but only 23 species of Gasteria are known after a recent revision by Ernst van Jaarsveld; both are prominent South African botanists with decades of experience growing and describing succulent plant species. Hybrids in both genera, as well as variegates, are highly sought after by plant collectors, particularly in Japan. We will present a program that shows what these plants look like in both wild populations and in cultivation, discuss the at-times murky world of plant taxonomy involving these genera, and discuss how to grow them in Tucson.

Bob Webb and Toni Yocum are owners of Arid Lands Greenhouses, and have grown succulent plants for more than 30 years, many of which were obtained from Arid Lands Greenhouses. They have traveled extensively in Africa and Arabia, looking for and photographing succulent plants. They have been to Oman, Yemen, Socotra, Kenya, Tanzania, Uganda, Namibia, Botswana, and South Africa to date. They live in the Sonoran Desert, and Bob travels regularly in Baja California.

This will be our final program presentation this year. Please come and enjoy talking with friends, enjoy a great presentation, have some refreshments and take home a free plant, provided by TCSS, on departure.



Gasteria armstrong



Haworthia cooperi trun.

November Meeting Refreshments

Those with family names beginning with H- N, please bring your choice of refreshments to the meeting. Your generous sharing will be greatly appreciated and enjoyed!



President's Message

Strange weather for October. Don't be fooled! It is going to cool down and perhaps dramatically. My good friend and life member of our society, Dan Birt, uses s November 15 to March 15 as potential frost days. I believe him and have used this as my guide for several decades. So it's time to plan for winterizing your

plants. We have some good articles in previous newsletters from years past that are worth rereading. They are all on line on our website. October, November and December would be the newsletters to look at.

The holiday season has started and we have kicked it off with a Halloween cactus sale. I hope you attended. We partnered with the Hermatige No-kill Cat Sanctuary for an event called CATS and CACTUS. We decorated a lot of the plants with traditional Halloween stuff to make it fun and there were Cats available for adoption. We haven't had a Halloween Sale since 2011 but having so many fresh barrels and Ocotillos it was essential.



PIMA PRICKLY PARK

DID YOU KNOW?

Jessie Byrd, Pima County Native Plant Nursery Manager, shared that in 2011 Pima Prickly Park was designated as a Certified Butterfly Garden. TCSS member Laurel Cooper was instrumental in obtaining the certification. In my correspondence with Laurel, she revealed the following (amazing) information in her email:

(PPP's)...”butterfly list of 32 species (is) based on what SEABA's Karen Nickey and Mary Kay Eimerman observed in Sept. 2012, and what was likely to fly there based on available plants. Still in its initial stages, Pima Prickly Park already had a variety of plants that provide food for caterpillars and nectar for butterflies, as well as shelter: mesquite, hackberry, fairy duster, desert broom, sennas, mallows, datura, milkweed, mistletoe, yuccas, and more.

With frosty nights possible, Nov. NOT best month to see butterflies flying. In Tucson that tends to be Sept-Oct, especially after a generous monsoon. Some species only seen in spring. Most butterflies live only a few days, biological clock ticking, but the life cycle with caterpillar and chrysalis stages goes on year-round. That is why successful Butterfly Gardening requires a different mindset than most gardeners have. So it's OK for bugs to eat the plants and for leaf litter to accumulate!

Butterfly Houses offer the public a showy but misleading display of freshly emerged butterflies, provided by butterfly farms, nectaring on colorful flowers. As Joe points out, the Garden is the whole Park. Butterflies are designed to fly around, looking for shelter, food, and host plants so the next generation can grow. Meanwhile, they need to avoid predators like birds, lizards, praying mantises etc etc. (Cactus wrens are very good at figuring out where there are likely to

At the November meeting besides the great program by Bob Webb on Gasterias and Haworthias we will complete the nomination process for 2017. The nomination committee will present their slate of officers and board members. Additional nominations from the floor will be accepted and this new slate will be presented to the Board of Directors on November 8 for their approval. Once approved a ballot will be created and sent out with the Holiday party RSVP, Membership renewals, and a survey about our society that I hope you will all complete. Please return you RSVP and ballot no later than December 2, 2016

Thanks to Caryl Jones and all that helped her with a great Novice Workshop. It was terrific. There is a lot happening at Pima Prickly Park. Get your hands dirty!

