



Desert Breeze

Newsletter of the Tucson Cactus and Succulent Society

January 2015

Thursday, January 8, 2015 at 7:00 PM

“Why are there any plants in Africa?”

“A biologist’s thoughts from a first visit to South Africa”

Presented by Mark Dimmitt



Mark begins with a summary of the diversity and abundance of big animals in Africa, then speculates on why they haven't destroyed the vegetation. Next he presents a tour of the plants (mostly succulents) that were found, with some information on how they're adapted to survive among abundant, giant herbivores.

Mark Dimmitt, Ph.D. formally majored in zoology throughout his college career, but also studied botany and ecology extensively. After earning his Ph.D. in Biology from the University of California at Riverside, he spent four years

as a vertebrate ecologist in the California Desert District of the Bureau of Land Management. He moved to Tucson in 1979 to become Curator of Botany at the Arizona-Sonora Desert Museum and in 1997 he became the Director of

Natural History. This position allowed him to conduct field research and share oversight of the scientific aspects of

the museum's operations. Mark has published numerous popular articles on horticulture and several articles on desert

ecology (he is an avid plant hybridizer). He is also the creator of the 'Desert Museum' hybrid palo verde. He is well known for his hybrids, especially his study of the adenium and various cacti. In 1999, he received the Friend

Award from The Cactus and Succulent Society of America for his outstanding accomplishments with cacti and succulents. He has also co-authored a special Adenium book, "Adenium: Sculptural Elegance, Floral Extravagance".

The 2015 program presentation should be excellent! Please be sure to come and enjoy this great program and also meet with others, have some excellent refreshments, win a beautiful cactus or other succulent and be sure to take home a free plant!

TCSS Program Presentation Thursday, February 5, 2015

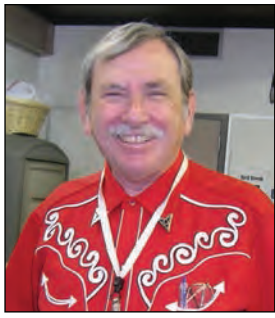
“Madagascar - A World-Renowned Island of Megadiversity”
Presented by Greg Starr

January Meeting Refreshments

Those with family names beginning with S, T, U, V, W, X, and Y, please bring your choice of refreshments to the meeting.

Your generous sharing will be greatly appreciated and enjoyed!





President's Message

Happy New Year.

At our Holiday Party, I had the privilege of thanking several of our members for their service to the society.

A President's Award was given to Evelyn Hubbell. For the last several years Evelyn has been at the welcoming table giving out door prize tickets, guest sign-ins and badges, answering questions and making every one really feel welcome. There is nothing better than a friendly smile and a positive attitude. Thanks Evelyn.

The six member team of the Field Guide was honored for their extraordinary work to produce this new book, scheduled for early in 2015. A great effort by Peter Breslin, John Durham, Rob Romero, Greg Starr, Thomas Staudt and Vonn Watkins. Thanks to the many folks who have helped behind the scenes as other authors, reviewers and illustrators to make this possible.

The Society has been very supportive of this effort and has donated almost \$15,000 to support this publication.

The President's Special Service Award was presented to Doug Rowsell. Unfortunately, Doug and wife Kathy were ill and could not attend. Doug made the effort to get the 60+ centerpieces he created and planted to the party plus another 60 or so poinsettias. For the last several years Doug has made centerpieces for the party. He also handles all the technology at meetings, conferences and uses his engineering skills to set up many of our events. He manages rescues on the East side of Tucson when needed and assists with large plant rescues. Doug chairs the Research Grants Committee and does all these things strictly as a volunteer. Thanks Doug.

The Holiday Party was a great success, the food was delicious, the gift exchange was great and everyone left in good holiday spirits.

Thank you for your support.

Dick Wiedhopf, President

"Monrad Ferocactus Garden" at Pima Prickly Park

It is my pleasure to announce my lead gift to help develop and establish a Ferocactus garden (barrel cactus) at Pima Prickly Park. Chris Monrad, Vonn Watkin, Lois Ladwig and I established the TCSS Rescue Program in 1999 with the help of Chris's parents Larry and Twink Monrad and Monrad Engineering. It was that first rescue in Oro Valley at a school site that Monrad Engineering was involved with that led to the spiraling growth and recognition of the Tucson Cactus and Succulent Society and its new rescue program.

Two close High School friends of Larry and Twink Monrad joined the rescue program a year or so later. They were Joe and Patsy Frannea and the rest is history. Since 1999 almost 75,000 native cacti and succulents have been rescued and the society has grown to over 1,000 members each year over the last decade.

All this activity led to Chris Monrad finding a couple of yellow spined, yellow flowered Ferocactus Wislizenii and Vonn Watkins discovered another. Between Chris, Vonn, Robin Baza and their good friend Mark Sitter the cross pollination, the first

seed and plant production was accomplished. The highlight was the 2009 CSSA Convention in Tucson where at the final banquet everyone received one of these special plants. It was a high mark for Chris who is a real Ferocactus enthusiast and a great accomplishment for everyone involved. Now these plants are blooming all over Tucson.

I want to recognize this achievement and the interest that Chris has in Ferocactus by working together to achieve this "Monrad Ferocactus Garden". I've kicked it off with \$5,000 and Chris has promised to match this from his contacts and along with other gifts which will make this garden a reality.

Pima Prickly Park is a unique opportunity for us to do great things. The pieces are coming together and we can all be a part of this exciting endeavor.

Thank you for your support.

Dick Wiedhopf, President.

FROM THE FLORILEGIUM

In 2013 the Herbarium at the University of Arizona received a donation of the original Lucretia Hamilton drawings from Lyman Benson's *The Cacti of the United States and Canada*. These illustrations, which are a significant addition to the Herbarium's collection of botanical illustrations, were donated by Edward Hamilton, Lucretia's son, who obtained them from Stanford University and wanted to have them preserved under archival conditions. The donation includes 119 plates of Hamilton's drawings as well as 17 plates by Lyman Benson.

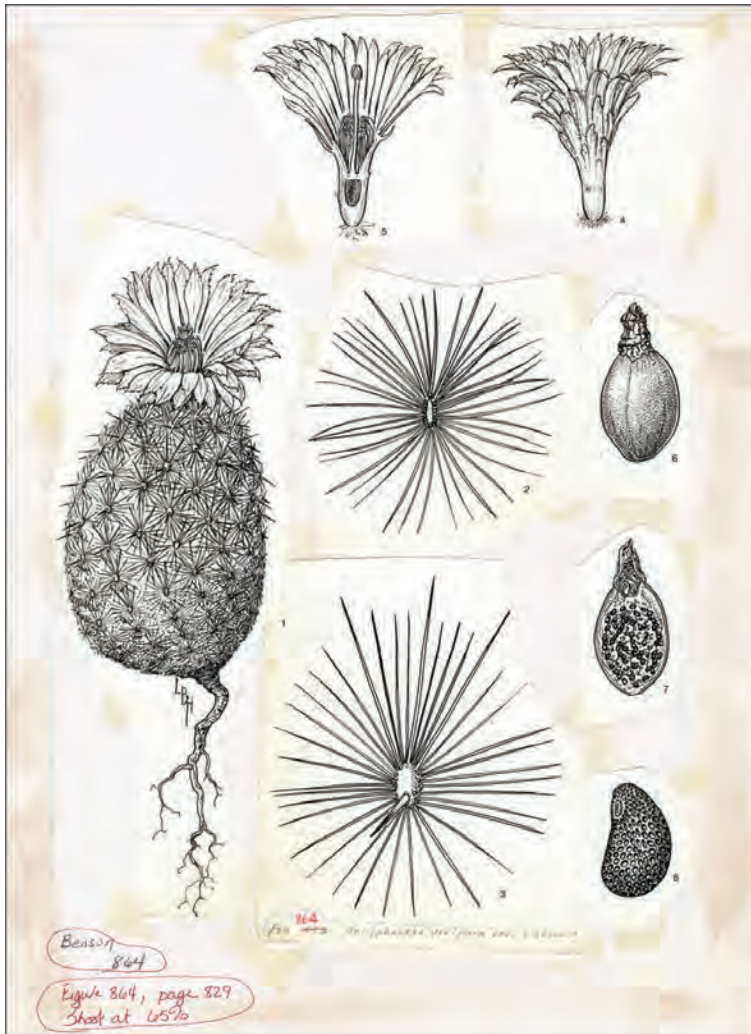
Ed Hamilton is a Tamarind Master Printer and owner of Hamilton Press in Venice, California. In addition to his mother's drawings, he donated a set of 15 black-and-white lithographs that he made from her cacti illustrations. He has hand-colored eight of these lithographs, and in 2012 he donated a set of these to the Florilegium Program to use in its fundraising efforts. These beautiful works have been displayed at several TCSS events as well as in the Florilegium's 2013 exhibit, *Botanical Art of the Sonoran Desert: Past and Present*. Five of the lithographs can be seen on the Florilegium's website (http://art-botanical.org/OLExhibit2013/Section5B_1.html).

James Thomas, Florilegium volunteer extraordinaire, recently completed the process of transferring the Hamilton and Benson illustrations to archival mounting boards. This was an enormous job that involved removing aging tape, glue, and paper and remounting the drawings with archival adhesive corners. The drawings will now be accessioned into the Herbarium's collection and digitally archived.

With the addition of the donated works by Hamilton and Benson, the Herbarium's illustration collection now consists of 2,125 works of botanical art. In addition to those by Hamilton and Benson, the collection includes pen and ink illustrations by Patricia Mason, Evelyn Thornber, Wendy Hodgson, Regina Hughes, Kako Morita, Eduardo Salgado, and Bonnie Swarbrick, and some 500 watercolors by Ella Howard Estill.

Here are before-and-after images of one of the recently donated illustrations by Hamilton that show the considerable improvements made to preserve these exceptional works.

Coryphantha vivipara var. *bisbeeana* Lucretia Breazeale Hamilton



Left: Illustration as received



Illustrations with tape removed and mounted on archival board

Holiday Party 2014

Photos provided by Connie Gale



Donation to December 31, 2014

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

KEIMPE BRONKHORST
REBECCA BUSHNER
DIANE CHESHIRE
ARDNER CHESHIRE
RALF HOLZHEU
MATTHEW B. JOHNSON
PATRICIA A. RORABAUGH
PATRICIA H. WATERFALL

Research

STEVEN C. CHESSER
MARGARET FUSARI
SCOTT SHERMAN

Conservation

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JULIE ROEDERER
SCOTT ROEDERER
SCOTT SHERMAN
GINNY SONETT
DAVID YETMAN & FAMILY

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CONNIE ENGARD
RUSS FREEMAN
CHRIS FREEMAN
BARBARA KELLY
DAVID A. PALZKILL
SUSAN RICHARDS

Pima Prickly Park

ROMAINE AHLSTROM
DAN STREHL
KIRK EMERSON & FAMILY
DANIELLE FIDEL
MARGARET FUSARI

RALF HOLZHEU
SCOTT METSKAS
SHARON METSKAS
NICOLE MONTROY
MICHAEL MONTROY
DAVID A. PALZKILL
DANA PARSONS
CHUCK PARSONS
JOY PHOENIX
LESLIE JOHNSON
ROBERT PITTMAN
CATHY ROBSON
SCOTT SHERMAN
EDITH JANE ULMER & FAMILY
RICHARD WIEDHOPF

Field Guide

MARIAN ALABACK
COLETTE M. ALTAFFER
WILLIAM W. ALTAFFER
JANET BAKER
KACEY CARLETON
LESLIE CARPENTER
STEVEN C. CHESSER
JIM DURHAM
JIM ELLIOTT
ELECTRA ELLIOTT
ELIAT GOLDMAN
THEA CHALOW
ROGER GRIMES & FAMILY
CURTIS P. HAMANN
BETH HAMANN
MATTHEW B JOHNSON
PATRICIA A RORABAUGH
GENE JOSEPH
JANE EVANS
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MARIBETH MOREHART
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HAROLD STRAIN
BECKY STRAIN
WILLIAM THORNTON
TOM VINCENT
PATRICIA H. WATERFALL
RICHARD WIEDHOPF

Unrestricted

MARK BRADLEY
TINA BRADLEY
DEAN BRICK
JENNY BRICK
MARTHA BRUMFIELD
STEVEN C. CHESSER
JULIE HALLBACH
DON FEATHERSTONE
CHUCK HANSON
JUNIE HOSTETLER
KEN KAY
KAREN K. CHRISTENSEN
GENE KELLEY
SUSAN KELLEY
SANDI KILKUTS & FAMILY
CARL KOPROWICZ
SHARON EISENHOWER
BILL LILLIS
SUZY LILLIS
SUSAN McMAHON
JULIEEVANS
RON MEYER
ABBEBERNS
ANUPUNDARI
EDGAR RAWL
GEOFFREY ROBERTS
STEVEN SCHMIDT
SCOTT SHERMAN
JEFF TIMAN



TCSS BOARD

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Secretary: Susan Durham
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treasurer@Tucsoncactus.org

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board@Tucsoncactus.org
(Ending Dec. 31, 2017)

Donna Ellis
Tanya Quist
Noe Mayotte
Bill Salisbury

(Ending Dec. 31, 2015)

Keimpe Bronkhorst
John Durham
Linda Heisley
Dale Johnson

(Ending Dec. 31, 2016)

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Vacant
Peter Ertman
Vacant

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Free Plants: Donna Ellis • plants@Tucsoncactus.org

Floilegium: Margaret Pope • art@Tucsoncactus.org

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Field Trips/tours Rob Romero/Joie Giunta
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Deadline for copy: Thursday, January 22, 2015

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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
352 Rescues - 25,053 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

January 2015

Thursday, January 8, 2015, 7:00pm

“Why are there any plants in Africa!” “ A biologist’s thoughts from a first visit to South Africa. Presented by Mark Dimmitt

Tuesday, January 13, 2015 7:00pm

Board meeting at the U of A College of Pharmacy

Election Results

At the annual meeting of the Tucson Cactus and Succulent Society the results of the election of Officers and Board of Directors were announce. The results were then certified at the December meeting. Under the new by-laws revisions, the officers will serve a 2 year terms.

The officers for 2015 and 2016 are:

President: Dick Wiedhopf
Vice-President: Vonn Watkins
Secretary: Susan Durham
Treasurer: Linda Bartlett

Elected to 3 year terms on the Board of Directors, ending December 31, 2017, are:

Donna Ellis
Tanya Quist
Noe Mayotte
Bill Salisbury

Leaving the Board after many years of service are:

Ed Bartlett
Joe Giunta
Rob Romero

These 3 board members have given hundreds of hours of service to our Society and will surely continue to volunteer their time, knowledge and enthusiasm. Please thank them for their service.



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February 2015

Thursday, February 5, 2015 at 7:00 PM

“Madagascar - A World-Renowned Island of Megadiversity”

Presented by Greg Starr



Greg traveled to Madagascar with his best friend Carol, who he is also married to, along with Jean Lewis and Jerry Daharsh for an exciting excursion full of plants, birds, lemurs, chameleons, food and local flavor. Greg will discuss the process of setting up an organized tour and show a multitude of pictures of the unique flora and fauna native to the Ranomafana, Isalo N.P., the spiny desert around Ifaty, the tsingy near Bekopaka and the incredible baobabs near Morondava. This visual feast is guaranteed to make even

the most sedentary couch potato crave an adventure to the fourth largest island in the world before all the really good stuff is lost to slash and burn agriculture.

Greg was born and raised in Tucson, Arizona, has grown to love the desert and its flora and fauna. He graduated from the University of Arizona in 1979 with a Bachelor of Science in Horticulture, and after working in the landscape industry he went back to the University to study Botany and further his education in horticulture. Greg worked for Warren Jones (co-author of Plants for Dry Climates and Landscape Plants for Dry Regions) and Dr. Charles Mason at the University of Arizona herbarium. Greg made his first foray into the world of collecting in 1979 when he traveled with Warren and Bill Kinneson to Texas where he saw firsthand, in habitat, the many plants he had only experienced in the nursery or landscapes. He emerged from the University in 1985 with a Master of Science in Horticulture with a special emphasis on botany.

He opened Starr Nursery in the summer of 1985, and has specialized in low water use plants for landscaping in southern Arizona. Greg has traveled extensively in Mexico and the southwestern United States to study the plants for their potential landscape use in desert regions of the world. He has also traveled to South Africa and recently to Madagascar in search of juicy succulents.

Greg has written several horticultural articles for the journal Desert Plants. Topics have covered various groups of plants as well as botanizing in South Africa. He has also described a new species of Agave, two new species and a subspecies of Hesperaloe, and revised the genus Hesperaloe in a monograph published in the journal Madroño. Greg worked with Dr. Jose Angel Villarreal in describing Agave ovatifolia which has been dubbed



Whale's Tongue Agave, a reflection of the incredibly wide leaves that sometimes double as water harvesting vessels. Greg's book, Cool Plants for Hot Gardens, was released at the end of April 2009. His second book, titled Agaves: Living Sculptures for Landscapes and Containers, was released in early May of 2012.

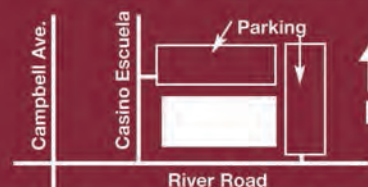
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February Meeting Refreshments

Those with family names beginning with Z, A, B, C, D, E, and F, please bring your choice of refreshments to the meeting.

Your generous sharing will be greatly appreciated and enjoyed!

Meetings are held on the first Thursday of each month.



Junior League of Tucson, Kiva Bldg.
2099 E. River Road



He has taught Plant Biology and Plant Materials classes at The Art Center Design College in Tucson for their program of Landscape Architecture. Since 2010, Greg has focused intensively on the Agaves of Baja California and he and Bob Webb have described *Agave azurea*, a new species from the Picachos de Santa Clara, and submitted a revision

for the genus to the journal *Haseltonia* which should be published early in 2015. He is also a co-author for the upcoming *Field Guide to the Cactus and Other Succulents of Arizona* which is scheduled for publication in February 2015.

Greg spends most of his days tapping at the computer hoping another book will take shape, preparing PowerPoint presentations and tending to Starr Nursery, specializing in Agaves and related plants as well as other succulents and new introductions of perennials, flowering shrubs, and small trees from arid and semi-arid regions around the world.

Please be sure to come and enjoy the evening with an excellent program, have some nice conversations, get some wonderful refreshments, win some great plants and receive a free plant.



President's Message

Get ready for March!

Again this year we are planning to participate with the Green Valley Gardeners in their Spring Fair. We will need your help, so mark your calendars. All the details will be in our March Newsletter.

"Gardeners" Spring Fair with the Tucson Cactus and Succulent Society, Sunday, March 22. We are collaborating to bring a mini-version of their 3-day Expo to Green Valley. Mark your calendars for a day filled with demonstrations, lectures, and garden-related sales at The Courtyard at Continental Mall. Lectures are open to the public, no charge, limited seating."

Our Spring Rescue Plant Sale is tentatively scheduled for Sunday, March 15 at our holding site. We will need your help. This is a great event and an opportunity to acquire some wonderful plants. Participants in the Rescue Program have received their Cactus Bucks which are redeemable at this sale. Details will be sent by email and postcards. Please let your friends and neighbors know about the sale.

We have postponed the Expo at Pima Prickly Park which was scheduled for mid-April. There is a lot of work to be done and March-April is a great planting time. We are planning several

work sessions to make a lot of progress this spring. This will be a great opportunity to play in the dirt with us. Check out the newsletter in March for details.

Our cactus guide has gone to the printer and will be available for the Tucson Festival of Books. We will make the book available at our meetings, sales and other events as soon as we receive copies.

"The 2015 Tucson Festival of Books will take place on Saturday, March 14 and Sunday, March 15 on the University of Arizona campus. Admission is free. Because the University will be on spring break, Festival participants and spectators won't be competing with students for parking."

More things to do in March.

Desert Botanical Garden Plant Sale (Phoenix)

- Members Preview Day
Friday / March 20, 2015 / 7 a.m. - 5 p.m.
- Open to General Public
Saturday / March 21, 2015 / 7 a.m. - 5 p.m.
- Sunday / March 22, 2015 / 9 a.m. - 5 p.m.

This is my favorite time of year. Support our member nurseries, they make us special.

Thanks
Dick Wiedhopf, President



PIMA PRICKLY PARK

ADOPT A PATCH

Pima Prickly Park has made progress since its Dedication in 2012, but we need TCSS volunteers to help with the continued beautification of this 9-acre Park.

Volunteering provides that good feeling of accomplishment. At Prickly Park you can see the difference you've made immediately!

We're asking members to Adopt a Patch at Prickly

Pride of ownership creates that "good" feeling and working with other TCSS members builds friendships and great memories.

Please pick a Patch to Adopt; we will be at the Park working alongside you and provide all tools, plants, and water, along with lots of encouragement.

Pick your schedule, timing, and TCSS friends to take pride in your Patch!



Hummingbird Garden

An irrigated area with flowering plants and wildflowers



Saguarohege

A sacred space with an Opuntioid garden and nurse trees



Agave Area

Different types of agave planted in soft dirt under native trees

ADOPT A PATCH



Cholla Maze

This hilly area is a maze in the shape of a Cholla plant decorated with boulders and rock



Ocotillo Forest

Easy upkeep on the Ocotillo hill plus planting of new rescue plants.



Barrels and Hedgehogs

Design and plant in appropriate areas throughout the Park

Many other areas need your help:

Trees: Pruning and passive water retention to encourage habitat.

Riparian Areas: Design with wildflower seeds and water loving plants.

Hoop House Entrance: Design a hill and flat wet zone with appropriate plants from the Hoop House.

Deterrence Fence Line: Planted with Prickly Pear and Cholla; a little TLC makes a big difference.

General: Overall clean-up/maintenance including pruning, raking, and beautification.



PLEASE VOLUNTEER TODAY

Linda Heisley PPP Volunteer Coordinator

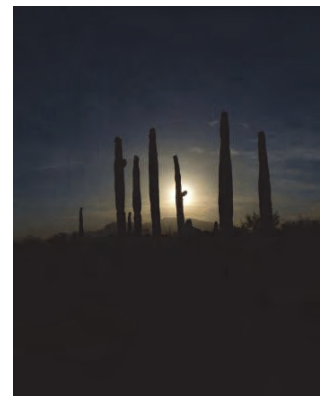
(c) 520-429-4162

(h) 520-297-8558

Cathy Robson Volunteer

(c) 520-403-6660

(h) 520-744-1733



FROM THE FLORILEGIUM

Few flowers have a history so rich in incident, and no other in later years has so charmed the poet's muse and quickened the artist's touch." *The Golden Poppy* by Emory Evans Smith (1902)

As noted by Dr. Smith, who was the first head of Stanford University's Department of Horticulture, the California poppy's historical connections are as fascinating as its flower is beautiful. These brilliant orange flowers were certainly noticed by California's early explorers, but it wasn't until 1792 that naturalists arrived in California to begin collecting specimens for European herbaria. In that year, Captain George Vancouver's H.M.S. Discovery sailed along the coast of California during its four-year exploratory voyage. The ship's surgeon and naturalist was a Scotsman, Archibald Menzies, who collected specimens of the poppy and upon his return to England, gave them to various botanists for their collections.

The formal description and naming of the California poppy was not published until 1820. The botanist was Adelbert von Chamisso, and he named the plant *Eschscholzia californica* for his friend and fellow naturalist Johann Friedrich Gustav von Eschscholtz. Chamisso and Eschscholtz had been aboard the Rurik, a Russian ship under the command of Captain Otto von Kotzebue that set out in 1815 to explore the Pacific islands and the coastline of North America, and ultimately, to search for the elusive Northwest Passage. In 1816 the two naturalists spent a month near San Francisco collecting specimens, including the poppy. Once back in St. Petersburg, Kotzebue, Chamisso, and Eschscholtz published a three-volume account of their explorations, but descriptions of their botanical collections were published separately in various journals.

While there had been an artist aboard the Rurik, he was tasked with recording only landscapes and natives-- not plants. The first illustration of *Eschscholzia californica* did not appear for several years after the collection of the specimen. In 1820 Friedrich Guimpel prepared a hand-colored engraving to accompany Chamisso's description of the plant in the journal *Horae physicae Berlinenses*. The illustration is of the actual pressed plant with little attempt made to recreate the form or color of the flower as it would have appeared nature.

To get this radiant wildflower into the gardens of Europe, another exploring botanist was required. In 1830, several years after the Rurik's travels along California's coast, the Scottish botanist David Douglas landed in Monterey to collect seeds for the Royal Horticultural Society of London. He spent two years there before traveling on to Hawaii, where in 1834 he died after a fall (or as suspected by some, a push) into a bullock pit that was also occupied by a wild bull. His legacy to European gardeners was the introduction of a multitude of California's wonderful wildflowers, which for many years were more popular and revered in Europe than in their native land.

Besides being commemorated by Chamisso in the genus of California's poppies, Eschscholtz was further honored by Captain Kotzebue by his naming of Eschscholtz Bay in Alaska's Kotzebue Sound during their explorations there. Eschscholtz joined the Captain again in 1823 for a circumnavigation on the Predpriaeti. During its four-year voyage, Eschscholtz amassed large natural collections and acquired a passion for entomology. Kotzebue again honored his ship's surgeon by naming a group

of Pacific islands Escholtz Atoll (renamed Bikini Atoll in 1946).

It is interesting that this vibrant flower with so many devotees would be first presented to the scientific community with such a lackluster portrait. But soon artists for the many botanical and gardening publications of the time began to give the poppy its proper due, painting in vivid colors the poppies that were being growing in Europe's gardens.

Note: from German to Russian back to German to Latin...a word about the various spellings above. Johann Friedrich Eschscholtz, a German, would have spelled his name Escholtz in Germany. In his parent's adopted Russia, the spelling would have been the Cyrillic equivalent of e-sh-sh-o-l-ts. Translation back to German resulted in the extra "sch". Chamisso omitted the "t" in naming the genus *Eschscholzia*, which is correct according to the rules of botanical nomenclature, although for many years it was often spelled with the "t". Geographical use of the name is also confused. Escholtz Atoll has had numerous spellings while Eschscholtz Bay seems to enjoy consistent spelling. --CH



The first illustration of *Eschscholzia californica*
Friedrich Guimpel
Horae physicae Berlinenses (1820)

Adopt a Patch

Spring cleaning is not far away so please keep Pima Prickly Park in mind when cleaning out tool sheds and pruning cacti. We welcome donations of tools and plants. We are looking for a golf cart size utility vehicle so let us know if one is available for either donation or possible sale. Over time we have learned the bigger the plant we relocate in the Park, the better the survival rate. So rather than donating single prickly pear pads for example, bigger sections of plants have better transplant success. We have rooted pads but find it can take 1-2 years to get to good size to ensure survival as we do share the Park with many critters. We can help with transporting some plants, if not too large, to the Park. Please consider volunteering at the Park. Hours are flexible (your terms) and we provide guidance, tools and support if/when needed. We need help planting, maintaining, & watering (especially in them summer). If interested in a guided tour to check out the park and see what we do, please contact me. See the insert in this newsletter.

Linda Heisley

You are the eyes and ears of TCSS

The Tucson Cactus and Succulent Society includes over 1100 folks with a commitment to making sure that our Native Desert Plants don't end up in a landfill. If each of us makes it a point to keep our "EYES & EARS" open as we travel thru out the Tucson and Pima County area, and make sure to get our message to builders, developers and contractors who are clearing land, expanding roadways, building shopping centers and developments.

The next time you pass an obvious construction site, please make note of any/all information on the posted signage: Location, Company Names, Contact information (Personnel, phone #s, email, etc.) and forward it to Noé Mayotte, Community Relations "point person," for the Cactus Society. He will quickly follow up with the folks involved in the project, explaining the TCSS charter, and encouraging them to "partner with TCSS" to save any native plants that might be in the path of construction equipment, and will not be relocated elsewhere within the site.

Noé Mayotte's contact info: noemayotteaz@yahoo.com
HA: 520 572 4053, Cell: 520 495 9421

Cactus and Succulent Journal

This extra-thick issue is devoted to succulent hybrids and cultivars, starting with an introduction to the subject by Tim Harvey. The article also includes a survey of genera which contains notable examples. Kelly Grummons introduces us to some surprisingly beautiful *Opuntia* hybrids, one of which is featured on the cover. Aloe hybrids, bred for their value as flowering landscape plants, are the subject of the next article by Andy de Wet. Their near relatives, *Gasteria*, are featured in the article by Tom Glavich and Scot Schaffer, which also includes useful information on cultivation. The quartet of Matt Maggio, Robert Campbell, Renee O'Connell and Dick Wight bring a wealth of experience to the subject of *Echeverias*, as well as a fascinating range of philosophies and practical approaches. The very popular miniature Aloe hybrids, bred for the colorful, toothy qualities of their leaves, show their true colors in the tropical environment of Thailand, where Pijaya Vachajitpan has managed to extend their beauty yet further. Greg Starr brings together many of the newer *Agave* hybrids and cultivars, demonstrating their utility even in the absence of a still. Renny Wong's account of her long involvement with *Haworthia* contains excellent images of outstanding plants, which even the non-*Haworthiaphile* will find captivating. Brian Kemble unveils his 'spiny dwarf' Aloe hybrids, which span the two worlds of attractive flowers and interesting leaves, while Steven Hammer's article on mesemb hybrids smoothly summarizes the state-of-the-art in this diverse group. Hybrid cacti, covered by the Southfield Nursery team in England, include some newer examples of their work. Finally, Pijaya Vachajitpan returns with some surprising miniature *Euphorbia* hybrids, worth a place on anyone's windowsill.



TCSS BOARD

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Vice President: Vonn Watkins • vp@Tucsoncactus.org

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Floilegium: Margaret Pope • art@Tucsoncactus.org

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www.tucsoncactus.org

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For additional information call: (520) 256-2447

Everyone is Welcome!

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

7 4 5 1 5
4

Cacti Rescued - Since 1999
352 Rescues - 25,053 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

February 2015

Thursday, February 5, 2015 at 7:00pm

“Madagascar - A World-Renowned Island of Megadiversity”

Presented by Greg Starr

Tuesday, February 10, 2015 at 7:00pm

Board meeting at the U of A College of Pharmacy

Donors (to 1-26-2015)

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.

Az Field Guide

Ty Petersen
Tom Birt

Education

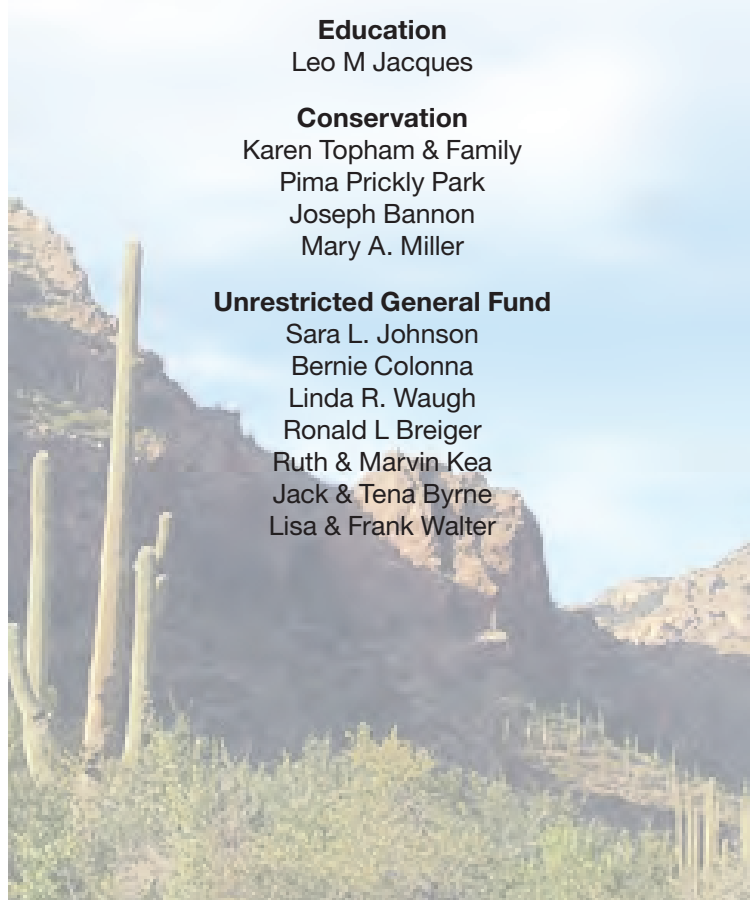
Leo M Jacques

Conservation

Karen Topham & Family
Pima Prickly Park
Joseph Bannon
Mary A. Miller

Unrestricted General Fund

Sara L. Johnson
Bernie Colonna
Linda R. Waugh
Ronald L Breiger
Ruth & Marvin Kea
Jack & Tena Byrne
Lisa & Frank Walter





DESERT BREEZE

Newsletter of the Tucson Cactus and Succulent Society

March 2015

Thursday, March 5, 2015 at 7:00 PM

“Field Guide to Cacti & Other Succulents of Arizona”

Presented by Thomas Staudt

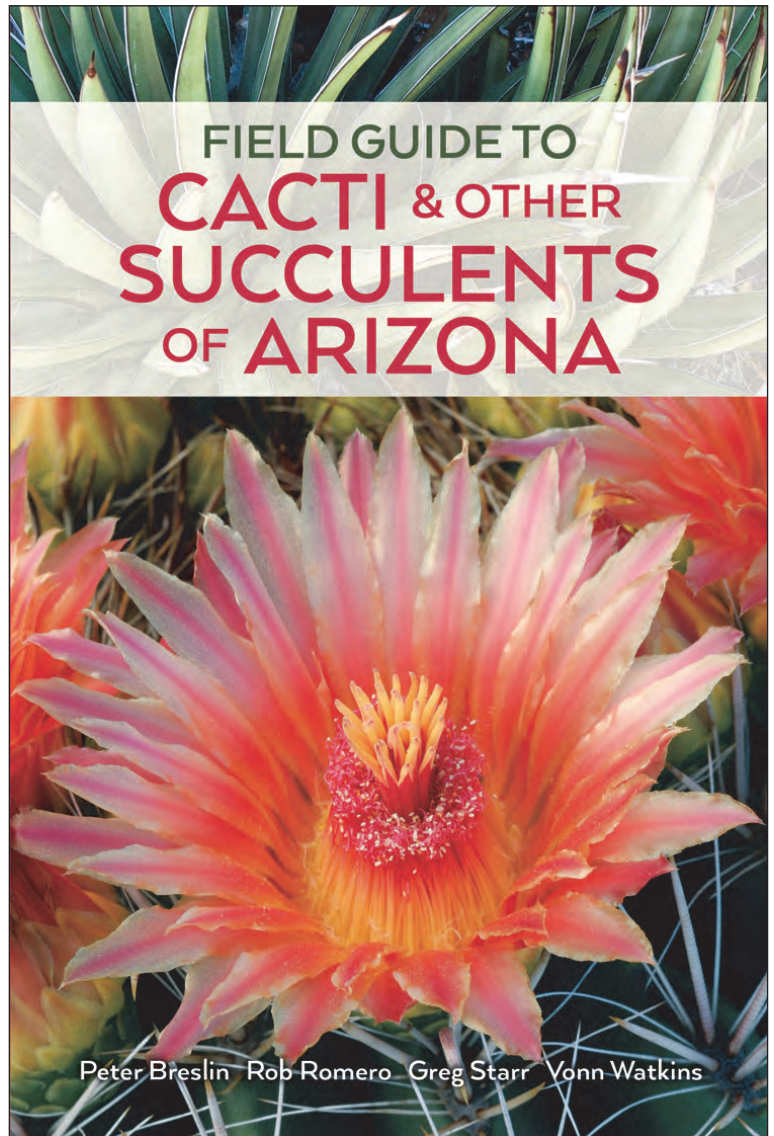


In Tucson Thomas has worked for a number of environmental consultant companies, which provided opportunities to refine his interest in local cacti and other flora. Having used numerous field guides to identify birds around the world Thomas soon realized that an up-to-date, comprehensive cacti field guide would be an invaluable tool for his field work. Since none was available and no one was working to put one together Thomas formulated a plan for such a book.

The March presentation will center on approaching the TCSS board with the idea for a field guide and convincing them of it's need. It will take you step by step through the process of getting the Field Guide to Cacti and Other Succulents of Arizona completed and to the printers. This will include details on how the pages were formatted, photo selection and the use of the species distribution maps. Signed copies of the book will be available and authors will be on hand for questions.

Thomas grew up on a farm in Iowa where as the saying goes “the corn (not cacti) is as high as an elephant’s eye.” He attended the University of Iowa and graduated in 1973 with a BS in General Science, emphasis on biology and local botany.

In 1990 Thomas moved to Portland, OR. and started dual careers as a wildlife biologist and a bicycle tour leader. As a cyclist he led a cross country ride in 1993. As a biologist Thomas covered 1000’s of miles on the Pacific Ocean in search of whales, dolphins and seabirds—a long bout of seasickness cured him of any further pursuits in that direction. Other biological related works have taken him from above the Arctic Circle in Alaska to eight Summer season working in Antarctica, including a two week stint at the South Pole. While there, Thomas pulled a bike out of storage and did three trips around the world in one day. The off seasons between biking and Antarctica provided Thomas an opportunity to pursue his bird watching interest and during those eight Antarctic years he traveled extensively on all seven continents identifying more than 3000 bird species. In 2005, when the cold environments lost there appeal, Thomas settled in Tucson on a more permanent bases. He had lived there off and on since 1992.



continued on next page

The end of the presentation will be an introduction of everyone responsible for the publication. From the list, Rob Romero, Dean Stock, David Yetman, Chris Ginkel and Mary Irish will not be present.

Authors:

Peter Breslin
Rob Romero
Greg Starr
Vonn Watkins

Supporting authors:

Doug Dawson
Matt Johnson
Dean Stock
David Yetman

Also:

Richard Wiedhopf
Tyna Yost

Proof reading/edits:

Margaret Norem

Reviewers:

Marc Baker

Mark Dimmitt
Chris Ginkel
Wendy Hodgson
Mary Irish
Matt Johnson
Dean Stock
Dorde Woodruff

Cover/title page photos:

Stephen Thomson

Map art:

Signe Nordin

Illustrations:

Margaret Pope

Design/layout

Maria Voris

Fundraising/promotion/sales:

John Durham

Production manager:

Thomas Staudt



President's Message

Let's Celebrate!! The "Field Guide to Cacti and Other Succulents of Arizona" is published and will be available at our March 5, 2015 meeting. This will be a special occasion with a brief update of events in March. There will be a presentation of the book by Thomas Staudt who directed this project and then a celebration with the opportunity

to pick-up or purchase copies and have them autographed by the authors and enjoy refreshments.

March is an extraordinary, busy month for plant enthusiasts and we are involved in many of those. Here is the schedule for March, etc.

March 5: TCSS Meeting and Book Celebration

March 10: TCSS Board Meeting

March 10-14: Desert Survivors Sale
1020 W Starr Pass Blvd

March 14-15: Tucson Festival of Books

March 15: TCSS Spring Rescue Sale
4342 N Fourth Ave (Volunteers needed)

March 21-22: Tohono Chul Park - Spring Plant Sale

March 20-22: Desert Botanical Garden - Phoenix

March 22: Green Valley Gardeners'/TCSS Spring Fair
(see insert) (Volunteers needed)

April 11: Pima County Master Gardeners
4210 N Campbell Ave

It is also my great pleasure to announce that the Board of Directors has appointed Cary Jones and Teresa Curtis as Directors to fill the vacant terms on the Board.

A membership renewal reminder is being sent this week if there are any mistakes please let me know.

Thank you for your support.

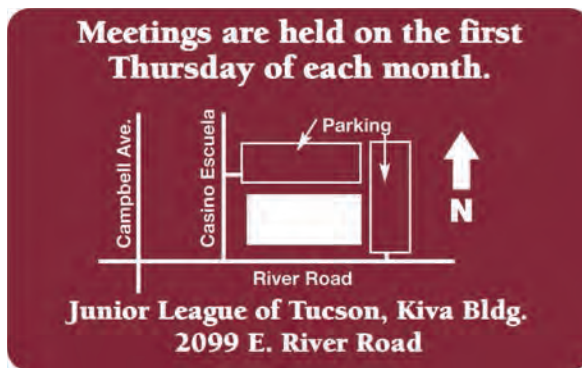
Dick Wiedhopf, President

There will be no raffle, door prize, or free plants at the March meeting.

SAVE THE DATE:

The spring TCSS Garden Tour will be **Sat. April 25, 2015, 9-3** on the southwest side of Tucson.

There will be a mix of home gardens, nurseries and garden art studios. The tour is free for TCSS members and their guests.



FROM THE FLORILEGIUM

After seeing the remarkable works in the illustrations collection at the University of Arizona's Herbarium, and knowing that these illustrations have only recently become available for viewing after many years of being confined to cardboard boxes, I have to wonder how many other troves of art are hidden away in museums, herbaria, publishing houses, and libraries—unseen for the most part, uncatalogued, and maybe languishing in poor storage conditions. Such was the case with the collection of paintings by A. R. Valentien held by the San Diego Natural History Museum (SDNHM) that was unknown in the world of botanical art until recent years.

Albert Robert Valentien (1862-1925) began his career as a painter and artistic director at Ohio's Rookwood Pottery, America's premier pottery of the Arts and Crafts movement. His work there is well-known and can be found in prestigious collections in Europe and the U.S., yet works from his second career, flower painting, were until recently not known outside of California.

Valentien (originally spelled, and pronounced, 'Valentine') was a trained artist but had with no formal botanical training. Floral themes were common at Rookwood, and Valentien would have had considerable experience observing and rendering flowers from nature. But it wasn't until 1899 when, waylaid by illness during a trip to Europe, he began drawing flowers as artistic subjects in their own right.

In 1903 he visited San Diego and found the plant life there irresistible. During his eight-month stay, he produced and exhibited some 130 botanical paintings. The area was so enticing that he and his wife Anne, also an artist, soon left Ohio for California with the intention of starting a pottery studio in San Diego.

Luckily for the world of botanical art, Valentien was pulled away from the pottery studio to work on a commission from Ellen Browning Scripps to paint California's wildflowers. From 1908 to 1918, Valentien traveled throughout California painting plants--wildflowers as commissioned, and also trees, ferns, grasses, and cacti. At the end of ten years, the artist had completed 1,094 paintings representing 1,500 species.

The works were painted on 13" x 20" sheets of light gray paper with gouache, an opaque watercolor that, unlike transparent watercolors, gives a vibrancy and brightness to the plants, particularly white flowers, such as the splendid matilija poppy, one

of Valentien's recurring subjects. All of the paintings were bound in large leather portfolios and delivered to Scripps as completed. The artist's hope had been that these paintings would eventually be published and his name established as a botanical artist. In the end, however, Scripps decided that publication would be too expensive, a most disappointing outcome for Valentien after so much intense effort.

After completion of the floral commission, he turned to landscape art for a few years and in 1925 died unexpectedly from a heart attack. Upon Scripps' death in 1932, the paintings were given to San Diego Society of Natural History where they remained in the research library of the San Diego Natural History Museum (SDNHM) in their large leather portfolios, unpublished and seen only by a few.

In 1999 one of the museum's docents, after seeing these amazing works in the museum's library, approached Margaret Dykens, director of the research library, with an offer of funding to make the collection more widely available. Eleanor and Jerome Navarra sponsored the immense project of photographing, cataloging, and appraising the works, creating archival conditions for storage, and finally, exhibiting a selection of them. Eighty of the works were exhibited at SDNHM in 2003 after which The Irvine Museum funded an exhibition of the works that traveled throughout the U.S. from 2005 to 2009.

It is well worth the time to seek out these extraordinary works. A book funded by The Irvine Museum and SDNHM was published to accompany the exhibition. *Plant Portraits: The California Legacy of A.R. Valentien* includes a collection of essays with images of 325 of Valentien's paintings. A number of works from the exhibit can also be seen on



Ferocactus cylindraceus
A.R. Valentien

SDNHM's website (<http://www.sdnhm.org/archive/valentien/plantportraits/samples.html>).

For anyone traveling to San Diego in the near future, a selection of Valentien's works can be seen as part of the SDNHM's new exhibit **Coast to Cactus in Southern California** (<http://www.sdnhm.org/exhibitions/current-exhibitions>). -- CH

Images courtesy of the San Diego Natural History Museum

continued on next page



Eschscholzia californica
A.R. Valentien

FROM THE FLORILEGIUM

In 2012, when planning and gathering artwork for the exhibit, Botanical Art of the Sonoran Desert: Past and Present, TCSS members Nancy Reid, Jan Bell, and Margaret Pope went to the San Diego Natural History Museum to look at the watercolor drawings of A. R. Valentien archived in their Research Library. Although the collection documents California's botanical diversity, many of the 1,094 paintings are of plants native to the Sonoran Desert and would have been appropriate to include in the exhibit.