Thank you as always for you tremendous support of TCSS

Dick Wiedhopf, President

be lots of butterflies and/or caterpillars.) Info on NABA Garden Certification program in <http://nababutterfly.com/butterfly-garden-certification-program/>

- At least three different native caterpillar food plants must be grown, preferably more than one plant of each selected species
- At least three different native butterfly nectar sources must be grown, preferably more than one plant of each selected species
- The use of pesticides is discouraged. Pesticides can kill butterflies as well as other important pollinators.

NABA publishes plant lists for many different regions of the United States based on local conditions and butterfly species. The lists are being updated to emphasize native plants, essential for raising caterpillars. Though nonnative plants may provide nectar for butterflies, their leaves are unpalatable to caterpillars. One example is the Australian Senna artemisioides commonly grown in Tucson. While it attracts Sulphurs, their caterpillars don't mature as they would on our many native Sennas (*S. covesii*, *S. lindheimeriana*, *S. wislizeni* etc). Bonus, as members of the Pea Family, they improve soil for other plants.

Southeast Arizona's varied terrain welcomes 246 butterfly species of the 722 known for North America north of Mexico, and Mexican species sometimes appear at the end of the monsoons.

Suggested plants for SE AZ, with the butterflies they attract, in nababutterfly.com/wordpress/wp-content/uploads/2014/03/az_southeastern.pdf

Written by Rich Bailowitz and Jim Brock with contributions by Doug Danforth, all well known long-time observers of SE AZ bugs and authors of nature guides.

continued

FROM THE FLORILEGIUM

Much of the botanical exploration of the American West in the mid-19th century was accomplished by an army of dedicated plant collectors of various backgrounds hired to accompany government survey expeditions. Other plant collectors explored the West independent of organized expeditions. One such collector was Ferdinand Jacob Lindheimer (1801–1879), a political refugee from Germany who is considered to be the “father of Texas botany”.

Early in his career, Lindheimer taught at a preparatory school in Frankfurt where he was associated with a number of students and activists who mounted a political rebellion in 1833. Although not directly involved in the incident, he was suspected of having sympathies for the movement, and he decided to seek political refuge in the United States. He first settled in Belleville, Illinois, home to many German émigrés, including George Engelmann. From there, Lindheimer traveled to Mexico where he found his passion for plant collecting. After hearing of the start of the Texas Revolution in 1835, he traveled to Texas to join the fight for independence. Upon leaving the army in 1837, he was invited by George Engelmann to spend time in St. Louis, after which he relocated to Texas and began work as a plant collector for Engelmann and Asa Gray.

The collecting challenges in Texas were substantial, as the area was still largely unexplored and perilous. His friend Ferdinand von Roemer wrote of how Lindheimer made his collections:

“He bought a two-wheeled covered cart with a horse, loaded it with a pack of pressing-paper and a supply of the most indispensable provisions, namely, flour, coffee, and salt, and then set forth into the wilderness, armed with his rifle and with no other companion than his two hunting dogs, while he occupied himself with collecting and pressing plants. He depended for his subsistence mainly upon his hunting, often passing whole months at a time without seeing a human being.”

Over the course of eight years, he discovered several hundred species and subspecies, many of which were documented in Engelmann and Gray’s *Plantae Lindheimerianae*. Forty-eight species and one genus were named for Lindheimer.

After 1851, Lindheimer’s plant collecting was limited to expanding his personal botanical garden and private herbarium at his home in New Braunfels. He became editor of the noted German newspaper, “Die Neu-Braunfelser Zeitung”, established a free school for gifted children, and spent his later years studying natural history.

One of the plants named in honor of Lindheimer is *Senna lindheimeriana*, a perennial legume native to Arizona, New Mexico, and Texas. Plants in the genus *Senna* have a specialized method for dispersing pollen. Typically, a flower’s anthers split lengthwise to release pollen, which is easily gathered by bees. The *Senna*’s anthers have only a small pore at the top through which the pollen can be released, and in order to get to the pollen, the bee must vibrate the stamen and shake the pollen out through the apical pore. This ‘buzz pollination’ technique is limited to bumble bees, carpenter bees, some sweat bees, and digger bees.