Margaret Dykens, Research Library Director, showed Nancy, Jan, and Margaret paintings of plants native to the Sonoran Desert. Because of the Florilegium Program's work with archiving the U of A Herbarium's collection of botanical illustrations, they were very interested in seeing how the

Valentien collection was archived. Originally the paintings were mounted on sheets of linen paper and encased in a number of leather portfolios. Since the leather portfolios were not of archival quality, the paintings were removed from the portfolios and stored in archival boxes. These boxes were then stored in cabinets specifically designed to hold the boxes, just as our program has done with the U of A Herbarium collection.

These delicate watercolor paintings would have been a very special addition to the exhibit, but unfortunately the Arizona-Sonoran Desert Museum Art Institute was unable to make the appropriate arrangements to borrow the paintings for our exhibit. The works are lovely, and we wanted to share with our TCSS members two of the Valentien paintings. -- MP



Margaret Dykens (SDMNH) shows Margaret Pope and Jan Bell (TCSS) Valentien's paintings of some Sonoran Desert plants.



In this painting of *Prosopis pubescens* it is possible to see the mounting sheet for the artwork as well the binding holes from the leather portfolio.



Margaret Dykens with one of the leather portfolios made for Ellen Browning Scripps for storing Valentien's paintings. The paintings were removed from the portfolios and placed in archival storage boxes.



Valentien's paintings are now stored in custom-made storage cabinets instead of the original leather portfolios.

Gardeners' Spring Fair

Sunday, March 22nd — 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	Mark Sitter	Tricos — Huge Blooms to Die For
11 am	Gary Maskarinec	Wildflower seeds
1 pm	Brendan Woltman	Coconut husk for growing plants— Making Life Bigger and Better
2 pm	Jon Weeks	The Invisible Queen

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 Farm Selling plants, pots and garden art	Greg Starr — Starr Nursery Selling plants and signed books
Berni Jilka — Nighthawk Natives Nursery Gary Maskarinec — Wildlands Restoration Selling native plants, grasses & seed	Kay Sobol — Local glass artist Selling potted glass cactus and SW glass creations
Mike Ellis — Blue Sky Plants	Bob Webb — Arid Lands Greenhouses
Kathy Stone & Francesca Moses Earth Angels — Selling pots and providing potting service, you buy a plant & pot and take it home potted!	Brendan Woltman — EcoGro Selling organic coconut husk products, "Air Plants", and tomatoes from around the world for this climate
Nancy Biggins — Copper Hummingbird Selling bee-proof hummingbird feeders https://www.facebook.com/copperhummingbird	Tucson Cactus & Succulent Society <i>The Field Guide to Cacti and Other Succulents of Arizona</i> https://www.facebook.com/tcssfieldguide
Pottery by Jay Groothousen A Green Valley Clay Studio Potter	Green Valley Gardeners Spring Garden Tour Tickets
Pima County Master Gardeners — Will answer questions	



Green Valley Gardeners

A Service Club Made Up of Gardeners



NOW AVAILABLE!
for only \$25.95 Discounts are offered for multiple copy purchases.

Get your copy at the next TCSS monthly meeting on
Thursday, March 5, 2015.

Come see us at the Tucson Festival of Books.
Booth 245 – March 14th & 15th



FIELD GUIDE TO
**CACTI & OTHER
SUCCULENTS
OF ARIZONA**

Peter Breslin Rob Romero Greg Starr Vonn Watkins

TCSS 2015 Spring Cactus Sale

Sunday, March 15, 2015 from 8:30 am to 11:00 am

Please join us for our 2015 Spring Cactus Sale by the Tucson Cactus and Succulent Society (TCSS). There will be both Rescued Cactus sales and TCSS Member Businesses selling their plants.



Gates open at 8:00 am to start handing out Rescue Sales Entry Numbers which are needed for controlled access the TCSS Cactus Rescue Crew program rescued cactus part of the sale

Please get an Entry Number as soon as you arrive, then you can shop with the Member Businesses until your number is called.

Location is 4342 N. 4th Ave (first street west of 1st Ave and just south of Wetmore)

Please note: This is a cactus holding area, not a retail location. We only sell cactus at these Public Sales when we have plants to sell. No orders, no early sales.

TCSS Member Businesses with quite a variety of plants will start selling their items shortly after the gates open, they collect their own money, most only accept cash and checks.

Rescued Cactus Sales start at 9:00 am. Entry numbers will be handed out starting at 8:00 am when the gates open. Access to shop in the rescued sales area will start at 9:00 am, starting with about 20 customers by their Entry Number (starting with numbers 1 to 20) and letting in more as fast as we can handle the sales and have room in the sales area to safely move around.

All cacti sales for the first period until all customers have entered, about 30 minutes, will have limits of 1 Saguaro and 2 of each type of all other cactus per customer. We have about 125 Barrels, 200 Hedgehogs, 90 Saguaros (sizes from 8 inches to 36 inches tall), 250 Mammillaria (pincushions) and 8 Cholla. We will load the cactus in your vehicle for you. Heavy gloves available for \$12/pair.

We accept cash, checks and credit cards for our Rescue Sale cacti (Visa, MasterCard, Discover, American Express).

Come early for best selections, rescued cactus sell very quickly, most within the first 45 minutes. All who arrive by 9:00 am will enter by entry numbers to be able to purchase up to one saguaro and up to two of each type of other cacti. After all have entered (normally takes about 30 minutes), all limits will be removed and customers will be able to purchase any of the remaining cacti.

We hold sales when we accumulate enough rescued cactus for a sale so we have no idea at this point when our next sale will occur. We post sales on our web calendar as soon as they are scheduled.

Please see our web site for more information about our Cactus Rescue Crew program and our sales including approximate sale prices.

Cactus Rescue Crew Program http://www.tucsoncactus.org/html/cactus_rescue.html

Plants and approximate pricing http://www.tucsoncactus.org/html/rescue_plants.html

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Editor: Karen Keller • editor@Tucsoncactus.org

Deadline for copy: Thursday, March 19, 2015

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See cover for details

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Board meeting at the U of A College of Pharmacy

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We extend our sincere thanks for your support.

Research

Linnea Gentry

Unrestricted General Fund

Madonna L. Stoehr

Gift to Library

"Madagascar -A Natural History"

Gene Murphy

Pima Prickly Park

David & Mary Freund





DESERT BREEZE

Newsletter of the Tucson Cactus and Succulent Society

April 2015

Thursday, April 2, 2015 at 7:00 PM

“The Renewal of the Cactus and Agave Gardens at the Arizona-Sonora Desert Museum”

Presented by Jason Wiley



For the past year, two gardens at the Desert Museum - the Agave Garden and the Haag Cactus Garden - have been undergoing transformations. The Haag Cactus Garden might be of particular interest to current members of the Tucson Cactus and Succulent Society as

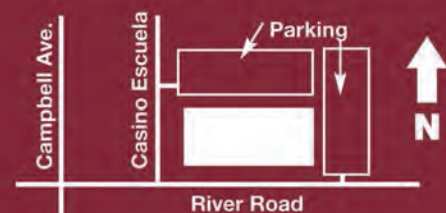
it was named in honor of the founder of the Tucson Cactus Club, “Cactus” John Haag. John worked at the Desert Museum in its early days as a curator of plants and he endeavored to educate people about cacti and other succulent plants of the region. Shortly after his death in 1962, The Tucson Cactus Club dedicated a garden at the Desert Museum in his name, “The Haag Cactus Garden.” And the Tucson Cactus Club, that John founded, evolved to become the Tucson Cactus and Succulent Society. This presentation will describe not only the current and ongoing improvements to these two gardens but will also cover plans for their future.

Jason joined the Arizona-Sonora Desert Museum in May of 2014 as horticulturist. He was raised in eastern Colorado and grew up on a sod farm so his interest in plants started early in life. He received his B.S. in Urban Horticulture from Arizona State University in 2007. His career includes positions at the Phoenix Zoo caring for the “Harmony Farm”, as the Lead Horticulturist and Landscape Designer for the Budweiser Tour Center and employment for a high-end horticulture services company, both in Fort Collins, Colorado. Jason relocated to Tucson in 2014 to join the staff at the Arizona-Sonora Desert Museum.

Be sure to place April 2nd on your calendar, come and enjoy an excellent program by Jason, have some refreshments, win some great plants and also take a free plant with you at the evening conclusion.



Meetings are held on the first Thursday of each month.



Junior League of Tucson, Kiva Bldg.
2099 E. River Road



President's Message

I was thinking how this newsletter could really be helpful to you. Actually, I was working in my greenhouse and had a question about cultivation and I couldn't find the answer online. How else could I get an answer to my question. There are many experts in our Society who could help and would be happy to share their knowledge with

the rest of us. The answers need to be posted in our newsletter since all of our members get it and it's on our website so you could refer to it whenever you needed an answer. Additionally, non-members who have the same question could also be helped. Send your question to: President@tucsoncactus.org and I will find an expert who can answer them. They will be posted in the newsletter. There are two general areas where I think this could be helpful, cultivation and propagation. Send a question and hopefully it can be answered and published in our newsletter to benefit everyone.

March was an extremely busy month and we had a lot of volunteer hours associated with all the activities. Thank you to all who made it possible. We needed help for two rescue days, a spring rescue plant sale, the Tucson Festival of Books, and finally the Green Valley Garden Fair. Every event was filled with plenty of volunteer help. That sure makes the process easier. Thank you to everyone who volunteered.

This is a fabulous spring so take lots of pictures of your plants, others plants and wild plants. Perhaps someone will put together a program for our website or a meeting of spring 2015 with everyone's favorite pictures. Do I hear a Volunteer?

It has become a tradition that before every meeting, members bring their excess plants to give away. April is a great time to get rid of or acquire new plants. Come early. Bring your plants or take home some new things. Thanks for sharing.

Remember to attend the home tours on Saturday, April 25.

Thank you for your support.

Dick Wiedhopf, President

Spring Cactus Rescue Crew Sale Loads Out 500 Cacti



A windy Sunday morning on March 15th didn't deter our customers from showing up early to pick from a great selection of Saguaros, Barrels, Hedgehogs and Mammalia. TCSS had 46 enthusiastic volunteers handle all aspects of the fast and furious sale that was all but over in 60 minutes, serving 137 customers. We sold about \$10,000 in cactus with a profit of about \$7,500. I estimated it took about 160 man-hours for the sale to happen. Our new TCSS Field Guide book was also a big hit at the sale, selling just over 30 copies.

A special thanks to Tucson Electric Power (TEP), Pima County Dept. of Transportation and ASARCO Silver Bell Mine for allowing TCSS to rescue cactus on their properties/projects.

I was curious about the actual man-hours to set-up a rescue, do the rescue and get a cactus to the holding site ready for a sale. I used the data from the last two rescues. This location had easy access and easy digging (best of both rescue conditions). I estimated it took about 1.4 man-hours for a medium to large cactus. The small cactus are sort of freebies that require little time when going after the other cactus. Last year, we had over 180 members help with the Cactus Rescue Crew program contributing over 2,500 volunteer hours.

Joe Frannea

Book Signing at the Tucson Festival of Books



TCSS SPRING 2015 DESERT GARDEN TOUR
SATURDAY- APRIL 25, 2015
9AM – 3PM

GARDEN A: “We come from earth - We’ll return to earth - And in between, we garden”

This is just one of the sayings you will find around Tony and Cass's yard along with fossils, Texas Mountain Laurel and some great landscaping done by Tony and Cass. Agave utahensis, Echinocereus, Sansevieria and many other interesting specimens for your pleasure and a greenhouse adds a finishing touch.

GARDEN B: GREG has a different type of garden. Life is art and this is so true of his dwelling and landscape. Everything has a purpose. In Greg’s words “This isn’t the place to see a bunch of plants.” In four short years Greg has transformed horse property to a sculpturing delight. Coming up the drive, you’ll be greeted by a Crested Saguaro. Then get ready to be inspired. From native bee condos to Korean “Sotdae” and antlers made from mesquite roots, all of Greg’s sculptures are made from salvaged materials. Further down you’ll see his studio and a bridge made of railroad ties that Greg built with a friend. Be sure to check out the 360-degree views from the loft.

GARDEN C: Adeniums, bromeliads and orchids, Oh My! You’ll see them all and more at MARK’S. . Someone said “Flowers are born to seduce, although we’re never the prime target”, in Marks greenhouse we become enslaved. A greenhouse full of Adeniums with flowers beyond belief. Traveling towards the next greenhouse full of orchids, bromeliads and more, you’ll see some plants not usually seen in the ordinary garden. Look for the Welwitschia mirabilis

GARDEN D: JANA will have her greenhouse open for your buying pleasure. Across the way look for the patch of 25 year old Saguaros. There are more beautifully landscaped areas to see as you travel between the two houses including such standouts as Agave ocahui, Brachychiton rupestris, Lophocereus schottii, Euphorbia antisiphilitica and a great view.

GARDEN E: For GREG & CAROL to grow a garden of agaves is to seek happiness. Agaves are everywhere. It’s no secret Gregg loves agaves. A large Agave ovatifolia (Whales tongue) is spectacular. Other plants include Sophora secundiflora, Echinocactus platyacanthus, Yucca rigida, Agave parryi var huachucensis and Echinocactus texensis.

FROM THE FLORILEGIUM

In keeping with the Sonoran Desert Florilegium Program's goal to promote conservation and appreciation of Sonoran Desert plants through botanical art, a florilegium has been established to document plants native to the Sonoran Desert region. Last month, a notable milestone was reached when the Program issued a call for entries for artists to submit works to the Sonoran Desert Florilegium.

The submittal process is open to any artist, and in order to get the process started quickly, Margaret Pope recently met with a small group of artists from the Southwest Society of Botanical Artists (SWSBA) to explain the submittal process for the Florilegium. Information from that meeting is now being sent to all members of SWSBA.

Submissions to the Florilegium must be two-dimensional works of botanical art, a requirement that excludes photography and digitally-created works. Plants selected for portrayal must be native to the Sonoran Desert. Works must adhere to a high standard of botanical accuracy and be reviewed by a botanist before submittal.

The Call for Entries is on the Florilegium Program's website at www.art-botanical.org/SDFlor/FlorHome.

Artworks will be accepted into the Florilegium by a jury composed of a botanist, a botanical artist, an artist, and a member of the Steering Committee. Entries will be accepted twice a year, from July 1 to July 31, and from January 1 to January 31. Once accepted, these artworks will be displayed on the Florilegium's website in a unique section designed to highlight the artwork, the artist, and the plants.

As noted in the October 2014 issue of *The Desert Breeze*, the Sonoran Desert Florilegium is a digital project. Instead of curating a physical collection of artworks, the Florilegium Program will archive high-resolution digital images for online display with the possibility of future publication. Artists will retain copyright to their works but will grant to the Florilegium the right to use their images not only for website display but also for educational and promotional purposes and for any publication projects that may arise.

One unique feature of the Sonoran Desert Florilegium is its inclusion of multiple representations of the same plant. For example, jurors may accept a pen and ink drawing of *Datura wrightii*, a colored pencil rendering of the plant, a watercolor portrayal, and a painting that shows a sphinx moth pollinating the plant. All versions are useful in fully documenting the plant. Artists may also choose to focus on a single aspect or structure of a plant, such as a flower's progression from bud through fertilization. While a thorough documentation of a plant is best accomplished through a botanical plate (preferably in color), artists may be able to convey some of the same information about a plant in a less exacting format.

Shown here are three groups of images that illustrate the different forms of botanical documentation that would be acceptable in the Sonoran Desert Florilegium.

As the Sonoran Desert Florilegium expands its online collection, artists, scientists, and the general public can gain an appreciation of the scientific accuracy and aesthetic value of the art as well as an awareness of the unique and fascinating flora of the Sonoran Desert.



Two representations of *Erythrina flabelliformis* in different media: Left, a botanical plate in pen and ink by Lucretia Breazeale Hamilton Right, a colored pencil portrait by Margaret Pope



Two presentations of a botanical plate: Left, *Phaseolus grayanus*, in pen and ink by Chris Bondante Right, *Celtis ehrenbergiana*, in colored pencil by Cindy Hartwell



Two presentations with a less traditional focus: Top, *Carnegiea gigantea* with pollinators, in watercolor by Joyce Peters Bottom, *Peniocereus greggii* fruits, in colored pencil by Margaret Pop

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For additional information call: (520) 256-2447

Everyone is Welcome!

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

7 4 5 1 5
4

Cacti Rescued - Since 1999
352 Rescues - 25,053 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

April 2015

Thursday, April 2, 2015 at 7:00pm

"The Renewal of the Cactus and Agave Gardens at the Arizona-Sonora Desert Museum" Presented by Jason Wiley

Tuesday, April 14, 2015 at 7:00pm

Board meeting at the U of A College of Pharmacy

Donors

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.

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TANYA QUIST

Pima Prickly Park
SUZANNE EDWARDS

Field Guide

DAVID WALKER
SONORAN DESERT FLORILEGIUM
JOAN MCGANN

April Meeting Refreshments

Those with family names beginning with G, H, I, J, K, L, and 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

May 2015

Thursday, May 7, 2015 at 7:00 PM

“20 Years Under the Saguaros”

or

“What Your Momma Never Told You about the Saguaros!”

Presented by William Peachey



Years ago as a paleontologist Bill had worked on a project that collected evidence of the presence of saguaros from fossil pack middens he had discovered in the San Pedro River Valley east of Tucson, Arizona. At the time he never dreamed that one day he would have a wide spectrum of research projects that concern this icon of the Sonoran Desert!

In the late 1990s, following a study of the nectar-feeding Mexican Long-nosed Bat, *Choeronycteris Mexicana*, he had ended up with a fine saguaro study plot on which to investigate in detail the blooming of the saguaro cactus.

Today, 20 years later, he has found that every other morning during the months of May and June each year he has been standing under the same saguaros on this plot to count their blooms, one-by-one, using binoculars and then recording their numbers. However, beyond the endless numbers on piles of dry data sheets that he has generated, he promises to uncover many other interesting aspects of saguaro reproduction, associated animal life, mortality, and anatomy that have come to light.

And, in his presentation, for the first time publically, four features of saguaro anatomy that have not been previously described will be shown. These are 1) the manner of growth



Photo contributed by C.T.Bethard ©2010

at the stem tips, 2) the “plumbing” for the nutrients supplied to buds, flowers, and fruits, 3) a division of the cortex into two types of tissue, and 4) the manner of growth of new arm buds.

Bill was born with the “Desert Rat” gene fully operational and then was blessed to have been able to grow up in the

continued on next page

continued from previous page

post-WWII Phoenix area when the Sonoran Desert could still be experienced there close at hand and in every direction. He was doubly fortunate to have been mentored in science and the practical aspects of its activities from grade school through high school by participation in a local Chapter of the "Grinnell Natural History Society" - then world leaders in field science education who developed the standard in field science note taking that is followed internationally today. From total immersion in their programs he developed a love for "field science" that he still and, will always, have.

College found him at the U of A in the mid-1960s where he fell quite willingly into the "black hole" of cave science. That path has led over the years to caving expeditions in the Grand Canyon, cave trips all over the lower 48 states, cave rescue training & cave rescues, membership on the committee that developed the "Arizona Cave Law", work on cave management plans (National Park Service, Forest Service, etc.), bat research, cave minerals & decorations, cave paleontology, speleogenesis, and much much more. The above work and interests have led to his becoming a "consultant" (NOT for pay!) to several indigenous groups in the U.S. & Mexico for the protection of their religious sites that are found in caves.....

During the 1970s he took up geology in the form of exploration in the western hemisphere for metals, uranium, oil, geothermal steam, and geological engineering. From a crew member I eventually became(with a return to the U of A in Geology) a "Consulting Geologist". Engineering projects in teams from local geology contractors have included: Interstate Highway stability for the Ariz. Dept. of Trans., foundation stability for the MMT(the first telescope on Mt.Hopkins in the Santa Rita Mtns.), conditions underneath the Palo Verde Nuclear Power Plant. And, during that time period he was overjoyed to be able to help to design and build the cave exhibits at the Arizona-Sonora Desert Museum as Bill and his family and had been very early and regular visitors to the Museum. He provided their plant list of the prominent limestone loving plant species of Sonoran Desert biomes as well as the plan for their incorporation in the landscaping of the cave exhibit site where they can be seen flourishing today - in addition to

his involvement in several other projects inside of the "cave"(for instance, he is the one that INSISTED that they install the "kids crawlway" In the high passage that adults are "horrified" to find their kids have disappeared into!..)

By the 1990s he had become involved in studies of Arizonas two nectar-feeding bats - both of whom feed upon Saguaro flowers. During that time he became the "science guy" for Colossal Cave Mtn. Park. Also, his long term work on the natural resources of the Cienega Creek basin resulted in a request by the U.S. Congress for his information on the area for its deliberations concerning its designation of the then pending Empire Cienega Nat. Conservation Area. Along with pack rat midden-researchers, the Van Devenders, we reported, from the analysis of the very first fossil middens found in the San Pedro River Valley that he had discovered, to the BLM about the last 2,000 years of plant history there in "The Late Holocene Vegetation of the San Pedro River Valley, southeastern Arizona". This report contains the easternmost paleorecord of the Saguaro in Arizona and the only fossil record of the "Needle spine Cactus" (*Echinomastus erectocentrus*).

Starting in the late 1990s as part of an Arizona Game & Fish Dept. grant on the Mexican Long-tongued Bat(*Choeronycteris Mexicana*), he began his ongoing research concerning the Saguaro Cactus, one of this bat's major food sources.

Currently, he is engaged in a multitude of Saguaro projects. With co-researchers they are tendering for publication a major paper on the paleofauna of Pyeatt Cave in Cochise County, AZ and are circulating for publication a research paper on the Pallid Bat and its arthropod prey species. The very tip of the Saguaro information "iceberg" of his findings concerning this cactus has just been published by the T.C.S.S. as a "factoid" in a picture caption in the new "Field Guide to Cacti & other Succulents of Arizona".

Come and enjoy Bill's program and enjoy some great refreshments, win a great cactus or succulent and receive an excellent free plant as you depart.



William Peachey



February 2015 - a Fallen saguaro at the Rowsell's home was partially dissected and cored for oxygen isotopes

FROM THE FLORILEGIUM

Last month we discussed The Sonoran Desert Florilegium, the recently established digital florilegium on our website, www.art-botanical.org/SDFlor/FlorHome. It is very exciting to finally establish this florilegium since it has been a major goal of ours from the onset of the Florilegium Program. Images will begin to be juried into the Florilegium in July, and we look forward to seeing the selected works on the website in August.

This month we would like to tell you about another exciting development. As a result of discussions with Tanya Quist, the Director of the U of A Campus Arboretum, and Veronica Reyes of Special Collections at the U of A Library, the Campus Arboretum has established the Florilegium of the Joseph Wood Krutch Garden. We will be working with the Campus Arboretum and botanical artists to create botanical works for this florilegium. The Florilegium of the Joseph Wood Krutch Garden is a more traditional florilegium than the digital Sonoran Desert Florilegium, as it will be a physical collection of art. Works that are juried into the Krutch Garden Florilegium will be purchased by the Arboretum, accessioned, and permanently stored in Special Collections at the U of A Library. Special Collections will periodically exhibit the artwork at various venues on campus, and the collection will be available for loan for off-campus exhibits. The Campus Arboretum is responsible for raising funds to purchase the artwork, and the Sonoran Desert Florilegium Program will help recruit artists and assist the Campus Arboretum with fundraising efforts.

When the University of Arizona was established as a Land Grant Institute in 1891, Dr. James Toumey, a botanist for the Agricultural Experiment Station on campus, recognized the educational value of the native vegetation that evolved in the Sonoran desert over thousands of years. He started a cactus display garden at the University that is now known as the Joseph Wood Krutch Garden, named after the noted writer and naturalist. The Krutch Garden (pronounced KROOCH) is part of the University of Arizona Campus Arboretum, a living laboratory integrated into the main campus and dedicated to promoting stewardship and conservation of the hundreds of plant species collected and installed on the campus grounds throughout the University's almost 125-year history.

The University's cactus collection was originally located on the west side of Old Main in the late 1890s. At that time it consisted of over 600 species. In 1929 it was moved to the mall (east) side of Old Main and filled the area from Cherry Avenue to Old Main. The western part of the area was grassed over in the 1950s. In the 1970s, during a time of lush California-style landscaping on campus, the eastern part of the Mall was also converted to grass resulting in a central island with a cactus/succulent collection. In

1980 this island of desert plants was dedicated to Joseph Wood Krutch (whose personal papers are held by the U of A Library).

Over the years new species were added to the garden, and in 2004 it became part of the Alumni Plaza and was enlarged and planted with additional Sonoran Desert species. Members of the Tucson Cactus and Succulent Society helped in planting cactus and succulents in the Krutch Garden and Alumni Plaza and in accessioning the plants in the Krutch Garden.

This collection of desert plants is the last remnant of the University's oldest and most significant educational garden and perpetuates the legacy of Joseph Wood Krutch. The Florilegium of the Joseph Wood Krutch Garden will document the scientific and aesthetic value of the Garden's native plant collection, which to date contains over 50 species of plants with additional plantings in progress.

The artwork for the Krutch Garden Florilegium must be in color and prepared as a traditional botanical plate. A traditional botanical plate shows the habit (the overall appearance of the plant) and the individual structures of the plant that are important to identifying the species. These structures are usually enlarged with some shown in cross section or vertical section.

In February Tanya Quist met with members of the Southwestern Society of Botanical Artists (SWSBA) to discuss the Krutch Garden Florilegium. During a tour of the garden, artists chose specific plant species and committed to creating botanical plates for those species. Works accepted into the Krutch Garden Florilegium that portray plants of the Sonoran Desert will also become part of the digital Sonoran Desert Florilegium and displayed on our website. -- MP

For more information about the Florilegium of the Joseph Wood Krutch Garden, including Artist Guidelines and a Plant List, visit the Campus Arboretum's website and select "Gifts and Sponsorships" from the "Donate" menu at the top right of the webpage (<http://arboretum.arizona.edu/sponsorship>).

A history of the Krutch Garden, including a complete inventory of the collection and a printable self-guided tour of the Garden, can be found at <http://arboretum.arizona.edu/krutch-garden>.

The two botanical plates shown here are excellent examples of the type of work that will be accepted into the Krutch Garden Florilegium. Please note that these plants are examples only and do not represent plants growing the Garden. The artist for both works, Susan Ashton, prepared the scientific illustrations for a handbook on rare and sensitive plants for Grand Canyon National Park.

FROM THE FLORILEGIUM



Euphorbia aaron-rossii / Ross's Spurge
© 2010 Susan Ashton / Watercolor

This *Euphorbia* can only be found growing in a small area at the bottom of a section of the Grand Canyon. It wasn't discovered until 1988. Its closest relatives are located in western Texas, eastern New Mexico, and northern Mexico, where they are rare and are remnants of Ice Age Chihuahuan flora.

Like most *Euphorbias*, this spurge has a complicated flower with petal-like appendages (white or pink) and glands (green). The seed-bearing capsule develops above the flower and can have one to three seeds.



Mortonia utahensis / Sandpaper Bush
© 2010 Susan Ashton / Watercolor

Sandpaper bush gets its common name from the tiny spines covering its leaves and stems, which make it feel like sandpaper. This shrub is found in a few places in AZ, NV, UT and CA, with relatives in TX and Northern Mexico, where it is a remnant from a forest that covered the area during the Ice Ages. It has become adapted to the hotter, drier climate, but it has become scattered and rarer.



Joseph Wood Krutch Garden at the University of Arizona
Photos by Chris Bondante



President's Message

What to do with Kuerig Coffee Cups? These cups are not permitted to be recycled. So here is a suggestion if you are like me, a coffee drinker and a cactus nut.

When you cut off the top of a used Keurig cup you see it is filled with coffee and when you turn it over you see the one puncture hole the machine makes. So why doesn't the ground leak out? I washed out the coffee and you can see in the next picture that the cup has a fluted filter attached to the inside and above the bottom of the cup. When the cup is punctured the filter remains intact.

So I filled the cups with potting soil for seeds and scattered (too many) seed on top of the soil and placed the cups in a plastic container. Seeds Grew!

This is just a fun and easy thing to do and would be great for kids and grandkids to get them interested in growing plants from seed. I am sure it could be adapted to any type of plant seed.

It has only been a few weeks so the next steps are transplanting the seedling and that will be a future report.

I did have some clumps of seedlings that I wanted to separate and grow on in a flat. It would have been easy to just fill the flat with soil and transplant the seedlings but I wanted to space them evenly so I had another idea. I placed a piece of peg board on top of the soil filled flat (Fig. 1). I used a chop-stick to make a hole in the soil through each hole in the peg board. When I lifted the peg board off the top of the soil, I couldn't see where I made the holes. I replace the peg board and poured a couple of spoons of flour on top of the peg board and pushed the flour into each hole in the peg board (Fig. 2)

When I lifted the peg board off of the soil, I had what I wanted (Fig. 3). It was the perfect spacing for the seedlings (fig. 4).

Everyone needs to contribute ideas to our newsletter. Send us your special way of growing.

I want to thank the group who opened their homes and gardens for the Spring Home Tour. It was the perfect time of year for wonderful plants in bloom and great garden ideas. The volunteers for the Home Tours really do a great job and my thanks to them. The Home Tour committee is spectacular. That says it all.

June is the perfect month to start the Sonoran XI planning. I invite anyone who is interested in participating to come the June meeting which will be announce in the next newsletter.

Thank you for your support.

Richard Wiedhopf, President

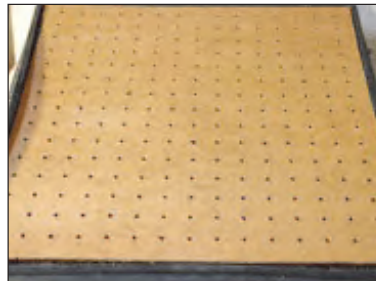


Figure 1



Figure 2

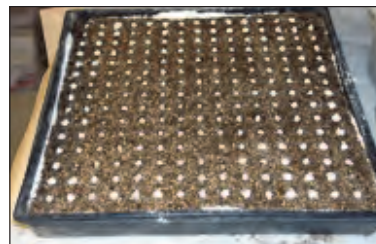


Figure 3



Figure 4

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352 Rescues - 25,053 Volunteer Hours

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TCSS Club Members receive a 10% discount

May 2015

Thursday, May 7, 2015 at 7:00pm

“20 Years Under the Saguaros” or “What Your Momma Never Told You About The Saguaros!” Presented by William Peachey

Tuesday, May 12, 2015 at 7:00pm

Board meeting at the U of A College of Pharmacy

Donors

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

CHUCK HUCKELBERRY & FAMILY

MONRAD FEROCACTUS GARDEN

PATSY & JOE FRANNEA

UNRESTRICTED GENERAL FUND

DAN & SHARON MENDENHALL

FIONA CLARK & JIM BOGGS

FRANK EDMOND'S CACTUS & SUCCULENT COLLECTION

CAROLYN EDMOND

**Meetings are held on the first
Thursday of each month.**



**Junior League of Tucson, Kiva Bldg.
2099 E. River Road**

May Meeting Refreshments

Those with family names beginning with N, O, P, Q, R, S, and T, 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 2015

Thursday, June 4, 2015 at 7:00pm

“The Horticultural aspects of Adeniums, Emphasizing Propagation, Repotting, Pruning, Pests, and New Varieties”

Presented by Dave Palzkill



Dave was raised on a mixed beef/hog/chicken farm in the hill country of southwest Wisconsin near the former mining town of Mineral Point. He majored in Horticulture and Plant Pathology at the University of Wisconsin – Madison. During his graduate studies he also spent 8 months at the University of California – Davis, a time which awakened his interest in the dry west. His dissertation research at Madison focused on the influence of environment on Ca-transport and Ca-related disorders of vegetable crops. Dave taught Horticulture and Agronomy courses at the University of Arizona for 14 years and conducted research on new/alternative crops for dry regions; primarily jojoba, but also low water-requiring landscape/ornamental plants and mesquite for energy production. Since 1990, he has worked as a consultant on new crops projects (jojoba, chia, lesquerella, mesquite, moringa) in several countries. For the past fifteen years, he has also managed a nursery in northwest Tucson specializing in Adenium, but also including lots of Pedilanthus (Lady’s Slipper) and misc. cacti., especially small-padded/jointed Opuntoids which he first developed an interest in on travels in various S. American countries.

His talk will focus on several horticultural aspects of Adeniums, with emphasis on propagation, repotting, pruning, pests and discussion of several new varieties.

Please make sure you come to this important program on a Tucson cultivation favorite. Enjoy great refreshments, win a plant and get a free plant before your evening departure.





President's Message

It has been exciting to see large crowds at our monthly meetings but there are always unintended consequences. Members and guest experienced long lines at the entrance complicated by members looking over the free giveaway plants and enough available seating other than the first

row. So your Board of Directors has come up with a new layout for our monthly meeting at the Junior League facility. Please check out the diagram in this newsletter and it will be posted at the Junior league prior to the meeting . We hope this will help and we will adjust this set-up as necessary.

I want to thank the Arizona-Sonora Desert Museum for the 50th anniversary celebration of the Haag Memorial Cactus Garden. John Haag was the founder of our society besides being the curator of plants at the museum in the early 1960's. A number of members and guests met in the cactus garden for a tour, refreshments and a brief history. The cactus garden has many new additions thanks to Jason Wiley (ASDM horticulturist) for these efforts.

Please look over the preliminary information concerning Sonoran XI. I really want you to be involved in this conference. Let me know your ideas.

Thank you for your support.
Dick Wiedhopf, President

Sonoran XI

More than twenty years have passed since our 1st conference which is really hard to believe. The Sonoran Conference is a mixture of speakers and workshops, show and sale held at the Inn Suites City Center. The dates are April 14-17, 2016 (Thursday set-up to Sunday ending). We need your input. Each conference has had a general theme related to the Sonoran Desert with speakers and workshops related to the theme. The workshops have been limited to about 20 participants so there is a lot of interactions. Usually, there is a Friday night kick off dinner and speaker open to all at a nominal price.

Saturday and Sunday are official conference days for register full or partial participants. The show and sale are free and open to the public. Our show is judged by the public who are given 10 beans to vote for their favorite plants. Members are encouraged to bring their favorite plants to be viewed and enjoyed by the public. The sale includes member nurseries, potters, artists etc., all gathered in one place for a great 2 day sale.

There are a lot of opportunities to be involved. We need your input at this early planning stage and of course want your involvement at the conference.

I have set aside 2 Sunday afternoons in June to get started on this event.

June 21, 2015 2:30pm At the College of Pharmacy
June 28, 2015 2:30pm At the College of Pharmacy.

There is plenty of free and close parking available.

Please RSVP by email to president @tucsoncactus.org and I will get back to you with all the pertinent information. Or you can reach me on my cell phone at 520-404-9223.

Thank you for your support for this conference.

Dick Wiedhopf, President

Rescued Queens of the night are gearing up for a bloom night



The rescued queens of the night at Pima Prickly Park are gearing up for bloom night with over thirty buds counted so far. While a little smaller show than our neighbor down the road it is impressive in its own right. The queens are happy in their new

habitat. The park at 3500 W. River Road is open dawn to dusk & dogs on leashes are welcome. There are a few queens near Saguarohege, but the majority are along the main path south of Saguarohege & on the west side of the agave garden. Last year there were so many blooms you could smell them before you could see them. Come out & enjoy our park.

New STEM Garden installed at Pima Prickly Park.

It is a sample of what a school can build to use Science, Technology, Engineering and Math skills. The 41 plants from cactus rescues and our hoop house included Saguaro, Ocotillo, Hedgehogs, Barrels, Cholla, Prickly Pear, Agave, Mammillaria, Yucca, Limberbush and a couple of native desert plants. Some curriculum has already been developed and more is coming to design, layout, build, plant, sketch, map, monitor, document, conduct experiments, etc.



FROM THE FLORILEGIUM

From its inception in the 1860s through the middle of the 20th century, the U.S. Department of Agriculture made significant contributions to the botanical art of the country. Color photography was not widely used in publishing, so to provide illustrations for its many books, circulars, and bulletins, the USDA employed a great many illustrators, including some of the most talented botanical artists of the day. Two of those artists, L.C.C. Krieger (see *The Desert Breeze*, September 2013) and Deborah Griscom Passmore, also contributed illustrations to Britton and Rose's landmark study of cacti, *The Cactaceae*.

In 1886 the USDA Division of Pomology was established in response to a booming industry of fruit tree production that needed up-to-date research and dissemination of information for breeders and growers. Accurate illustrations were required to document a flood of new varieties of fruit and nut trees. By the time the Division was discontinued forty years later, its 21 artists had produced a bounty of more than 7,700 exquisite watercolors that now comprise the USDA Pomological Watercolor Collection held in the Rare and Special Collections at the National Agricultural Library. In 2010-11 this entire collection of watercolors was digitized and can be viewed on the USDA/NAL website (<http://naldc.nal.usda.gov/naldc/home>). Many of the fruit varieties represented in the collection are no longer in production, and the only visual record of them is held in this collection of watercolors.

Deborah Griscom Passmore (1840-1911), the most prolific of the

Division's pomological artists, produced over 1500 paintings of a large variety of fruit and nuts – over 700 paintings of apples alone. She was raised in an Orthodox Quaker community in Pennsylvania before leaving to study at the Philadelphia School of Design for Women and the Academy of Fine Arts in Philadelphia. After teaching art for several years, Passmore relocated to Washington D.C. and began working at the USDA in 1892. She was immediately tasked with creating many of the Department's exhibits for the World's Columbian Exposition in Chicago in 1893. Her career at the USDA continued until her death in 1911.

Illustrating the subtle details of such a wide variety of fruit required technical and observational skills, patience, and long hours. An unnamed writer, whose informal biography of Passmore is kept with her papers at NAL, noted the following: "Her diversion was yellow cats, and, when exhausted from intense application of mind and body, nothing rested her so much as watching the graceful gambols of kittens. On any Sunday evening one might see her sitting under a lamp ... with a large Bible across her knees, Dandy Jim in her arms, and Buttercup, as jealous as a cat can be, ready to spring at the first opportunity."

The two illustrations shown here represent Passmore's work for the USDA Division of Pomology as well as her work for David Griffiths, the USDA Opuntia researcher who worked with several artists to produce many of the illustrations for *The Cactaceae*.

-- CH



Prunus avium 'Lambert', Cherries
Deborah Griscom Passmore, watercolor, 1905
From the U.S. Department of Agriculture Pomological Watercolor Collection.
Rare and Special Collections, National Agricultural Library,
Beltsville, MD 20705



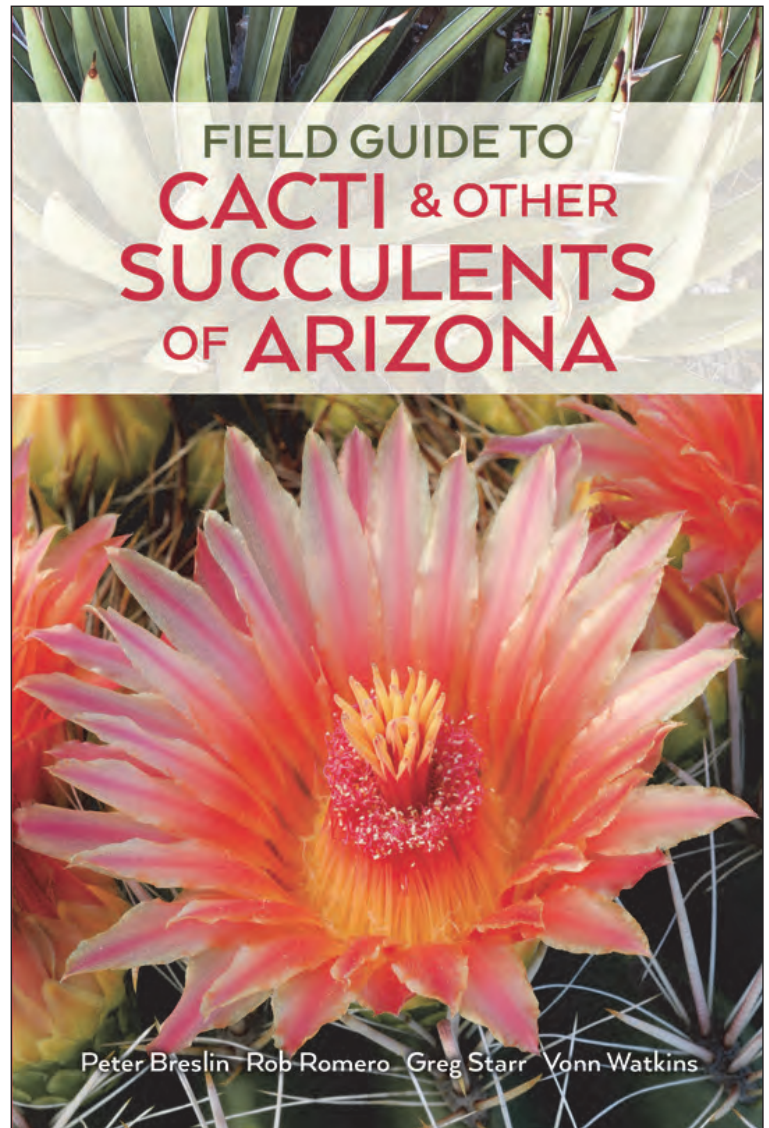
Opuntia hyptiacantha, painted from the collection of David Griffiths
Deborah Griscom Passmore, watercolor, 1905
Frontispiece for "The tuna as food for man" by David Griffiths and R.F. Hare,
Bulletin 116, Bureau of Plant Industry, USDA, 1907.
© Smithsonian Institution. Image use courtesy of the Department of Botany,
Smithsonian Institution.

Review of Field Guide to Cacti & Other Succulents of Arizona

Judy Mielke, April 19, 2015

When I first heard that the Tucson Cactus and Succulent Society (TCSS) was working on a *Field Guide to Cacti & Other Succulents of Arizona*, I thought to myself “That’s a GOOD idea.” After I held a copy, hot off the press, my reaction was “This is a GREAT book!” A colorful photo of a barrel cactus flower on the cover is a preview of many, many more high quality color photos inside. The book opens with a brief history of TCSS accompanied by action shots of volunteers rescuing cacti that would otherwise be destroyed by development. The sale of the cacti and other native plants has enabled TCSS to further their goals of education, information, conservation, and discoveries about cacti and succulent plants. I love maps, so the one near the front of the book immediately drew my attention. The graphic covers Arizona, its neighboring states (including the Mexican states), and shows color-coded areas representing biogeographic regions. Another map illustrates the 15 counties of Arizona and provides the locations of Tucson and Phoenix for reference. As a prelude to the comprehensive, detailed Species Accounts that make up the heart of the field guide, the Genus Accounts provide general characteristics of each genus, discuss taxonomic changes or challenges associated with the genus, and tell the story of how the name came to be. The Species Accounts are arranged alphabetically by botanical name and appropriately enough, Arizona’s best-known cactus – *Carnegiea gigantea* (saguaro) – is first. The species accounts typically contain three photos: a full view of the plant, often showing the surrounding habitat; a close-up view of stems or leaves; and a close-up of the flowers. Occasionally one of the photos may also show a fruit. If you’re a “skimmer” as I tend to be, you can come away with a general understanding of each plant species just by looking at the photos and their informative captions. The layout is beautiful – and logical – and therefore easy to use, with all the text and photos on facing pages. At a glance you can learn where the species occurs, thanks to a gray-tone map of Arizona with the species’ area of distribution shown in color. Further information about distribution and habitat is found in the text. Everything else you need to know about the species is provided: size, shape, stem, leaves, flowers, and fruit. The pronunciation of each species is provided, as well as the common name(s), and my favorite part: etymology, or the meaning behind the species name. Also interesting are the notes that conclude each description, which offer information about topics such as taxonomy, distinguishing the species from other similar species, or use by indigenous people. A neat feature of each species description is the color-coded bar at the page edge that displays the genus name and makes it easy to thumb through the pages to the desired plant description. An essay on Native Plant Protection serves as a fitting conclusion

to a book that celebrates Arizona’s native species of cacti and other succulents. A glossary and Margaret Pope’s beautiful line drawings help make sense of morphological terms. Editor Thomas Staudt and authors/photographers Breslin, Romero, Starr, and Watkins (and all the others who contributed) are to be commended for blending their knowledge and talents to produce an outstanding field guide that will surely reside on my desk or in my backpack – it might never make it to the bookshelf!



“Well, it’s me again. We have sold out. I have to say, this is an amazing number of books for us to have sold in such a short time! Congratulations”.

Trudy Mills Antigone Books

You are the eyes and ears of TCSS

The Tucson Cactus and Succulent Society includes over 1100 folks with a commitment to making sure that our Native Desert Plants don’t end up in a landfill. If each of us makes it a point to keep our “EYES & EARS” open as we travel thru out the Tucson and Pima County area, and make sure to get our message to builders, developers and contractors who are clearing land, expanding roadways, building shopping centers and developments.