This botanical illustration of *Senna lindheimeriana* is by Tucson artist Chris Bondante and is part of the Legumes of Arizona project. The September 2013 issue of The Desert Breeze includes information about Chris and her watercolor painting of *Opuntia basilaris*. Several of Chris’s botanical illustrations prepared for the upcoming book “Legumes of Arizona” can be seen on the Florilegium Program’s website (<http://art-botanical.org/SDFlor/FlorArtists.html>).



Senna lindheimeriana, Velvet leaf senna
© 2011 Chris Bondante
Pen and ink



Thank You!

The success of our TCSS Novice Workshop depended on the members of TCSS. The event was held at Sky Island High School on October 22, 2016.

Speakers included Jon Weeks, Keith Burkhard, Barry McCormick, and Chuck Parsons. The presentations were dynamite while inspiring and motivating our novice members to understand, respect, and appreciate our Sonoran Desert.

Volunteers that pulled it together and lead the way for FUN while learning included: Kris Thompson, Patsy Frannea, John and Susan Durham, Joie Giunta, Doug Rowsell, Shari Popen, principal at Sky Island High School.

WHAT A GREAT DAY..... fun, friends and wonderful presentations!

Educational Outreach has had an amazing few months of activity. **School Grant** requests have been awarded to Compass High School, Davis Bilingual School and Ocotillo Ridge Elementary Schools. Our thanks to **Donna Ellis, Joe and Patsy Frannea, Jessie Byrd and Linda Heisley** for ushering the schools through acquisition of cactus for the school gardens. Without the TCSS Rescues and our outreach activities, the connections to school would be impossible. Our goals remains to support education, conservation and appreciation of the Sonoran Desert.



Educational Outreach has had an amazing few months of activity. We worked hundreds of children to "Build-a-Cactus." Other hands-on activities and our kits (designed by John Swarbrick, assembled by a team of 15 TCSS volunteers) and taught by **Linda Heisley, Caryl Jones, Cari Wright, Sandra Kunzman, Bill Holcombe, Julie Hallenbach, Les Sloan, Barry McCormick and Kris Thompson**.... stimulate so much excitement and inspire our Tucson Junior Rangers to conserve and appreciate our Sonoran Desert.



Educational Outreach has had an amazing few months of activity. We have been hands-on with teachers as a part of the Pima County Schools STEMAZing Teacher Leader Program, supported the AZ STEM Adventure for 1000 students from schools selected for outstanding participation as STEM schools, and participated in several family science nights at great schools such a Rattlesnake Ridge and Desert Willow,

Information on educational outreach or to participate.... contact Caryl Jones education@tucsoncactus.org



Tucson Cactus and Succulent Society Holiday Party & Gift Exchange

When: Sunday, December 4, 2016
Where: Sky Islands Public High School, 6000 E 14th St.
Time: Set-up starts at 1pm bring food at 2:30pm
Dinner and Program: 3pm till 5pm

The Society will provide Turkey, Ham, Shrimp,
Condiments, tableware and Drinks
(coffee, punch and water)

You will provide your favorite recipe (enough for 10+ servings)
Hot or Cold

Salads • Starches • Vegetables • Desserts
(Please bring serving dish and serving utensils)

This has been another great year; let's make it special for others.
Please bring donations (\$ preferred) for the Tucson Community Food Bank

Gift Exchange

Everyone can participate by wrapping (cleverly) a plant or plant related gift of at least \$10.00 value. If you bring a gift you get a gift, and we have a fun way of distribution.

Additionally, there will be a short Annual Meeting, Election results, Awards and Table dish gardens created by Doug Rowsell and other plants to be given away.

Please RSVP attendance and return in self-addressed envelope with your Election Ballot, Membership Renewal or Information Update and Year-end tax deductible Donation by December 2, 2015.

For more information:

Check the web at tucsoncactus.org, e-mail tcss@tucsoncactus.org
or Phone TCSS at 520-256-2447.

Name(s): _____ Number attending: _____

I am planning on bringing (check)

☐ salad

☐ starch

☐ vegetable

☐ dessert

One of the suggested nectar plants is Desert broom *Baccharis sarothroides*, a plant that many Tucsonans despise although it's the single best pollinator plant (you could count at least 60 species in a couple of hours). I saw a Monarch enjoying one in Molino Basin last fall. Bonus there, Desert broom only grows in disturbed, depleted soils and needs no watering, so it improves the soil for later plantings (also used to remediate mining waste).