The next time you pass an obvious construction site, please

make note of any/all information on the posted signage: Location, Company Names, Contact information (Personnel, phone #s, email, etc.) and forward it to Noé Mayotte, Community Relations “point person,” for the Cactus Society. He will quickly follow up with the folks involved in the project, explaining the TCSS charter, and encouraging them to “partner with TCSS” to save any native plants that might be in the path of construction equipment, and will not be relocated elsewhere within the site.

Noé Mayotte’s contact info: noemayotteaz@yahoo.com
HA: 520 572 4053, Cell: 520 495 9421

Home Garden Tour

Photos by John Durham



Home Garden Tour
Photos by John Durham



Sky Islands High School Receives a TCSS Cactus Garden Grant

This TUSD Charter School provides students with a vibrant and sometimes physically demanding educational program that meets and goes beyond State and Common Core standards. Students can expect and will be required to engage in active-inquiry, hands-on environmental activities such as exploratory hikes, organic farming, and restorative land-based projects.

Students recently planted a ten foot tall rescued saguaro in their newly constructed cactus garden. TCSS's Doug Rowsell and Joe Frannea rescued the Saguaro from Davis Monthan Air Force Base property and provided some basic information and supervision for proper planting of a large Saguaro. This Saguaro was a previously relocated plant that was planted about twenty inches deeper than its original growing depth. This made it challenging to dig out and re-adjust the Saguaro on the rig to replant. Some skin damage and a small horizontal crack occurred in the process which the students will monitor.

Two students and their teacher Michael Bagesse recently visited the TCSS hoop house at Pima Prickly Park and the adjoining Pima County Nursery to select and purchase many other great plants for their garden project.



Educational Grant awarded to JB Wright School

TCSS was proud to award an Educational Grant to facilitate the construction and planting of a great educational Tortoise Habitat located in their school courtyard. A dedication ceremony was held to officially introduce the rescued tortoise provided by the Arizona-Sonora Desert Museum to his new habitat enclosure. The students did the majority of the work and will have many opportunities to visit and interact with the habitat where they can learn and develop all types of science and other skills. The habitat is in the back center of the photo with all the students listening to Dr. Sanchez, TUSD Superintendent and Principal Kristjan Laumets.

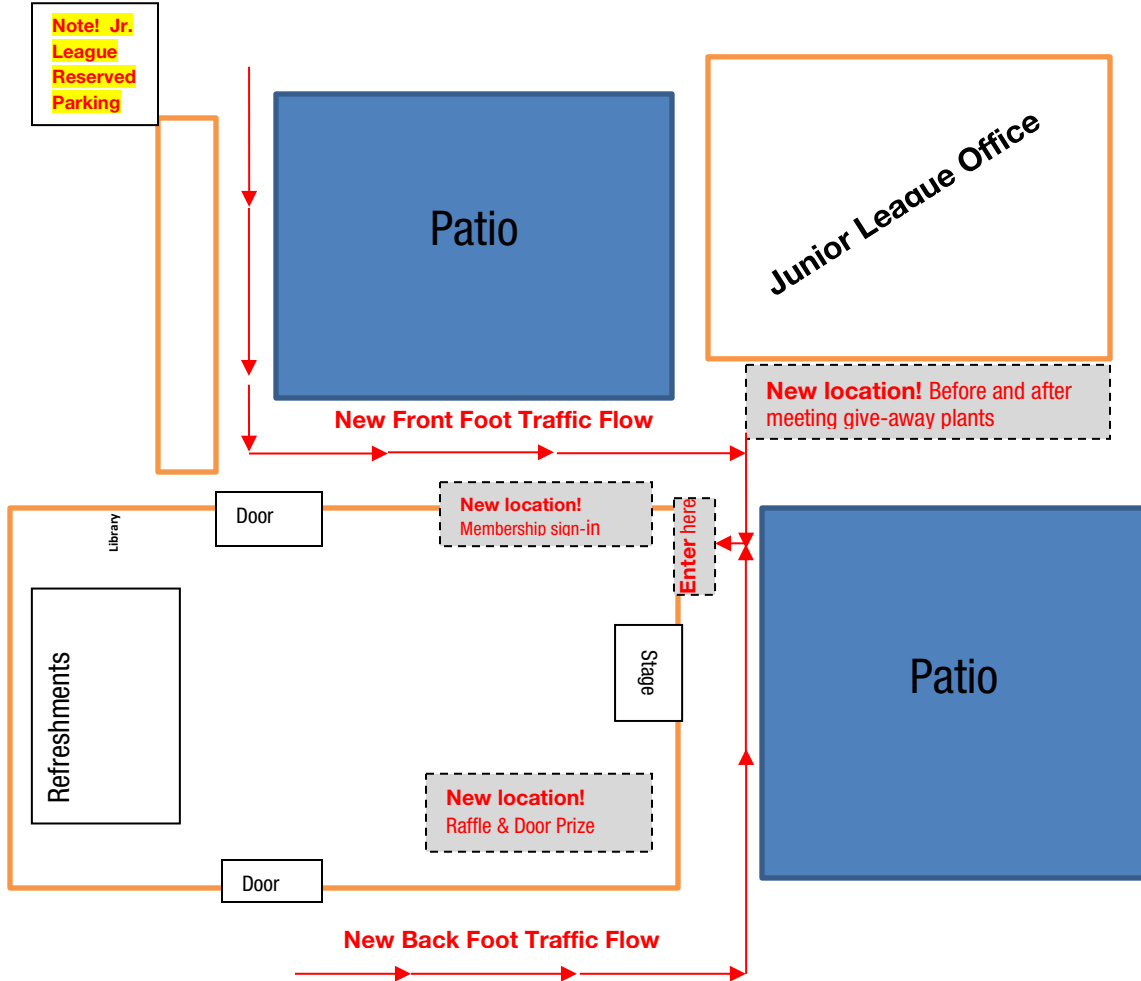
Moses Thompson with TUSD has developed curriculum from his experience with the development of the Manzo Elementary School Tortoise Habitat, a TCSS Grant a couple of years ago. This is a fantastic enclosure that has matured beyond expectations and has provided a great outdoor learning center. To see the curriculum, go to our TCSS web site, click on Publications then look under the Educational Materials section (<http://www.tucsoncactus.org/html/publications.html>). Moses plans to work with other TUSD Elementary Schools next school year to be able to develop additional cactus gardens and tortoise habitats. There are many great things going on in our school systems than you might not realize, they seldom get covered in the news.



New Traffic Flow for TCCS Meetings at the Junior League

Version 1.0

River Road



(note: not necessarily to scale for presentation emphasis, changes in red)

Comments welcome to any Board Member!

TCSS BOARD

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Editor: Karen Keller • editor@Tucsoncactus.org

Deadline for July newsletter text or photos:

Thursday, June 18, 2015

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
359 Rescues - 25,701 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

June 2015

Thursday, June 4, 2015 at 7:00pm

"The Horticultural aspects of Adeniums, Emphasizing
Propagation, Repotting, Pruning, Pests, and New Varieties"
Presented by Dave Palzkill

Tuesday, June 9, 2015 at 7:00pm

Board meeting at the U of A College of Pharmacy

Donors

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

JERRY & COLLETTE PRICE

UNRESTRICTED GENERAL FUND

JERRY & COLLETTE PRICE

PAT SULLIVAN & LISA LEE

PIMA PRICKLY PARK

PAT SULLIVAN & LISA LEE

MARK & MARGARET SITTER B&B CACTUS FARM

FIELD GUIDE TO CACTI & OTHER

SUCCULENTS OF ARIZONA

PAT SULLIVAN & LISA LEE

**Meetings are held on the first
Thursday of each month.**



Junior League of Tucson, Kiva Bldg.
2099 E. River Road

June Meeting Refreshments

Those with family names beginning with
U, V, W, X, Y, Z, and A, 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 2015

Thursday, July 2, 2015 at 7:00pm

“*Jatropha* in Mexico - Resolving the Evolutionary Relationships of the Mexican sub-genus *Curcas*.”

Presented by Nathan Michael LeClear



Nathan's program will be about his field work collecting material of *Jatropha* in Mexico, primarily in Oaxaca, Puebla, Michoacan, Durango, and Sonora during the last two summers (including the current). His work is molecular, aimed at resolving the evolutionary relationships of the Mexican sub-genus *Curcas*.

His graduate program at UT and the plant biology program is a joint PhD program of Integrative Biology and Molecular Biosciences Departments at the University of Texas at Austin. Research themes span the range of evolution, biogeography, physiology, anatomy, ecology, molecular/cellular biology, and genetics.

Originally from Emporia, Kansas he studied botany as an undergraduate at Emporia State University under the advisement of Dr. Marsh Sundberg, and graduated in 2006. After working for the city of Eugene, Oregon as a seed collector for wetland conservation for a season he began his Masters at the University of Texas - Pan American in Edinburg, Texas under the advisement of Dr. Andrew McDonald. His thesis research was the ethnobotanical history of the economically important species *Jatropha curcas*, and a study of the seed oil chemistry of the same species, which was completed in 2010. After working as an arborist in Texas for a year he spent several seasons botanizing the western US with a consulting firm for the US Forest Service in California, Utah, Nevada, and Idaho.

Returning to academia in the Autumn of 2012 he began his doctoral research on the systematics, biogeography, and



evolution of breeding systems in the neo-tropical species of *Jatropha* under the direction of Drs. Beryl Simpson and Randal Linder. His field work has taken him to Arizona and many states of Mexico, to which the majority of the nearly fifty species of sub-genus *Curcas* are native, many being narrow range endemics. This summer concludes the third year of his PhD, and after its completion he aims to continue to work in the field of botany with a focus on conservation and education.

This will be an exceptional time for all to gain added knowledge of these plants. Be sure to join us, hear a great program, enjoy some refreshments and get some marvelous plants.



President's Message

The seeds for this society were planted by Cactus John Haage back in the early 1960's. John would have never dreamed what his seeds for a group interested in cactus and other succulents would grow into. Today, we are well over 1000 members with broad range of knowledge and interests. We have saved more than 75,000 plants

from destruction and returned most to the Tucson environment to grow and thrive. We have had 100s of speakers on a broad range of cacti and succulent topics. We have hosted or co-hosted 4 national conventions and 10 Sonoran Conferences and now working on number XI. We have provided educational activities for K-12 and taught hundreds of younger children with our cactus model activity.

We have produced a cookbook and our latest effort is the "Field Guide to Cactus and Succulents of Arizona." We have had numerous plant shows, sales, silent auctions, free plants and more to interest our members and the public at large about the diversity and unusual nature of cacti and succulents. We are engaged in development of a Pima County public park to show off and educate about these plants, which is aptly named Pima Prickly Park.

All these things and more have come from that seed started by Cactus John Haage in 1960. That seed has been growing and nurtured for more than 50 years and what a special society it has grown into.

Now to the real point of this article. It takes just one seed to grow something special and this is a great time of year to collect seeds and to start them on their way to becoming something special. It is very important for all of us to maintain our plant collections and pass on plants to our fellow member, the public and the future.

I go out in my collection and look for seed pods every day. I collect, clean and store and even identify some that I can. Hopefully, I will germinate and grow on many of them, but as my collection has grown that has become more difficult. So this is what I want us to do. SHARE!

On several occasions, I have been able to pollinate rarer plants with the help of members and produce seeds to be grown on either by one of our nurseries or interested members. This is what I would like you to do.

Start bringing seed to share at our regular meetings. They can be packaged individually with all the information you can provide and/or a picture of the parent(s). Or bring in seeds that can be shared and we will provide envelopes for members to take home a quantity to grow. I now we can all bring in thousands of *Ferocactus wislizeni* seeds but let's think about what would be more interesting and unusual.

We could start a contest each year for seed grown plants, best cacti or succulents, at age 1,2,3, etc.

It all starts with a seed.

Thank you for your support.

Dick Wiedhopf, President

Trust Funds for TCSS

Sara and Lloyd Perper were friends and active members of TCSS for many years. Sara died on December 3, 2010 and The Sara Woods Perper Revocable trust continue to benefit her husband Lloyd until his death on April 14, 2015. Unknown to us, we had a 4% interest in the trust along with 8 other organizations. We received a check from the Trust for \$11,427.14 in unrestricted funds.

The Board of Directors decided that these funds would support special projects of the society and be designated when used, crediting the Sara Wood Perper Trust.

The first use approved by the board was to purchase 50 copies of our Field Guide which are inscribe as a gift from the TCSS supported by the Trust. Thirty of these copies will be presented to the teachers attending the STEMazing Institute at PPP.

I truly believe that if you do good things than good things will come your way. That has been my goal for TCSS and it has certainly work our well.

We do need to think about the future of TCSS and what part do we all play. TCSS is more than just a hobby society and to some extent it is involved with the preservation of our Sonoran Desert environment.

So, the Board is working on the development of a "Legacy Fund" where each of us could contribute a part of our Estate, Life Insurance or just an annual donation that would be invested for the future.

Dick Wiedhopf

You are the eyes and ears of TCSS

The Tucson Cactus and Succulent Society includes over 1100 folks with a commitment to making sure that our Native Desert Plants don't end up in a landfill. If each of us makes it a point to keep our "EYES & EARS" open as we travel thru out the Tucson and Pima County area, and make sure to get our message to builders, developers and contractors who are clearing land, expanding roadways, building shopping centers and developments.

The next time you pass an obvious construction site, please make note of any/all information on the posted signage: Location, Company Names, Contact information (Personnel, phone #s, email, etc.) and forward it to Noé Mayotte, Community Relations "point person," for

the Cactus Society. He will quickly follow up with the folks involved in the project, explaining the TCSS charter, and encouraging them to "partner with TCSS" to save any native plants that might be in the path of construction equipment, and will not be relocated elsewhere within the site.

I would like to acknowledge the input on Rescue leads from John Durham, Carl Englund and Carol J. Owens...Keep 'em coming! No Cactus should go UN-Rescued!

Noé Mayotte's contact info: noemayotteaz@yahoo.com
HA: 520 572 4053, Cell: 520 495 9421

FROM THE FLORILEGIUM

Ten years after the U.S.-Mexico Boundary Survey (1859) and the Pacific Railroad Surveys (1855-1860), the U.S. government continued to send survey expeditions into the American West. The most ambitious of these was the U.S. Geographical Survey West of the 100th Meridian, led by First Lieutenant George M. Wheeler from 1872 to 1879. Wheeler had proposed to Congress a survey project to map land west of the 100th meridian at a scale of 8 miles to the inch, an effort that he anticipated would take 15 years.

Aside from its ambitious scope, the Wheeler Survey was noteworthy as one of the first expeditions to make extensive use of photography to document the landscape. Wheeler hired Timothy O'Sullivan, a noted Civil War photographer, to accompany the survey party to photograph the landscape, geological formations, and the occasional cactus.

Wheeler's 7-volume final report contained few of O'Sullivan's actual photographs, but many were used as the basis for the lithographs and woodcuts to depict the landscape. In Washington, the expedition's photographs were often bound separately into albums and issued as promotional materials for Wheeler's multi-year project in an effort to secure continued congressional funding.

Traditional scientific illustrations fill the paleontology, archaeology, zoology, and botany volumes. The botanical report was written by Joseph T. Rothrock, a botanist and physician who served under Wheeler for two years as botanist and surgeon for the expedition. It contains 30 botanical illustrations, 21 of which are by Isaac Sprague, one of the foremost botanical artists of the day who had also provided illustrations for the botanical reports written by Asa Gray and John Torrey for several of the previous survey expeditions.

What is most memorable about the botany volume is its beautiful and unusual frontispiece, a chromolithograph of a painting by H.J. Morgan that depicts a "grove" of saguaros. The vegetation is more verdant than we expect to see in the desert, and this very grassy setting is even more baffling after reading Rothrock's

description of the expedition's encounter with the saguaro:

"Crossing a series of mesa lands at an elevation of 6,000 to 7,000 feet, we begin the descent to the parched, superheated valley of the Gila River. A complete change comes over the flora. If verdure and superabundant vitality were the expression of plant life on the timber clad Mogollon Mesa, in the valley of the Gila, hardness of texture and contraction of form would be characteristic of the flora. The attempt to make an analysis of one's feelings on being somewhat unexpectedly brought face to face with this peculiar vegetation would be futile, as no point of comparison appears to offer. The giant *Cereus* occupies the hill-sides which have a southern and southeastern exposure, towering up to a height of from 30 to 50 feet. *Fouquieria*, with its leafless, wandlike trunk, and its tip of scarlet flowers, *Agave Palmeri* and *Parryi*, and various species of *Dasylirium* [sic], dry, rigid skeletons of plants without the living green; *Canotia*, a tree 20 feet high, a foot in diameter, with green branches provided with stomata, but no leaves, all go to complete this desolate floral landscape."

A truly desolate floral landscape can, however, be seen in O'Sullivan's photograph, "*Cereus giganteus*". Like much of his work, the photograph was not published in Wheeler's final report, but a quick comparison with Morgan's painting shows that the cacti in the lush, grassy saguaro grove were drawn exactly from the cacti in the photograph. Why the artist added so much greenery to the "parched, superheated valley" is a mystery.

In the end, Wheeler and O'Sullivan's efforts to curry favor with Congress for funding their expansive survey came to naught. Congress in 1879 voted to discontinue the three survey expeditions still in the field, including Wheeler's project, and created the U.S. Geological Survey to conduct future surveys.

Timothy O'Sullivan's photographs can be seen on Flickr (<https://www.flickr.com/groups/timothyhosullivan/>) and in the Smithsonian's online exhibit, "Framing the West: The Survey Photographs of Timothy H. O'Sullivan" (<http://americanart.si.edu/exhibitions/online/osullivan/index.cfm>).

FROM THE FLORILEGIUM



"A Cactus Grove - Arizona (Species - *Cereus giganteus*)", 1871
H. J. Morgan, Chromolithograph
Frontispiece to Volume 6, U.S. Geographical Survey
West of the 100th Meridian



"*Cereus giganteus*, Arizona" Timothy O'Sullivan, Photograph
Expedition of 1871- Lieutenant Geo. M. Wheeler, Commanding
Expeditions in Arizona and Nevada Image courtesy of the Library of Congress

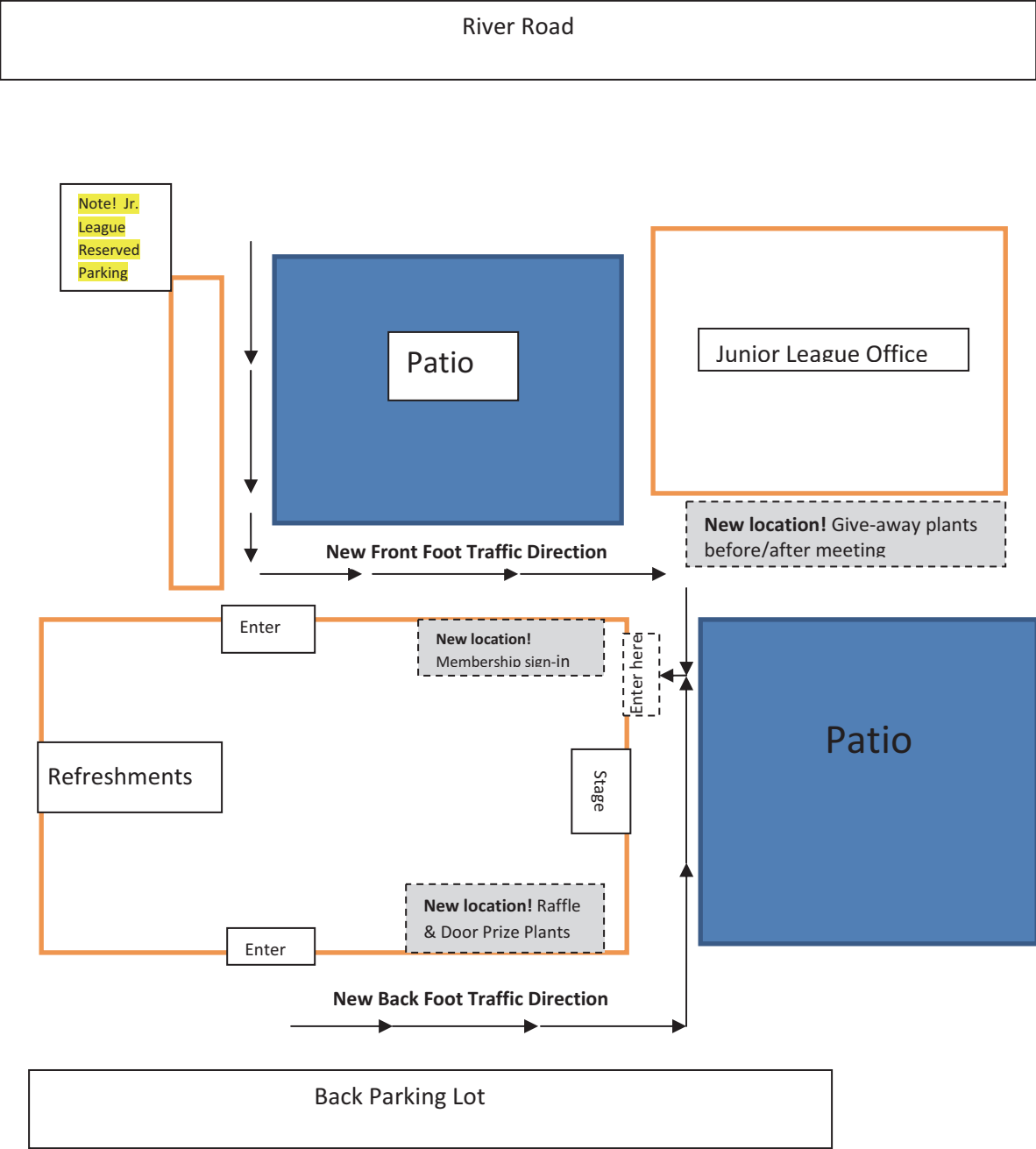
TCSS Monthly MEETING REFRESHMENTS

Thanks a million to so many of you who bring food to share at our monthly meetings. Our monthly newsletter always lists which last names, (alphabetically), are asked to bring something edible to share that month on our refreshment table. Our members respond so generously ... and deliciously. TCSS also has a meeting refreshment budget to provide a few basic items to make sure that we have enough for all to enjoy.

For the past few years Marija and Rim Tallat-Kelpsa have been making and bringing the drinks for the meetings. We are looking for some new volunteers to help with this job. It involves bringing our two large 5 gallon drink dispensers to the

meeting with ice and water in one and some type of punch in the other. Usually we have a prickly pear lemonade, but any kind of punch would work. The cost of any ingredients is reimbursed by our treasury. If this is something you might consider helping with, please contact Patsy at 575-7126 for more information. Perhaps the effort could be shared by a few members by passing around the large drink containers.

Thanks again for all of the wonderful goodies that arrive each month on the refreshment tables and a big thanks to Marija and Rim for their time and effort providing drinks for all of us to enjoy.



(note: not necessarily to scale for presentation emphasis)

New Set-Up for Regular Meetings at the Junior League

The Tucson Cactus & Succulent Society 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, the WTA library received the wonderful gift of a landscape makeover for its 7th birthday. The landscape beautification project included the planting of nearly two dozen rescued native cacti, succulents and other plants from the nearby historic Silverbell mine. 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 the Tucson Cactus and Succulent Society's work 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, 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

The members of the Tucson Cactus and Succulent Society (TCSS) have been instrumental in saving more than 75,000 native Sonoran Desert plants since our rescue operations began in 1999. The TCSS continues to "partner" with contractors, local/state governments and utilities, along with property developers in "rescuing" some of the smaller cacti and other succulent species that are not economically viable for larger scale relocation. These "rescued" plants are relocated to: public schools; other public buildings and gardens. Please stop by the Wheeler Taft Abbet Sr. Library at Silverbell and Cortaro Farms Road, or Pima Prickly Park, on River Road, for examples of TCSS labors!



David Freund, Noé Mayotte, Reyes Mitchell, Joe Bannon, Tom Kressler and Jessie Byrd



Jessie Byrd, Tom Kresler, Joe Bannon, David Freund, Reyes Mitchell and kneeling, Noé Mayotte



Catherine (Cat) Armstrong, Managing Librarian Wheeler Taft Abbett Sr. Library, Noé Mayotte of TCSS welcoming the "Old Man"

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, 2015)

Keimpe Bronkhorst

John Durham

Linda Heisley

Dale Johnson

(Ending Dec. 31, 2016)

Teresa Curtis

Peter Ertman

Cary Jones

Val Little

CSSA Affiliate Rep:

Bill Holcombe (2015)

Cactus Rescue: Joe and Patsy Franea

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: Jesse byrd (Implimentation)

park@Tucsoncactus.org

Programs: Vonn Watkins • programs@Tucsoncactus.org

Refreshments: Patsy Franea • 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 August newsletter text or photos:

Thursday, July 23, 2015

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.

75175

Cacti Rescued - Since 1999 359 Rescues - 25,701 Volunteer Hours

Please see our Website Calendar for the next
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times during the year based on our inventory.

TCSS Club Members receive a 10% discount

July 2015

Thursday, July 2, 2015 at 7:00pm

"*Jatropha* in Mexico - Resolving the Evolutionary Relationships
of the Mexican sub-genus *Curcas*." Presented by Nathan
Michael LeClear

Tuesday, July 14, 2015 at 7:00pm

Board meeting at the U of A College of Pharmacy

Donors

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

Monty Turner

UNRESTRICTED FUNDS

Sara Woods Perper Revocable Trust

Jane Erikson

Meetings are held on the first
Thursday of each month.



**Junior League of Tucson, Kiva Bldg.
2099 E. River Road**

July Meeting Refreshments

Those with family names beginning with
B,C, D, E, F, G, and H, 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 2015

Thursday, August 6, 2015 at 7:00pm
"The Biology of Cacti"
Presented by Dr. James D. Mauseth

Various changes have occurred as an ancestral group of plants (that resembled pereskias) evolved to be cacti. Any group is homogeneous only while it is new and consists of just one or two species; as it continues to evolve, new forms come into being and it becomes more difficult to make generalizations. At present some cacti are adapted to deserts but others are adapted to cold regions in the Andes, others are adapted to rainforests or grasslands. Some have evolved to be giant columnar cacti, whereas fraileas and blossfeldias have evolved to be tiny dwarf cacti. We are all too familiar with many cactus spines, but in some cacti, spines are soft and protect the plant by shading it or by causing dew to form on the spines rather than on the cactus surface where dew drops would block the stomatal pores and cause the plants to suffocate. Spines in many cacti are now glandular, secreting nectar on other substances. Many cacti have an adult form we know as the cephalia in Melocactus and Espostoa, and many other "cephalium-like" structures also occur.

James David Mauseth is from Richland, Washington. Ph.D. University of Washington; Seattle, Washington; 1975 Professor, University of Texas at Austin, 1995-Present. Associate Professor, University of Texas at Austin, 1981 1995. Assistant Professor, University of Texas at Austin, 1975 1981.

AWARDS

- 2009 Natural Sciences Foundation Advisory Council Teaching Award (UT)
- 1993 Teaching Excellence Award, College of Natural Sciences Foundation Advisory Council (UT)
- 1990 Teaching Excellence Award, College of Natural Sciences Foundation Advisory Council (UT)
- 1987 Andrew W. Mellon Faculty Fellowship in Latin American Studies. Institute of Latin American Studies (UT).
- 1983 Outstanding Teacher Award: Awarded by the Natural Sciences Council of the University of Texas.

COURSES TAUGHT

- Botany 320 and 120C: General Botany (and Lab): Structure, Physiology and Reproduction of Seed Plants.
- Botany 374 and 388K: Plant Anatomy. (this is now Biology 374 and 174L)
- Botany 344 and 480N: Plant Morphogenesis.
- Ultraestructura de la Celula Vegetal (Universidad Catolica de Chile)
- Anatomia Vegetal (Universidad Catolica de Chile)
- El segundo curso de actualización en cactáceas y suculentas (UNALM)
- Curso Internacional de Anatomia de Plantas y el Medio Ambiente (UNALM)

FIELD WORK:

Argentina, Bolivia, Brazil, Costa Rica, Chile, Dominican Republic, Ecuador, Mexico, Panama, Peru and Venezuela



continued on next page

continued from previous page

PUBLICATIONS - BOOKS PUBLISHED

- Mauseth, J. D. 1988. Plant Anatomy. (This is a large textbook, 560 pages). Benjamin/Cummings. Menlo Park, California.
- Mauseth, J. D. 1991. Botany: An Introduction to Plant Biology. Jones and Bartlett, Massachusetts.
- Mauseth, J. D. 2002. Botany: An Introduction to Plant Biology. Third edition.
- Mauseth, J. D., R. Kiesling, and C. N. Ostolaza. (2002). A Cactus Odyssey: Journeys in the Wilds of Bolivia, Peru, and Argentina. Timber Press.
- Bowes, B. G., and J. D. Mauseth. 2008. A Color Atlas of Plant Structure. Second edition. Manson Publishing.
- Mauseth, J. D. 2009. Botany: An Introduction to Plant Biology. Fourth edition.
- Mauseth, J. D. 2012. Botany: An Introduction to Plant Biology. Fifth edition.

EDUCATIONAL WEB SITES

Plant Anatomy Laboratory: Micrographs of plant cells and tissues, with explanatory text. location: <http://www.sbs.utexas.edu/mauseth/weblab/> Cactus Research website: Descriptions of my research on cacti and travel in South America. <http://www.sbs.utexas.edu/mauseth/ResearchOnCacti/introduction.htm>

ARTICLES IN REVIEWED JOURNALS: 78 Articles. ARTICLES IN SEMI-TECHNICAL JOURNALS AND NEWSLETTERS: 27 Articles. PRESENTED PAPERS, SCIENTIFIC MEETINGS AND ACADEMIC DEPARTMENTS: 83 Presentations. PRESENTED PAPERS, EDUCATIONAL OR SEMI-TECHNICAL:

Please make sure you are present for this program. It will be an excellent presentation of the various special anatomical structures of cacti and the relationships found in numerous locations. Dr. Mauseth will truly amaze you! Come and enjoy this very special program, have some great refreshments during the break, talk with all the wonderful cacti and other succulent friends, win some great plants, and be sure to get your free plant when you leave.



President's Message

As I discussed in my last month's message, the TCSS has expanded well beyond Cactus John Haage's (and my) dreams. Having well over 1,000 members with monthly meeting attendance trending upwards and averaging over 175 members and guests, is a double-edged sword. The sense of community at our meetings is

a warm and wonderful feeling. Simply put, the flip side is, after 12 years at the Junior League, we have outgrown our current meeting space.

For the past few months, your Board of Directors has been discussing this situation. In my message of two months ago, we implemented a new layout for the Junior League site in hope that it would alleviate most of the issues. We have come to the conclusion that regardless of how we set up the room, it is too small for our long term needs – both from a space perspective as well as from a mission perspective.

We are pleased to announce that we have found a site that not only increases the meeting space but also provides space to grow other activities.

This site was the Rogers Elementary School and is now the Sky Islands Public Charter School. It is located immediately behind Park Place Mall on 14th Street. The main room can accommodate 300 members at our monthly meetings, has a functional, large and physically separate kitchen with serving windows, abundant and easy to use parking, and a lockable space we can use for the library and other storage.

More importantly, there are a number of intangible benefits, the most significant of which is that the Sky Islands Charter School's main focus is on Environmental Education. They currently serve grades 9 through 12. Consistent with our mission of education and outreach, the relationship between Sky Island and TCSS would be characterized as a synergistic partnership rather than a traditional renter-landlord one. The School has much to offer us and we have much to offer them.

Board Members Bill Salisbury and Peter Ertman have headed up the team evaluating this alternative. An issue paper with many more details is posted on our website. Please take a moment to read that document which provides much more detail. Should you wish to email any comments, please use the email address board@tucsoncactus.org.

When will this change happen? We are in the process of negotiating with the Director of Sky Islands School on a number of implementation related details, but are considering that we will move our Holiday Party to Sky Islands on December 5th and start holding meetings there starting with our January meeting. There is much to do to achieve this goal, and if you wish to assist, please drop us a note at the above email.

Our thanks goes to Bill and Peter for speaking on behalf of myself and the Board, we are looking forward to this new chapter in the TCSS history book! We recognize that change, after 12 years at the same location can be challenging. Please picture in your mind when you are turning into the entrance for the new location and see a new sign saying "Home of the Tucson Cactus and Succulent Society"! How do you think Cactus John would have felt?

Thank you for your support.

Dick Wiedhopf, President



FROM THE FLORILEGIUM

The exploration and documentation of the American West by the U.S. Army Corps of Topographical Engineers depended heavily on the talents of civilians, many of whom were highly trained emigrants from Europe. Among these men was Arthur Carl Victor Schott, a Prussian who came to America at age 36 and who proved to be unique in both his abilities and dedication.

Schott received an extensive education in Germany, was apprenticed at the Royal Gardens in Stuttgart, and attended the Institute of Agriculture at the University of Hohenheim. After arriving in America in 1850, he met the renowned botanist John Torrey and was soon employed to illustrate Torrey's botanical report for Capt. Howard Stansbury's survey expedition to the Great Salt Lake. It was Torrey who recommended Schott for appointment to United States-Mexican boundary survey expedition.

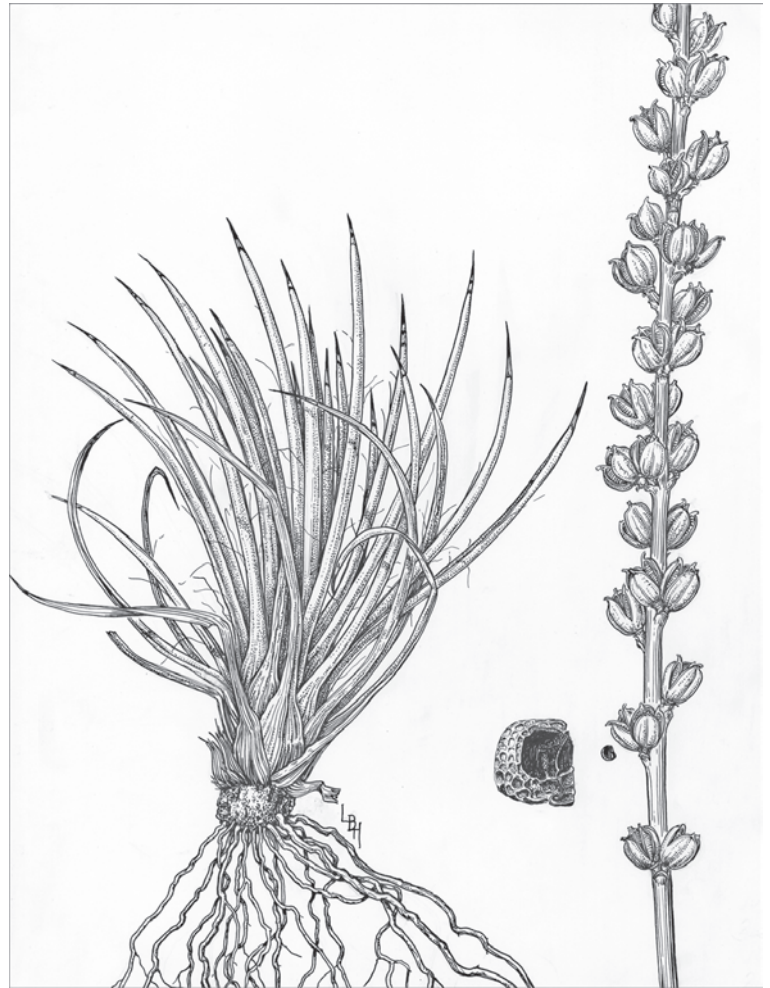
Schott was hired as a surveyor but also served as topographical artist. One of his duties was to sketch scenic views of the landscape along the border which, in conjunction with maps, were to mark the position of the boundary. There are 64 topographic views in the report, 32 each by Schott and John Weyss, and the difference between the two men's work is striking. Because of Schott's background in botany, his depictions of the boundary lands are teeming with native plant life, while those by Weyss are far more spartan.

Schott's primary responsibilities were surveying and topographical drawing, but he had much wider interests and took on additional duties. Schott had collected plants in Germany for his personal herbarium, and during the boundary survey he joined several other naturalists in collecting specimens to send to George Engelmann and John Torrey who were preparing the botanical classifications for the final report. He collected specimens and made contributions to the zoology report, including notes from his personal observations of the animals and, unique to Schott's reports, listings of the names of each animal in English, Spanish and Indian languages. Additionally, he made portraits of Native Americans for the ethnological report and collected fossils for the geological report.

In 1855, with the field work of the boundary commission complete, Schott joined the boundary survey office in Washington, D.C., to produce the final report. His work included illustrating, collating report information, supervising progress on Torrey's botanical report and the various engravings, and proofing maps. He left the boundary office six years later, having been one of the most industrious and competent of all the civilians hired to work on the boundary survey.

Schott remained in Washington, except for an occasional excursion. He worked with a survey for a possible trans-oceanic canal across the Isthmus of Darien, collected botanical and zoological specimens in the Yucatan, and continued his botanical studies of the native plants around Washington. He died in 1875 and was survived by a wife, six children, and a significant artistic and scientific legacy.

The illustrations shown here exemplify the breadth of Schott's talents. His botanical illustrations for the Great Salt Lake survey report are well executed and have a gracefulness not always seen in botanical illustrations of the time. His topographical sketches for the boundary survey include a wonderful diversity of readily identifiable native plants and have a unique style that enlivens a section of the report that was intended only to serve the practical purpose of marking the boundary. -- CH

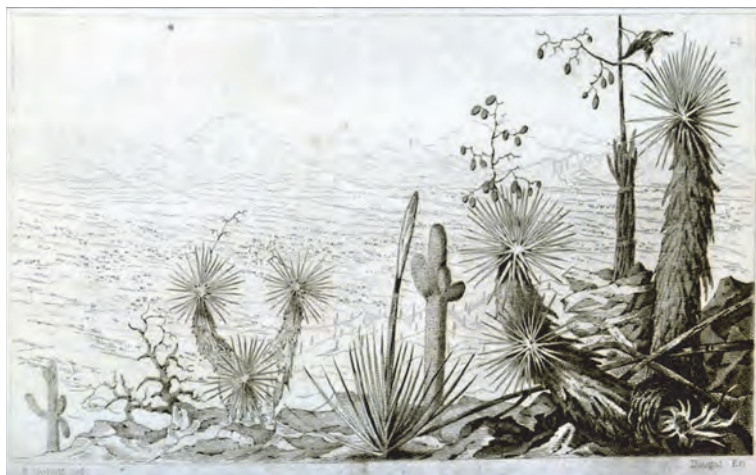


Agave schottii var. *schottii* © Lucretia Hamilton

Named by George Engelmann in honor of his friend and colleague Arthur Schott and first described by Dr. Engelmann in "The Transactions of the Academy of Science of St. Louis", Vol. III, 1878 :

"Sierra del Pajarito in Southern Arizona; fl. August; collected only by the late Dr. Arthur Schott, 1855, to whose memory I have dedicated this species in consideration of long years of friendship and of the valuable services to science rendered by him in many arduous exploring expeditions in the arid southwestern wilds, as well as in the primeval tropical forests of the isthmus and on the plains of Yucatan."

FROM THE FLORILEGIUM



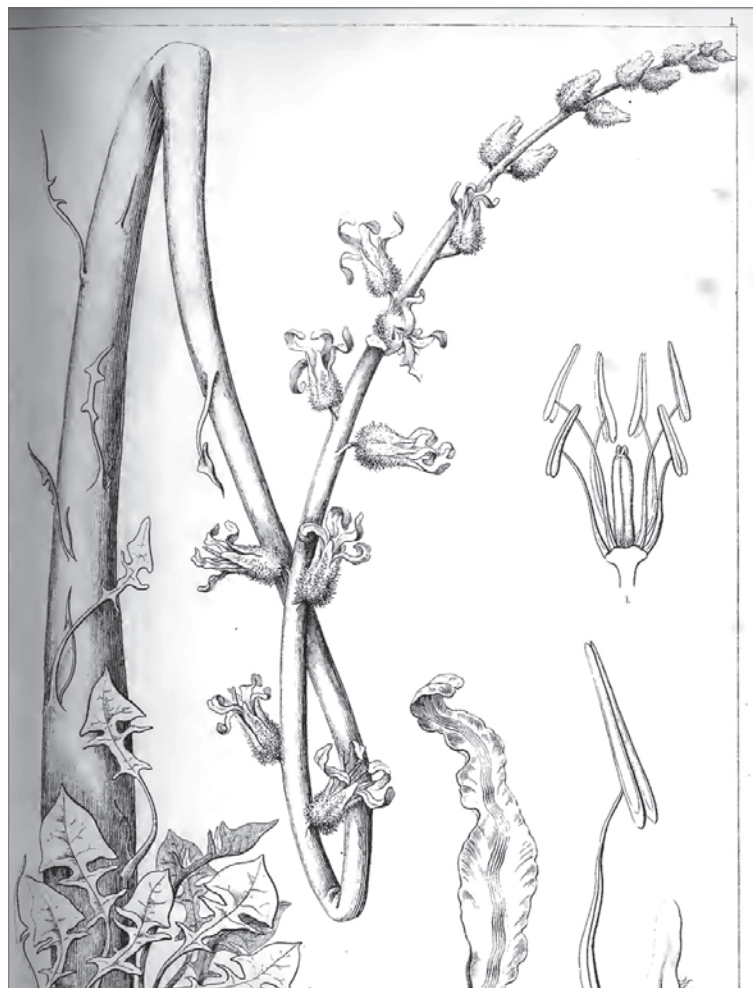
View from Monument No. XV on the 'Sierra Verde', looking east



View from Monument No. VIII near Los Ojos de Quitobaquita, looking east



View from Monument No. VI, looking west



Streptanthus crassicaulis Arthur Schott, From the botanical report for "Exploration and Survey of the Great Salt Lake of Utah", 1855.



View from Monument No. XVII on the Cerro de Sonora, looking west

Topographical drawings by Arthur Schott for the U.S.-Mexico Boundary Survey

"I am charged by Maj. Emory with the finishing of some 36-40 sketches of landscapes to illustrate the topography of the Boundary line. In these plates I shall take occasion to make the foregrounds lifelike by introducing all those indigenous plants which appear most striking in the survey of the country. You will easily understand what a prominent part the Cacti will take in those sketches. By frequent repetitions I will try to give the features and characteristics of almost every one through the various phases of their growth." --Correspondence from Arthur Schott to George Engelmann, the St. Louis physician who classified the cacti for the U.S. - Mexico Boundary Report.



What happens when TCSS collaborates with Pima County Natural Resources, Parks and Recreation and the STEMAZing Institute of Pima County Superintendent of Schools?

June 29, 30 and July 1st were full of action, hands-on activities and excitement at Pima Prickly Park as our membership provided the materials and the expertise along with scientists and researchers. Our STEMAZing workshop hosted 25 teachers that will enhance and enrich educational experiences for their 750 students.



Meet Pima Prickly Prickly, discover soil porosity on our desert, Sonoran Care and Conservation



Amazing Secrets of the Saguaro, Areoles and functions, PPP Plant Propagation in Hoop House

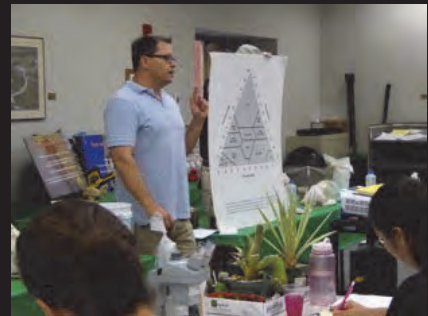
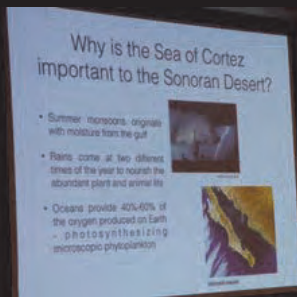


Field Guide up close, Math with Barrel Cactus Fruits, Saguaro Population Game and more!



If you would like to see the agenda and the printed resources look on our TCSS webpage - www.tucsoncactus.org/html/education.html

TCSS Presenters Included: Jessie Byrd, Joe and Patsy Frannea, Bill Peachey, Cathy Robson, Linda Heisley, Margaret Pope, John Durham, Ted Fleming, Caryl Jones, Barry McCormick. **Other Presenters:** Dr. Rob Root, University of Arizona, Annette Felix and Cathy Franklin, CEDO; Franklin Lane, Biosphere2; Dr. Dario Copetti, Arizona Genomics Institute. **THANK YOU EVERYONE!**



Think Like a Scientist - design a STEM Garden, soil science, Sea of Cortez, Sonoran ocean.

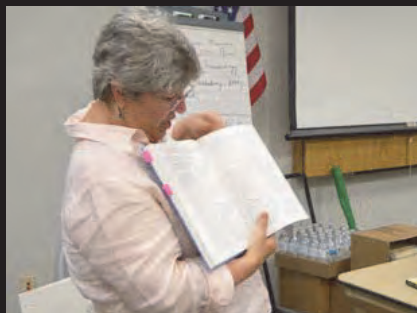


The Desert Giant
Saguaro Cactus
"Build-a-Cactus"

The secrets are hidden in the SCIENCE



Compare the properties of soil, Build a Cactus- adaptations, CAM metabolism, & life cycle.