Not all butterflies nectar. For instance, Empress Leila is far more often found feeding from mesquite or palo verde tree sap, or from animal dung. Many butterflies also have "puddle parties", needing to get salts from wet ground. I have photo of Ceraunus Blue puddling in wet soil by PPP agaves.

Another good butterfly plant hated by many landscapers is Desert Mistletoe, *Phoradendron californicum*. But it's the food plant for the spectacular Great Purple Hairstreak *Atlides halesus*. Bonus there, the berries are savory for Phainopeplas, Cardinals, and Humans. Mistletoe was found to be a keystone species in Australia, increasing biodiversity.

A century ago, clouds of butterflies were a common sight but changing land use and agrochemicals have made that rare. Butterfly gardening is a way to repair some of the damage and prevent future losses while providing delight and wonder. A single butterfly has defied the odds to exist."

Best,
Laurel

We are so fortunate to have such expertise !!! A big SHOUT-OUT of thanks to you Laurel for all of your information.

Cari Wright

Butterflies Have Ears !

Did you know that the first "butterfly wing ears" were identified in 1912. Researchers within the last decade have determined the presence of "wing ears" in several butterfly species ! Curious ? Learn more at www.livescience.com and SEARCH for butterfly ears.

The butterfly counts not months but moments, and has time enough.—*Rabindranath Tagore*

WHAT'S HAPPENING?

Pima Prickly Park Volunteers now have access to an Electric Cart with a Utility Bed on the back that DUMPS! No more lugging and tugging heavy loads....AND it has a HORN !!!

Now that the weather is hospitable, grab your sketchbook, watercolors, pencils and ink for a meditative plein air experience in the park.---Cari Wright

Acknowledgement of Contributions

The names below represent the Tucson Cactus & Succulent Society members and friends whose donations helped make this year a success. We extend our sincere thanks for your support.

Education
Richard Ryan

Succulents of Coastal Sonora

Please contact Tom Van Devender directly if you are interested.

Tom and Ana Lilia are offering a trip along the coast of the Gulf of California in Sonora during March of 2017 to see the amazing diversity of succulents. Please take a look at the tentative schedule, come to our regular meeting on October 6 where you can talk with them and get more insight to this opportunity.

Description:

- Guides Ana Lilia Reina-G. and Tom Van Devender (yecora4@comcast.net)
- 6 day trip; March 17-22, 2017
- Personal high-clearance vehicles. Free zone – no car permits or visas. Need Mexican car insurance
- pay for food and lodging (5 nights), boat ride.
- *Fouquierias* (4): *columnaris*, *diguettii*, *macdougalii*, *splendens*
- *columnar cacti* (6): *Carnegiea gigantea*, *Ferocactus diguetii*, *Lophocereus schottii*, *Pachycereus pecten-aboriginum*, *P. pringlei*, *Stenocereus alamosanus*, *S. thurberi*
- Gulf of California views, beaches, seafood
- Plant walks to see regional species. Transition from Sonoran Desert to coastal thornscrub
- Trip limit: 20 people. Trip fee: \$350

Tentative itinerary:

Day 1 Tucson-Pinacate-Puerto Peñasco-Puerto Libertad

Sights: Organpipe National Monument pass through, Pinacate Visitor Center, *Lophocereus schottii* dunes, coastal drive
Lodging: Puerto Libertad

Day 2 Punto Cirio-Puerto Libertad

Sights: boojum trees, sand dunes, Gulf of California views
Lodging: Puerto Libertad

Day 3 Puerto Libertad-Bahía de Kino

Sights: coastal travel with two or three rich succulent desertscrub stops
Lodging: Bahía de Kino

Day 4 Bahía de Kino-San Carlos

Sights: giant cardón forest, *Fouquieria diguetii* dunes, sunset from Mirador.
Lodging: San Carlos

Day 5 San Carlos-la Mesteña-San Carlos

Sights: Estero El Soldado salt marsh reserve/mangroves, very diverse succulent scrub/ethnobotany walk in coastal thornscrub, private beach
Lodging: San Carlos Hotel MarinaTerra

Day 6 San Carlos-Hermosillo-Tucson

Sights: *Fouquieria macdougalii* Sonoran desertscrub
Rancho la India

TCSS BOARD

Officers

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Vice President: Vonn Watkins • vp@Tucsoncactus.org

Secretary: Susan Durham

secretary@Tucsoncactus.org

Treasurer: Linda Bartlett

treasurer@Tucsoncactus.org

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board@Tucsoncactus.org

(terms expire December 31 of year indicated)

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Tanya Quist (2017)

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Bill Salisbury (2017)

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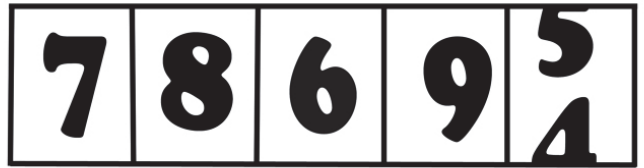
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Board meeting at the U of A College of Pharmacy

Holiday Party

Sunday, December 4, 2016

Sky Islands Public High School

6000 E. 14th St.



Sky Islands Public High School • 6000 E. 14th St.



Desert Breeze

Newsletter of the Tucson Cactus and Succulent Society

December 2016

Sunday, December 4, 2016 • 3-5PM

Tucson Cactus and Succulent Society Holiday Party and Gift Exchange

Sky Islands Public High School, 6000 E. 14th Street

Setup: 1 - 3PM • Dinner: 3 - 5PM

Please bring you food by 2:30pm

The Society will provide Turkey, Ham, Shrimp,
Condiments, tableware and Drinks
(coffee, punch and water)

You will provide your favorite recipe (enough for 10+ servings)
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Salads • Starches • Vegetables • Desserts
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Meeting:

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Election Results, Awards and Table prizes.

Please RSVP by calling (520) 256-2447.

This has been another great year; let's make it special for others.
Please bring donations (\$) preferred) for the Tucson Community Food Bank.

Holiday Party and Gift Exchange



Sky Islands Public High School • 6000 E. 14th St.





President's Message

This has been a crazy way to end the year. For Some unknown reason the Post Office has failed to deliver a large number of the end of the year mailing. This mailing included the Holiday Party RSVP, Ballot and membership renewal. I will send out another copy of the membership renewal in the next week or so. Everyone should have received an email or post card explaining this.

Since there are no competitive races for officers and board of directors and there doesn't seem to be a write campaign, the 60 ballots received so far will determine the outcome. I am not happy about this process as I believe everyone should have a vote but in this case re-sending the ballots would not have worked.

Another great year for the Society. Our membership stands at 1150 which makes us the largest local Cactus Society in the World. The second edition of the Field Guide has gone to press with two new species, *Nolina texanna*, and the brand new *Echinocereus relictus*, plus new photos and updated maps.

We have added about 30 large *Hesperaloes* to Pima Prickly Park. Many thanks to the small crew who helped move and

plant these wonderful specimens. Special thanks to the Bobcat and it's surgeon like operator Joe Frannea who made the process workable. Next year even more improvements to the Park with the development of more entrance features and also the Monrad Ferocactus Garden.

We continue to rescue cactus and succulent plants that would be destroyed by development. This process provides the financial support for our Education, Research and other outreach activities. Just for fun at our last sale we decorated the cacti for Halloween. The sale of these rescued plants mean that they are still part of the environment.

I have served in this office for more than a decade and have enjoyed every moment. On the back of the membership renewal we have included a small survey to make sure we are doing what you want. Please take a moment to fill it out when you renew.

End of the year donors will be published in the January Desert Breeze and for those of you who participate in rescues, your cactus buck will be sent out early next year.

Thank you as always for you tremendous support of TCSS.

Dick Wiedhopf, President

Pima Prickly Park work day

The long discussed project of collecting & transferring *Hesperaloes* is complete!

Heartfelt thanks to: Joe & Patsy Frannea for their many hours of planning & preparation of the berms. Vonn Watkins & Cathy Robson contributed ideas on concept & layout.

- Donna & Robert Ellis, Dick Wiedhopf, Byron Hinton, Tom Ganser for digging up & transferring the plants to the park. It was an all day effort.
- The fifteen people who attended the work day and planted and cleared an area that will be filled up with rescued and other donated plants.

Going forward the berms will be enhanced and work is beginning on creating a gathering place at the north end of the park. More on that project in future articles.

Take advantage of the cooler weather and come see all the progress at Pima Prickly Park!



January Program Presentation

Jan Emming will be presenting his views, experience and more about the group trip to South Africa.