Botanical Drawing, Start seedlings in the Native Plant Nursery, Untangle the Mysteries of DNA

You are the eyes and ears of TCSS

The Tucson Cactus and Succulent Society includes over 1100 folks with a commitment to making sure that our Native Desert Plants don't end up in a landfill. If each of us makes it a point to keep our "EYES & EARS" open as we travel thru out the Tucson and Pima County area, and make sure to get our message to builders, developers and contractors who are clearing land, expanding roadways, building shopping centers and developments.

The next time you pass an obvious construction site, please make note of any/all information on the posted signage: Location, Company Names, Contact information (Personnel, phone #s, email, etc.) and forward it to Noé Mayotte, Community Relations "point person," for

the Cactus Society. He will quickly follow up with the folks involved in the project, explaining the TCSS charter, and encouraging them to "partner with TCSS" to save any native plants that might be in the path of construction equipment, and will not be relocated elsewhere within the site.

I would like to acknowledge the input on Rescue leads from John Durham, Carl Englund and Carol J. Owens...Keep 'em coming! No Cactus should go UN-Rescued!

Noé Mayotte's contact info: noemayotteaz@yahoo.com
HA: 520 572 4053, Cell: 520 495 9421

Good Time Silent Auction

Sunday, September 13, 2015

NEW LOCATION TO BE ANNOUNCED

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.

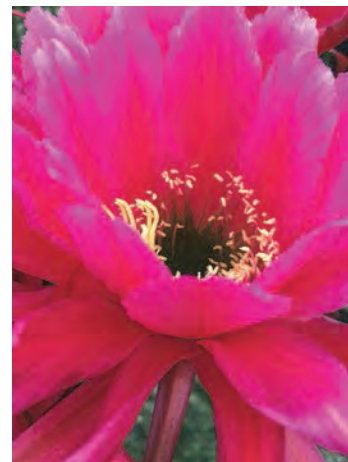
Bid sheets and price stickers will be available at the September meeting, at the event and on our website for your convenience. The Board has adopted the same policy as we had at Sonoran X with a high value special silent auction plants. These items will have an opening minimum bid of \$20.00 or more 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.

Flowers in Bloom this past Spring and Summer at B & B Cactus Farm

Photos by Karen Keller



TCSS BOARD

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Thursday, August 20, 2015

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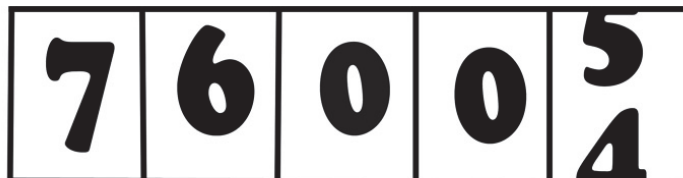
www.tucsoncactus.org

Webmaster: Keimpe Bronkhorst • webmaster@Tucsoncactus.org

For additional information call: (520) 256-2447

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Bring your friends, join in the fun and meet
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Cacti Rescued - Since 1999 360 Rescues - 25,828 Volunteer Hours

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August 2015

Thursday, August 6, 2015 at 7:00pm

"The Biology of Cacti." Presented by Dr. James D. Mauseth

Tuesday, August 11, 2015 at 7:00pm

Board meeting at the U of A College of Pharmacy

Our June program featured a presentation on *Jatropha* and *Curcas* presented by Nathan Michael LeClear, entitled, "Jatropha in Mexico - Resolving the Evolutionary Relationships of the Mexican sub-genus *Curcas*."

Nathan would like for anyone who would like to contact him about his program or for those with questions, information, etc., to contact him at leclearnm@utexas.edu

**Meetings are held on the first
Thursday of each month.**



**Junior League of Tucson, Kiva Bldg.
2099 E. River Road**

August Meeting Refreshments

Those with family names beginning with
I, J, K, L, M, N, and O, 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 2015

Thursday, September 3, 2015 at 7:00pm

"A Baja Adventure"

Presented by Greg Starr

Come out for an evening tour of Baja California with Greg Starr. He will present a visual feast of some way cool cacti and succulents, and who knows, maybe even a "leafy" plant or two to complete the Baja California experience. The peninsula of Baja California consists of two states, the northern one is simply Baja California (confusing, right?) and the southern one is Baja California Sur (BCS). The focus will be on the northern state, but we just might cross the line and even hop on over to an island or two, so be prepared for anything. Since it is monsoon season, we might run into a hurricane if we go into BCS. Undoubtedly we will visit some of the most iconic figures of the peninsula, including the Mexican Candle, the non-Saguaro, bloomin' barrels, and maybe even an agave or two.

Greg's first two forays to the land that time forgot were in the early 1980's. He then took a 27 year hiatus, finally returning in 2010,

along with Scott Calhoun, to research agaves to include in his book. The next year Bob Webb asked Greg to accompany him on a plant distribution expedition which then led to the two of them making 5 additional trips to Baja California to study the agaves on the peninsula. With his propensity to take multiple photos of nearly all the plants at each stop, it's no wonder that Greg is a huge fan of the digital format and very large external hard drives. So sit back and enjoy the photos of fantastic plants found on this incredibly wonderful peninsula.

Be sure to be entertained with some excellent information about cacti and other succulents in Baja California. Enjoy some great food, win a few plants and also get a free plant as you leave.



Ferocactus chrysacanthus along a hike from Punta Norte to *Dudleya pachyphytum* on the north end of Isla Cedros



Agave shawii ssp. *goldmaniana* north of Highway 1 road to Rancho Los Martires



Ferocactus gracilis at Laguna Chapala



President's Message

The Good Time Silent Auction. This is a must tradition. It is the opportunity to get rid of all those extra plants that you no longer have a place or time to maintain. It is also a great time to acquire new plants that you don't have a place or time to maintain. That's our hobby in a nutshell. Don't forget there is ice cream and all the topping

to make it meaningful. There are always special plants that you have always wanted or special plants that you want others to have. This is my favorite event.

Elections. Elections for Board members and CSSA affiliate representative are quickly coming up. As you recall the officers terms were changed to two years so all the officers still have one more year to serve. A nominations committee will be elected at the September Board of Directors meeting who will put together a slate of candidates. If you are interested in standing for election to one of these positions please contact one of the nominations committee in October. Their names will be in the next newsletter. Nominations from the floor will take place at the November general meeting and a ballot will be sent with the Holiday Party and Membership renewal mailing.

Blooming Barrel Sale. What a great name for the event. The barrel cactus performed as usual with an array of blooms from bright yellow, shades of orange to deep red. Almost every

blooming barrel sold along with hedgehogs and mamms. Every aspect of the sale went well and in just over an hours most plants had been sold, paid for, loaded and gone. It was the hottest week-end of the year and were glad that the sale moved along quickly. I must salute more than 30 volunteer who came out and helped out to make this a success.

Prior to the start of the sale many of our business members set up and sold plants to the waiting crowd. We really appreciate their participation in this event. They brought out some great plants.

Rescue. On the Saturday before the sale we had a rescue. It was hot and humid but about 24 crew members cleared the area. It was a 40ft by about 2 mile site. A number of Peniocereus (Queen of Night) were rescued along with Ferocactus, Saguaros, Mammillarias, and some wonderful prickly pear and chollas. Thank you for your dedication to the rescue program. I think the property developers were impressed with our knowledge and professionalism. It was a great morning.

We have reached over 1190 members so far this year. I wish I could thank each of you personally for your support and commitment, but that is difficult. I do want you to know that the Officers, Board of Directors and committee chair really appreciate you.

Thank you for your support.

Dick Wiedhopf, President

Good Time Silent Auction

**Sunday, September 13, 2015 • Sky Island Public Charter School
6000 E. 14th St. • 1:00pm - 5:00pm (See Schedule)**

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

This is a celebration: Silent auction, Free plants, \$2, \$5, \$10 sales 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, \$5 and \$10 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 had adopted the same policy as we had at the Sonoran X with high value special silent auction plants. These items will have an opening minimum bid of \$20 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 plants that will peak your interest.

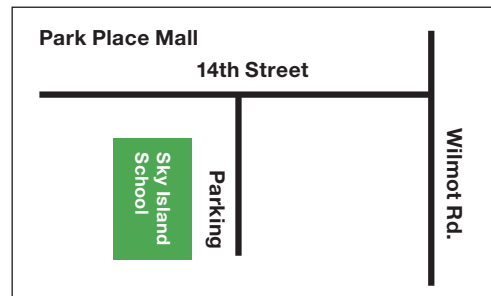
In the past, we have had at least 3 separate silent auctions during the afternoon. Pots, plants, special cuttings, books, tools etc. are welcome donations for these silent auctions. Free Plants will be available starting a 3:30pm in order to give everyone an opportunity to take some home. We will start 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.

Good Time Silent Auction tentative Schedule

1:00pm	Set-up
3:00pm	\$2, \$5 and \$10 tables open Ice Cream service starts
3:25pm	Silent Auction #1 ends
3:30pm	Free plant areas opens
3:45pm	Silent auction #2 ends
4:05pm	Silent auction #3 ends
4:30pm	Silent auction #4 (if necessary) ends
5:00pm	All good time events ends - clean up



FROM THE FLORILEGIUM

With so much information available on the Internet, it's impossible to know what you're missing. The Florilegium's website and our contributions to The Desert Breeze rely on several large-scale digitization projects that provide open access to an overwhelming number of artworks and publications that are in the public domain. Here are two of our favorite sites that you may have missed.

Botanicus. This is one of the web's early digitization projects from the Peter H. Raven Library at the Missouri Botanical Garden (MBG). It began as a project to make available online the gems of the Library's rare books collection and has now expanded to include many important early works in botanical systematics. To date, the project has scanned some 2.5 million pages from the Library's collection. Artists, historians, botanists, and gardeners can fill hours browsing the collection.

When visiting Botanicus, you can browse the site by year of publication, author, title, or subject (the search function is fussy and not always helpful). Single pages or entire volumes can be downloaded as PDFs. Artists can access the entire Besler Florilegium (1613) or "The Temple of Flora" (1807). Botanists can find the complete volumes of Curtis's Botanical Magazine from 1805 to 1920, or the Botanical Gazette, or hundreds of volumes of botanical journals. For history buffs, botanists, and artists, there are the complete volumes of the U.S. government's western survey reports, complete with wonderful illustrations and fascinating accounts of the expeditions--all free with no constraints, other than a prohibition on commercial use of the information.

The Biodiversity Heritage Library (BHL). This very large project has been made possible by a consortium of natural history, research, and botanical libraries that built on the success of Botanicus to offer free access to a wealth of natural history knowledge. BHL's digital library links to the Botanicus database, but its catalog is significantly larger and is not limited to botany. Entire volumes can be downloaded for free for personal use, but commercial use requires special licensing.

BHL's home page links to their Flickr stream, which is nice if you just want to browse their splendid collection of natural history art. Books are not the only subjects for digitizing. Field diaries from worldwide expeditions can be found in the library, and currently the Smithsonian's very large collection of natural history field books is being digitized. To keep up with their latest acquisitions, you can follow their excellent blog.

Both of these sites have collaborated in the presentation of Engelmann Online. This ongoing project of the MBG is categorizing and digitizing their collection of George Engelmann's writings, correspondence, and personal herbarium. Currently, some 12,000 plant specimens, many collected during the western survey expeditions, have been digitized and are available at MBG's Tropicos.

In 2013, MBG digitized more than 5,000 letters from Engelmann's professional correspondents, from survey expedition personnel (Major Wm. Emory, Arthur Schott, Asa Gray, John Torrey, and the many specimen collectors) as well as such notable colleagues as N.L. Britton, John Gill Lemmon, and John Muir. Unfortunately, the collection does not include outgoing letters from Engelmann. Also included in his papers are sketches made by Paulus Roetter to prepare the drawings for Engelmann's

reports for the U.S.-Mexican Boundary Survey and the 35th Parallel Pacific Railroad Survey. One of these sketches is shown here alongside the completed engraving.

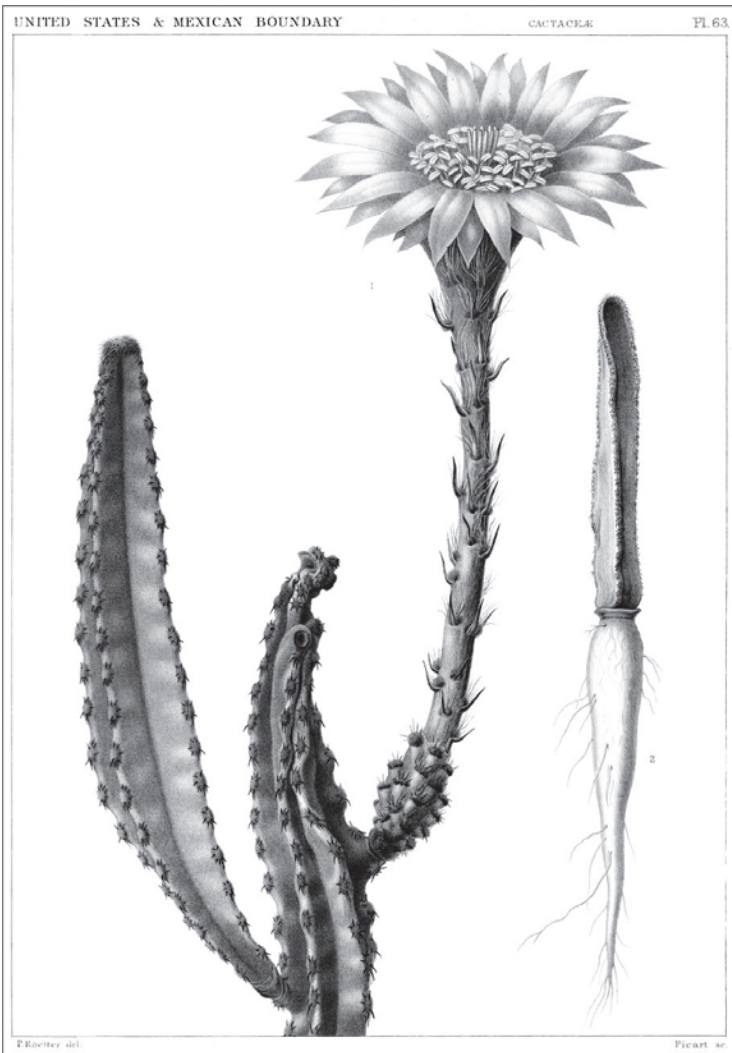
Engelmann Online can be found at:

tropicos.org/Project/Engelmann and biodiversitylibrary.org/collection/Engelmann.



*Sketch of Cereus greggii by Paulus Roetter
From the personal papers of George Engelmann
Image courtesy Missouri Botanical Garden. <http://www.botanicus.org>*

FROM THE FLORILEGIUM



Cereus greggii
Illustrator: Paulus Roetter
Steel Engraving by Philibert and Eugene Picart; Paris, France
The Report on the United States and Mexican Boundary Survey
Major William H. Emory, 1859
Vol. II "Botany of the Boundary. Cactaceae", Plate 63
Image courtesy Cactuspro. <http://www.cactuspro.com/biblio/>

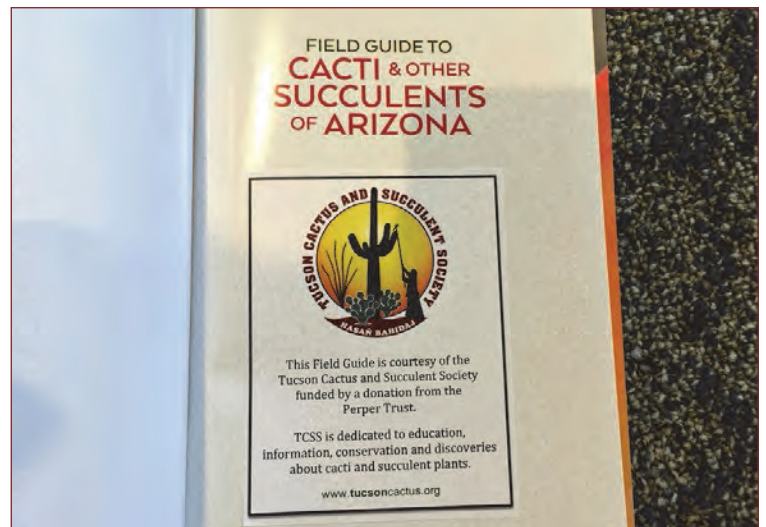
Pima Prickly Park Work Day

A big thank you to the fifteen volunteers who showed up on August 1st bright & early & planted over 250 plants in the park. We cleared off 4 benches in the hoop house & the plants are happy to be out of pots. We have since received over 1 1/2 inches of rain and most of the plants are doing quite well. We are looking at another work day in October. Details will be released at a later date. Come out & stroll in the park & see the barrel cactus in bloom.



TCSS Donation

TCSS Donated 20 copies of the field guide to the Pima County libraries. This donation was funded by the Perper Trust.



Highlights from the August Rescue

By: John Durham

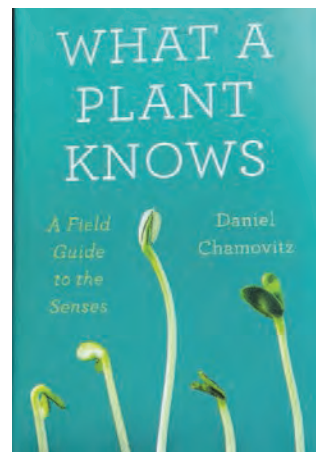


WHAT ARE YOU READING?

In this new column, our TCCS Education Committee will suggest some good reads that we have enjoyed, with desert plants ecosystem theme of course! Some will be non-fiction, some fiction. Hopefully, others of you will send in suggestions of your favorite desert reads OR better yet write your own review and send it to me for our newsletter.

In this inaugural column, I would like to tell you about an a book that Dave Palzkill recommended to me.

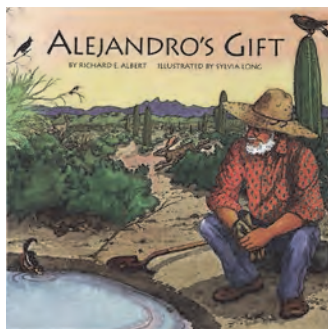
What a Plant Knows by Daniel Chamovitz, a professor at the University of Tel Aviv is his only book and what an interesting journey into the senses of a plant. I am sure you'll enjoy reading this short 140 pages. Or perhaps you like to study online, he offers an online course based on this amazing book. It is also an easy read on your iPhone, iPad or Kindle.



"Enough absorbing science to concede that plants continue to inspire and amaze us." --The Wall Street Journal

I am not a Wall Street nor Goodreads book critic nor reviewer, but I know a fun book and one worth the time to sit and read and **What a Plant Knows: A Field Guide to the Senses** is highly recommended. The diversity of plants featured (of course not all desert plants but there are plenty of examples in this book about "our desert plants" that you will pause to consider, reread and share with your friends.

This book is scientifically accurate as a result of years of study and observation. For the none scientist or general plant enthusiast, it is intriguing. I am sure that plants KNOW a lot more than I thought they did. AND... If plants can see, smell, feel, know where they are, and remember, then perhaps they do possess some kind of intelligence. Looking for a great book.... try **What a Plant Knows: A Field Guide to the Senses** by Daniel Chamovitz.



The next book I'd like to recommend is for your kids or grandkids.

Alejandro's Gift by Richard E Albert is a combination fiction with a great little index of vocabulary about many of our desert plants and animals- a great gift. Better yet, start you kids book shelf and read those books to your kids overtime they come to visit..... build a collection they will enjoy. "LOve of READING is a treasure you can give and keep giving.

Alejandro's gentleness, thoughtful nature, and hard-working spirit are wonderfully brought to life. The pictures and text together offer a good message about respect for nature. **Alejandro's Gift** ends with a short "mini-encyclopedia" that names and illustrates animals and plants of the southwestern United States: mesquite, saguaro cactus, the sparrow, the collared peccary, and more. An educational and heartwarming book. Children learn to appreciate nature from all their experiences and this book is just like being in the desert!

And, those of you that are AMAZON shoppers (for books and more)...if you do not already use **smile.amazon.com**, consider starting!!!! A portion of your purchase will be donated to your favorite 501(c)(3) organization, you can choose from almost one million eligible 501(c)(3) public charitable organizations.

Happy Reading!!!

Send book suggestions or your written review to Caryl Jones- education@tucsoncactus.org



Our TCSS Education Committee needs your help. We have school science nights, community science events, classroom visits, teacher workshops, speakers invitations and a wide variety of requests that you could enjoy. Our Tucson community needs us!

Also important, we want to organize another series of novice classes for our members. We need your ideas and **time** to make this happen.

Dates for our most immediate needs are:

- September ??? TBD a TCSS Build-a-Cactus kit building “party”
9 til noon some Sunday soon (UA Pharmacy Building)
- October 2nd Plant Science Family Night (grades K-5)
5:50 -8 pm Ventana Vista School near Kolb and Sunrise
- November 13th Arizona STEM Adventure (grades 4-8)
8:30 til Noon Pima Community College at Shannon and Ina

Please volunteer by contacting Caryl Jones at education@tucsoncactus.org or call 299-6813 for questions or to volunteer.



As always, we thank each of you for supporting TCSS events and most especially for supporting Cactus Rescues and sales. These events are supporting community education through outreach events.



“most of my wandering in the desert I’ve done alone. not so much from choice as from necessity - I generally prefer to go into places where no one else wants to go. I find that in contemplating the natural world my pleasure is greater if there are not too many others contemplating it with me, at the same time.”
Edward Abbey, *Desert Solitaire*

Historic Mission Garden, TCSS is there

By: Bill Thornton

Located west of downtown Tucson at the foot of the sacred mountain known to the Tohono O'odham people as Tjuk Shon (1) Mission Garden is a re-creation of the Spanish Colonial walled garden on its original site. A project of "The Friends of Tucson's Birthplace", the garden features heirloom plants including fruit trees, (quince, pomegranate, fig, and sweet lime) believed to be the direct descendants of trees introduced by Spanish Missionaries. Material for propagation was carefully selected from some of Tucson's oldest neighborhoods and ranches throughout southern Arizona.

Archaeological excavations in the floodplain of the Santa Cruz River revealed a 4,100 year history of agriculture- the longest known in the entire United States.