FROM THE FLORILEGIUM

Traditional Christmas celebrations have long included a variety of plants, many of which, like holly, ivy, yew, and fir, remain evergreen even in the harshest winters, a quality that made them symbols of prosperity and fertility in the pagan celebrations of ancient Britain and Europe, notably the winter solstice. One such evergreen plant was used by the Druids as a fertility symbol, and that association has carried through to the modern holiday custom of kissing under the mistletoe. Mistletoe seems a modest plant with its tiny white berries, leathery leaves, and sprawling stems (not much of a holiday decoration), but its habitat value is anything but modest.

The name ‘mistletoe’ refers to plants with a unique lifestyle rather than plants that all belong to the same taxonomic grouping. There are some 1,300 species of mistletoe worldwide divided among three families: Misodendraceae, the feathery mistletoe family; *Santalaceae*, the sandalwood family; and *Loranthaceae*, the showy mistletoe family. As hemiparasites, mistletoes take only water and minerals from the host while photosynthesizing their own food. All mistletoe species share the parasitic strategy of entering their hosts from above ground rather than through the hosts’ roots. From there they colonize the tops of trees and shrubs and gain easy access to sunlight and pollinators.

Recent research in Australia (home to the spectacular showy mistletoes) suggests that mistletoes are a keystone species, one that has an outsized effect on its habitat and without which the ecosystem is likely to collapse. Clumps of mistletoe provide both nesting sites and protective cover for birds, from tiny wrens to hawks. When the parasite’s infestation kills or weakens its

host, it creates new spaces for cavity-nesting birds. The plants’ berries are food for many animals, and it is a larval food source for many butterflies and a source of nectar for both insects and animals.

The mistletoe species that took hold in Victorian parlors at Christmas was European mistletoe, or *Viscum album*. In America, the most common mistletoe is Oak mistletoe, *Phoradendron leucarpum*. Interestingly, plastic mistletoe sold for home decoration at Christmas is modeled on the leaves of American mistletoe and not the European original.

Mistletoe is a dioecious plant, with male and female flowers growing on separate plants. In both illustrations shown here, the plant habits are the fruit-bearing female. European mistletoe can be seen in an illustration from “Flowers of Germany, Austria and Switzerland” (1885) by Otto Wilhelm Thomé. In this painting, there is a small illustration at the bottom right of a young mistletoe plant growing on a branch of the host plant. At the top right of the page, there is first a cluster of female flowers and a group of male flowers beneath.

The second illustration is Oak mistletoe painted by Mary Emily Eaton (1873–1961), the prolific British artist who provided illustrations for the New York Botanical Garden’s “Addisonia” for many years and illustrated Britton and Rose’s “The Cactaceae”. This painting was one of her illustrations of American wildflowers for the National Geographic Society’s “The Book of Wildflowers” (1924).



Viscum album, European mistletoe
“Flora von Deutschland, Österreich und der Schweiz”, 1885
Image courtesy of Biodiversity Heritage Library.
Digitized by the New York Botanical Garden (www.biodiversitylibrary.org)



Phoradendron leucarpum, Oak mistletoe
Mary Emily Eaton
“The Book of Wildflowers”, 1924

Donated Sotol and Hesperaloe being moved to Pima Prickly Park

Photos by Patsy Frannea



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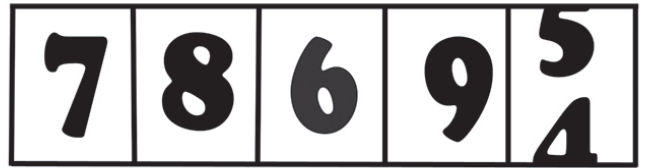
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Everyone is Welcome!

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We need your "Eyes and Ears" to help us find new Cactus
Rescue sites. Please email us as much information as
you can from new project signs or from other sources to
Site@TucsonCactus.org. Attach a photo of the sign if
you can. Note, we do not remove plants from residences.

December 2016

Sunday, December 4, 2016 3:00pm - 5:00pm

Tucson Cactus and Succulent Society Holiday Party
and Gift Exchange

Tuesday, December 13, 2016 7:00pm

Board meeting at the U of A College of Pharmacy

*Wishing Everyone a Beautiful
Holiday Season.*

Karen Keller, Newsletter Editor