Mission Garden remains a work in progress. It will expand in a series of phases starting with the early ancestral period, continuing with the Tohono O'odham, Spanish, Chinese, and early Anglo periods. Historically accurate lists guided the selection of plants. The desert portion occupies the northwest corner of Mission Garden and includes saguaros, agaves, ocotillos, chollas, and barrel cacti, all of which were given a new lease on life by the TCSS cactus rescue crew. Mesquite and Ironwood trees were provided by local nurseries. All plants in the desert garden are known to have

been utilized by the Tohono O'odham people.

As a living agricultural museum Mission Garden will be one of its kind. Garden plants are attracting birds, butterflies, a host of pollinators, and visitors who contribute to our economy.

Working with garden volunteers including Bill O'Malley, Bill DuPont, and Roger Pfeuffer, has been an interesting and rewarding experience as well as an opportunity to incorporate TCSS rescue plants into a unique Tucson treasure.

(1) Indigenous tribes customarily applied descriptive names to landmarks. Thus the Tohono O'odham name Tjuk black, Shon base, notes that the base of the mountain is darker than the top. Spanish explorers pronounced the name Tuki Son which gradually evolved into Tucson. Early Anglo settlers named the mountain "Sentinel Peak" referring to the posting of sentinels to provide early warning of approaching enemies. The popular name "A" Mountain refers to the huge white washed A re-painted each year by incoming UA freshmen.

For more information contact by e-mail: MissionGarden.Tucson@gmail.com or phone: 520-777-970. Tours may be scheduled by appointment. Street location: Corner of south Mission Road and Mission Lane.



Photos of desert portion of Mission Garden. Credit Tom and Debbie Collazo.

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Floilegium: Margaret Pope • art@Tucsoncactus.org

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trips@Tucsoncactus.org

Editor: Karen Keller • editor@Tucsoncactus.org

Deadline for September newsletter text or photos:
Thursday, September 17, 2015

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.

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Cacti Rescued - Since 1999
360 Rescues - 25,828 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

September 2015

Thursday, September 3, 2015 at 7:00pm

"A Baja Adventure." Presented by Greg Starr

Tuesday, September 8, 2015 at 7:00pm

Board meeting at the U of A College of Pharmacy

Our October program:

Thursday, October 1, 2015:

**"Cylindropuntia chuckwallensis: A New Cholla Species
from Riverside and Imperial Counties, California"**

Presented by Michelle Cloud-Hughes

**Meetings are held on the first
Thursday of each month.**



Junior League of Tucson, Kiva Bldg.
2099 E. River Road

**September Meeting
Refreshments**

Those with family names beginning with
P,Q, R, S, T, U, and V, 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

October 2015

Thursday, October 1, 2015 at 7:00pm

“*Cylindropuntia chuckwallensis*: a new cholla species from southern California”

Presented by Michelle Cloud-Hughes

Cylindropuntia chuckwallensis is a newly-described cactus found in San Bernardino, Riverside, and northern Imperial Counties, California. Michelle’s presentation will describe how this historically-misidentified cholla was determined to be a distinct new species and the characteristics that distinguish it from similar cholla species. This presentation will provide detailed information on where to see *Cylindropuntia chuckwallensis* and the many other intriguing cacti found with it.

Michelle Cloud-Hughes is a botanist and restoration ecologist specializing in desert flora and ecosystems. She worked for the Soil Ecology and Restoration Group at San Diego State University from 1997 to 2013 and spent most of those years doing restoration work in the central Mojave Desert at Fort Irwin National Training Center. In 2010 she started her company, Desert Solitaire Botany and Ecological Restoration, and since then has been involved in many rare plant surveys and other botanical projects throughout the southwestern U.S. Her main love is *Cylindropuntia*, but she is also fascinated by other cactus, particularly *Echinocereus*, *Grusonia*, *Pediocactus*, and occasionally even *Opuntia*.

October is an excellent time to come and enjoy a great program on a new species! During our break there will be lots of great food and many knowledgeable friends to talk with. Plants you can win and also as a great TCSS tradition, take a free plant home with you.



Michelle and chucky



Chucky cholla first flower



Chucky flowers



President's Message

The Good Time Silent Auction was held at the Sky Island School so that everyone would have a chance to see these facilities. The auction and sales grossed \$2,493 which included the sale of 6 Field Guides, \$1,769 from auction plants and the balance from the sale of \$2, \$5 and \$10 plants. The ice cream and toppings are always a

highlight. The facility worked out great and there were lots of interesting plants available. Our next event at this school will be our holiday party. Information will be sent out in November.

Winter is coming: The weather is starting to change. The usual day for the first frost is November 15. It is time to think about wintering your plants. We will have tips about how to treat different genera for the cold weather that might be just around the corner. Look for this information in our next newsletter.

Pima Prickly Park has received a lot of rain over the last month and it shows. There has been a burst of growth everywhere and the park is really looking good. We are making progress and need your help on October 24. This will be a work day at the park and want to plant many of the specimens from the hoop house into the park. Come out and help.

Elections. Elections for Board members and CSSA affiliate representative are quickly coming up. As you recall the officers terms were changed to two years so all the officers still have one more year to serve. A nominations committee will be elected at the September Board of Directors meeting who will put together a slate of candidates. If you are interested in standing for election to one of these positions please contact one of the nominations committee members in October. Their names will be in the next newsletter. Nominations from the floor will take place at the November general meeting and a ballot will be sent with the Holiday Party and Membership renewal mailing.

Thank you for your support.

Dick Wiedhopf, President

Annual Master Gardener Fall Plant Sale

Saturday, October 10, 2015 8:00-11:00 a.m.

Pima County Cooperative Extension
4210 N. Campbell Ave.

For Information: 520-626-5161

Color your garden with plants grown or donated by Master Gardeners here in the Tucson valley. Looking to naturally attract butterflies and hummingbirds? We have ageratums, salvias, blood flowers, and many more perennials to brighten your garden. Master Gardeners will be on hand to answer all your gardening questions. Sorry, no credit cards.

Mark Your Calendars! Pima Prickly Park Workday

Saturday, October 24th, 2015

The weather is turning cooler and Prickly Park has received a fair amount of rain in the past several weeks.

There are more plants ready to be planted in the hoop house plus there are a couple of areas that could use some clean up.

We want to create Hohokum style agave berms in the area east of the agave garden, plus continue additional plantings in the Cholla Maze.

A broadcast email with times and meeting place will be sent out closer to the date.

In Need of Identification

Can someone identify the growth on this Cholla? If so can you please contact Bill Thornton at cactusworld@msn.com.



FROM THE FLORILEGIUM

Fungi are a fascinating subject for botanical artists, although not a common one. Perhaps this is because mushrooms present difficulties for artists that they don't usually encounter with plants. The first and highest hurdle to overcome is finding them. Once found, most mushrooms must be drawn in short order as they won't hold up well when removed from their growing medium—some may even dissolve into an inky mess. But for a few stalwart devotees, fungi become a specialty.

One of the finest American mycological artists is Louis Charles Christopher Krieger (1873-1940), an artist who worked with David Griffiths on the *Opuntia* project at the U.S. Department of Agriculture from 1912 to 1917 (*Desert Breeze* October 2013). Besides painting innumerable cacti, Krieger also painted fruit and plant diseases for various USDA publications, but his passion was always fungi.

He worked at the USDA at three separate times in his life, and in between positions there, he was passionately involved with mycology. He began painting mushrooms during his first job at the USDA in its Division of Microscopy (1891-1895). After the Division was disbanded, he worked as a portrait artist and teacher. Beginning in 1905, he worked for ten years as a botanical illustrator for William Farlow, a mycologist at Harvard University, assisting in the production of Farlow's *Icones Farlowianae: Illustrations of the Larger Fungi of Eastern North America*. During this time, Krieger produced more than 350 illustrations of mushrooms and began a 30-year project to index the world's mycological literature.

Following his second term at the USDA illustrating the *Opuntia* for Griffiths (1912-1917), Krieger spent ten years working for Dr. Howard A. Kelly, a Baltimore physician. Besides cataloguing Kelly's large mycological library, Krieger produced another set of some 300 illustrations of mushrooms. In 1928, Dr. Kelly donated his library and Krieger's paintings to the University of Michigan and requested that it be called the "L. C. C. Krieger Mycological Library." After completing his work with Dr. Kelly, Krieger wrote several articles for *Mycologia* and other journals, including a very thorough article on the history of mycological

illustration. He was named Mycologist to the New York State Museum and wrote and illustrated *A Popular Guide to the Higher Fungi (Mushrooms) of New York State*.

His third and final stint at the USDA began in 1929. He spent a year in Cuba with David Griffiths illustrating diseases of sugar cane, and in the 1930s painted over 80 watercolors of fruit that are now part of the USDA's Pomological Watercolor Collection. He died in 1940, leaving several ambitious projects unfinished.

Two species of *Amanita* mushrooms are shown here in illustrations by Krieger and Lucretia Hamilton. Hamilton's illustration of the Fly Agaric, *Amanita muscaria*, was produced for *Plants That Poison* and drawn from specimens collected in the Catalina Mountains on August 11, 1969. The drawing shows two stages of development of the mushroom: the immature form with its hemispherical cap and the mature form with the cap fully extended to expose the gills.

Krieger's illustration of *Amanita caesarea*, or Caesar's Mushroom, is one of 16 full-color plates of various mushrooms included in his article "Common Mushrooms of the United States" that was published in *The National Geographic Magazine* in May, 1920. At the time, it was one of the magazine's most successful articles with both mycologists and laymen. This painting beautifully illustrates the main structural features of this type of mushroom. At the base of each specimen is the volva, a broken veil that once covered the entire mushroom. Near the top of the stem, or stipe, is a skirt-like ring, the remains of a veil that originally covered the gills before the cap, or pileus, expanded.

Krieger's works can be seen in the USDA's Pomological Water Color Collection (<http://naldc.nal.usda.gov/naldc/home>) and at University of Michigan Herbarium (<http://quod.lib.umich.edu/f/fuwatic>). -- CLH

FROM THE FLORILEGIUM



Amanita muscari, Fly Agaric
Lucretia Breazeale Hamilton



CÆSAR'S MUSHROOM (*AMANITA CÆSAREA*): Edible

Amanita caesarea, Caesar's Mushroom
L.C. Krieger

2015 Good Time Silent Auction



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Tuesday, October 13, 2015 at 7:00pm

Board meeting at the U of A College of Pharmacy

TCSS Program Presentation

Thursday, November 5, 2015

Jeff Moore, owner of Solana Succulents
Solana Beach, California

**Meetings are held on the first
Thursday of each month.**



**Junior League of Tucson, Kiva Bldg.
2099 E. River Road**

October Meeting Refreshments

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be greatly appreciated and enjoyed!



DESERT BREEZE

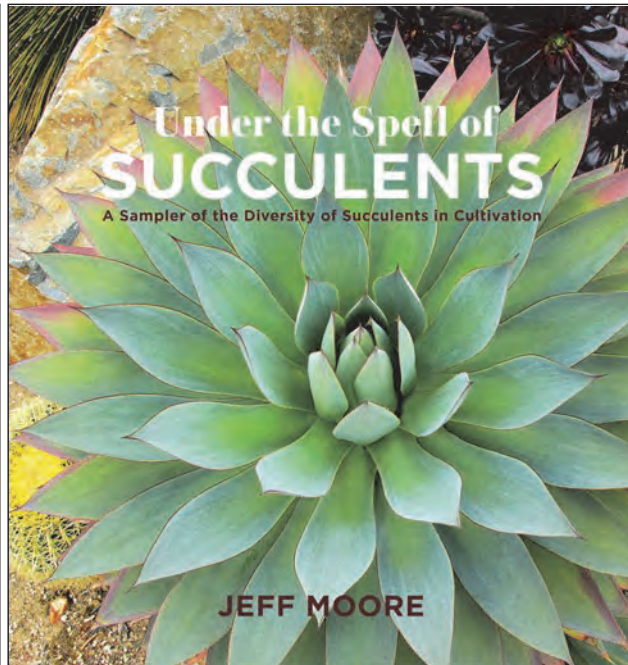
Newsletter of the Tucson Cactus and Succulent Society

November 2015

Thursday, November 5, 2015 at 7:00pm

“An Overview of Succulents in Cultivation”

Presented by Jeff Moore



Jeff's basic program parallels the flow of his book, which is an overview of succulents in cultivation. He will talk about how we engage with succulents - growers, collectors, landscaping, container gardening, bonsai, specialties like crests, variegates, etc., and he will also show representative images of the major genera - aloes, agaves, cacti, euphorbias, etc. He will also devote a bit of extra time to aloes and agaves, and show some samples from his next book. He hopes to have the new publication out by January/February. He's always happy to take questions during and after the program, and may bring a nice raffle plant.

Jeff has been a collector/enthusiast for over 30 years, opened his nursery in Solana Beach, California 23 years ago, and has gained a bit of minor fame amongst plant geeks for his “undersea” succulent gardens (highlighted in the book and slide show). He is adding author to his resume, with one book done, another in the works, and more on the back burner. Jeff is married with two sons, 17 and 20, and also tries to surf in his rare spare time, unfortunately with declining skills as entering the “it's now look out for the old out-of-control kook” phase of his abilities.

This will be our last meeting with a program presentation for 2015. Please come and enjoy a spectacular evening with Jeff Moore. There will be lots of friends, great conversation, delicious foods, raffle plants to win, excellent free succulents and Jeff will also bring plants and books to sell (credit cards accepted).





President's Message

The Officers and Board of Directors honor Joe and Patsy Frannea for all the things that they do and have done for this society. I can't think of a more appropriate way than to have a boulder located in Pima Prickly Park, at the foot of Saguaro Henge that recognizes their commitment to preserving the Sonoran Desert

Environment. This boulder is a simple and lasting expression of our deep appreciation.

Joe & Patsy Frannea
Saving the Sonoran Desert
For Future Generations

I hope you will all stop by the park and see how we have recognized our very special members. Joe and Patsy join Jack Ramsey and Norma Beckman who all represent the very best of The Tucson Cactus and Succulent Society.

We are moving!! This month will be our last meeting at the Junior League facilities. We have enjoyed the last 12 years at this site but it is essential that we found more space. The Sky Island School will provide us needed space, a kitchen, a walk

in book room, storage and a lot more parking. This should be exciting. A new map will be enclosed in future newsletters and the Holiday Party announcement.

Elections are upon us. This year we have to elect 4 Board members (3 year terms) and the Affiliate Representative to the Cactus and Succulent Society of America (CSSA) which is a 2 year term. A nominations committee has been elected and will present a slate of candidate at the November meeting. As required by our by-laws, we will open up nominations from the floor so that a final ballot can be prepared and mailed with membership renewals, and Holiday Party reservations. All of the officers were elected to 2 year terms last year so they all serve for one more year.

The Holiday Party will take place at Sky Island School on December 6, 2015. Set-up starts at 1pm bring food at 2:30pm and 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) which can be Hot or Cold Salads – Starches – Vegetables – Desserts.

We also have awards and a gift exchange. Bring a gift get a gift. Your whole family is welcome and reservation materials will be out after the November meeting.

Thank you for your support,

Dick Wiedhopf, President

Winter Care of Adeniums in Tucson

Adeniums are leafy tropical succulents that come from semiarid climates with ample summer rainfall and long, dry, frost-free winters. The overwintering tips below are appropriate for most other plants with similar forms and habitats, such as pachypodiums, plumerias, Bursera and relatives, Cyphostemma, and Alluaudia. These tips are also good for Phoenix and other low desert locations, keeping in mind that the cooler weather usually arrives a few weeks later there.

- In late September or October, species adeniums usually shed some of their foliage, beginning with the lower leaves. You should have noticed that the potting media stopped drying out so fast. This is a signal to reduce watering frequency. (This year – 2015 – has had a hot late summer and fall so far, and I've seen little leaf drop as of early October.)
- If plants drop all of their leaves, stop watering completely until spring. Exception: small plants (caudex ca. less than 2 inches thick) will need some water to avoid shriveling and dying. This is risky, because winter water promotes root rot. Lightly water the surface – don't wet the whole pot – just often enough to keep the stems firm.
- Most hybrids and *A. obesum* are potentially evergreen if kept warm and moist. You can continue watering these normally as long as days are at least in the 80s and nights are above 50 F.
- By early November, nights are usually below the crucial 50 F. By now you should have done one of the following:

Moved the plants into a heated greenhouse or warm, sunny window. In these locations you can continue watering as long as the plants have substantial foliage.

Moved them to a frost-free location sheltered from rain. A bright site is best, but dormant plants can tolerate being in the dark for a few months.

- In a warm, bright location many adeniums will continue to flower well into winter and perhaps all the way into spring, with or without leaves. In my hot (100 day, 55 night) greenhouse many adeniums don't go dormant, especially hybrids.

Caveat: All the species except *A. obesum* and apparently many hybrids require a dry winter rest period to flower well. *Adenium swazicum* needs only a couple of months, *A. arabicum* prefers five months, and *A. boehmianum* defoliates in November and usually doesn't leaf out until June. (*Adenium arabicum* is variable. some populations such as Soodah Dwarf are potentially evergreen and everblooming.) I've had poor flowering in the past two years, perhaps because I've been watering them throughout the year. This winter I'm going to withhold water from most of them to see what they do next spring and summer.

- I don't recommend it, but most larger adeniums can tolerate down to freezing if they are bone dry. Some will survive into the teens under a cover. Smaller or even large branches will freeze, but the plants usually recover if it doesn't happen every winter.

FROM THE FLORILEGIUM

The world of botanical art can be slow to accept the use of non-traditional media. Watercolor on paper has historically been the gold standard, with other paints and colored pencils accepted somewhat reluctantly. Yet for over 200 years, botanical historians and artists have recognized the beauty and innovation of bits of cut paper and glue—the paper collage plant portraits by Mrs. Delany.

In the late 18th century, the 72-year-old Mary Granville Pendarves Delany (1700-1788) began making cut paper collages in the manner of a botanical painting, or as she described it "...a new way of imitating flowers". Over the next ten years, she created roughly 1,000 of these paper "mosaicks" that are of such accuracy and artistry as to be compared to the great botanical illustrations of the day. When completed, they were bound into ten volumes to become the *Flora Delanica*.

Delany's method was to form the plants from pieces of wallpaper or hand-colored paper that she had cut with a scalpel and small scissors. (This alone was a marvel of manual dexterity given what age can do to the fingers.) Occasionally parts of plants were incorporated into the collage. Like any botanical artist, she worked from actual plant specimens to arrange and color her creations to ensure accuracy. The tiny paper shapes were glued to a solid black background, an unusual and dramatic choice, as botanical art has traditionally presented plants on white or beige paper. Each plant mosaick was labelled with its correct identification according to the Linnaean system along with the location of the specimen's collection.

By the time she created her mosaicks, Delaney had spent an entire lifetime studying natural history and practicing various arts and crafts. After the death of her second husband, she lived for a time at Bulstrode Park, the estate of her friend Margaret

Bentinck, Duchess of Portland, where she had access to her friend's botanical garden, its botanists, and the largest natural history collection in England.

In 1771, Joseph Banks and Daniel Solander, a student and protégé of Linnaeus, stayed at the estate, having just returned from Captain Cook's first voyage to the Pacific. Delaney and the Duchess later visited the two men in London to see the collection of plants they had made during the voyage. The following year Delaney began her *Flora Delanica*, perhaps inspired by the Banks/Solander collection of pressed plants and paintings. (Banks and Solander's plants would eventually become The Banks Florilegium, a collection of 743 botanical plates of the plants gathered during Cook's voyage.)

At age 82, Delany's eyesight failed, and she was no longer able to create her plant mosaicks. Three years later, the Duchess of Portland died. King George III and Queen Charlotte had often visited the two women at Bulstrode, and after the death of the Duchess, the King provided Delany with a cottage at Windsor and an annuity. She spent evenings with the royal family, teaching the children and helping the Queen with her own pressed flower collection. Delaney died in 1788 after a brief illness.

In 1896, Delaney's *Flora Delanica* was donated to the British Museum, where today these truly unique works can be viewed in the Museum's online collection.

The two illustrations shown here are, of course, not native to the Sonoran Desert. By the late 18th century, European plant hunters had collected many plants from South America and the Caribbean and had introduced them into European gardens, but plants from the Sonoran Desert would not yet have been found in the English gardens. --CLH



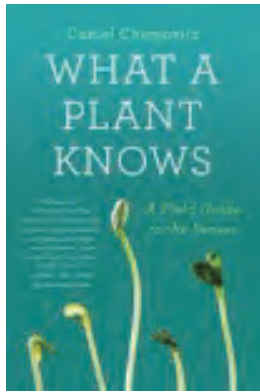
"Cactus grandifloras – Melon Thistle", 1778
On the back of the collage, Delaney wrote "Bulstrode 12 August 1778, The Day the King and Queen and the Royal Family were at Bulstrode".
© Trustees of the British Museum



"Aloe perfoliata, var. Tree Aloe", 1780
© Trustees of the British Museum



Coursera is an education platform that partners with top universities and organizations worldwide, to offer courses online for anyone to take.



Are you.....Curious about NATURE??? Life-Long Learner?

Last year I along with Dave Palzkill, I recommended a book we both enjoyed reading. **What a Plant Knows** by Daniel Chamovitz. Daniel is a Ph.D. from Tel Aviv University.

This year I am recommending a “coursera” class by the author.... I have taken this class and loved it. Challenging engagement and fascinating plant science at a level that will work for all of us.

Caryl Jones, TCSS Educational Outreach Coordinator

The course is beginning soon and lasts just 7 weeks..... if interested at all or would like to see a the course syllabus or video preview, please explore more at <https://www.coursera.org/course/plantknows> utm_medium=email&utm_source=other&utm_campaign=notifications.auto.fmJODHaeEeWjwA7PvDoWpQ

This course intends to present to you an intriguing and scientifically valid look at how plants themselves experience the world—from the colors they see to the sensations they feel.

Highlighting the latest research in genetics and more, we will delve into the inner lives of plants and draw parallels with the human senses to reveal that we have much more in common with sunflowers and oak trees than we may realize.

You'll learn how plants know up from down, how they know when a neighbor has been infested by a group of hungry beetles, and whether they appreciate the music you've been playing for them or if they're just deaf to the sounds around them. You'll explore definitions of memory and consciousness as they relate to plants in asking whether we can say that plants might even be aware of their surroundings.

This highly interdisciplinary course meshes historical studies with cutting edge modern research and will be relevant to all humans who seek their place in nature.

By taking this course you'll be able to:

1. Describe basic plant biology and plant senses (sight, smell, hearing, touch, taste, balance).
2. Define the world of biological research and the scientific method.
3. Question life in general and what defines us as humans.

TEL AVIV UNIVERSITY

What a Plant Knows (and other things you didn't know about plants)

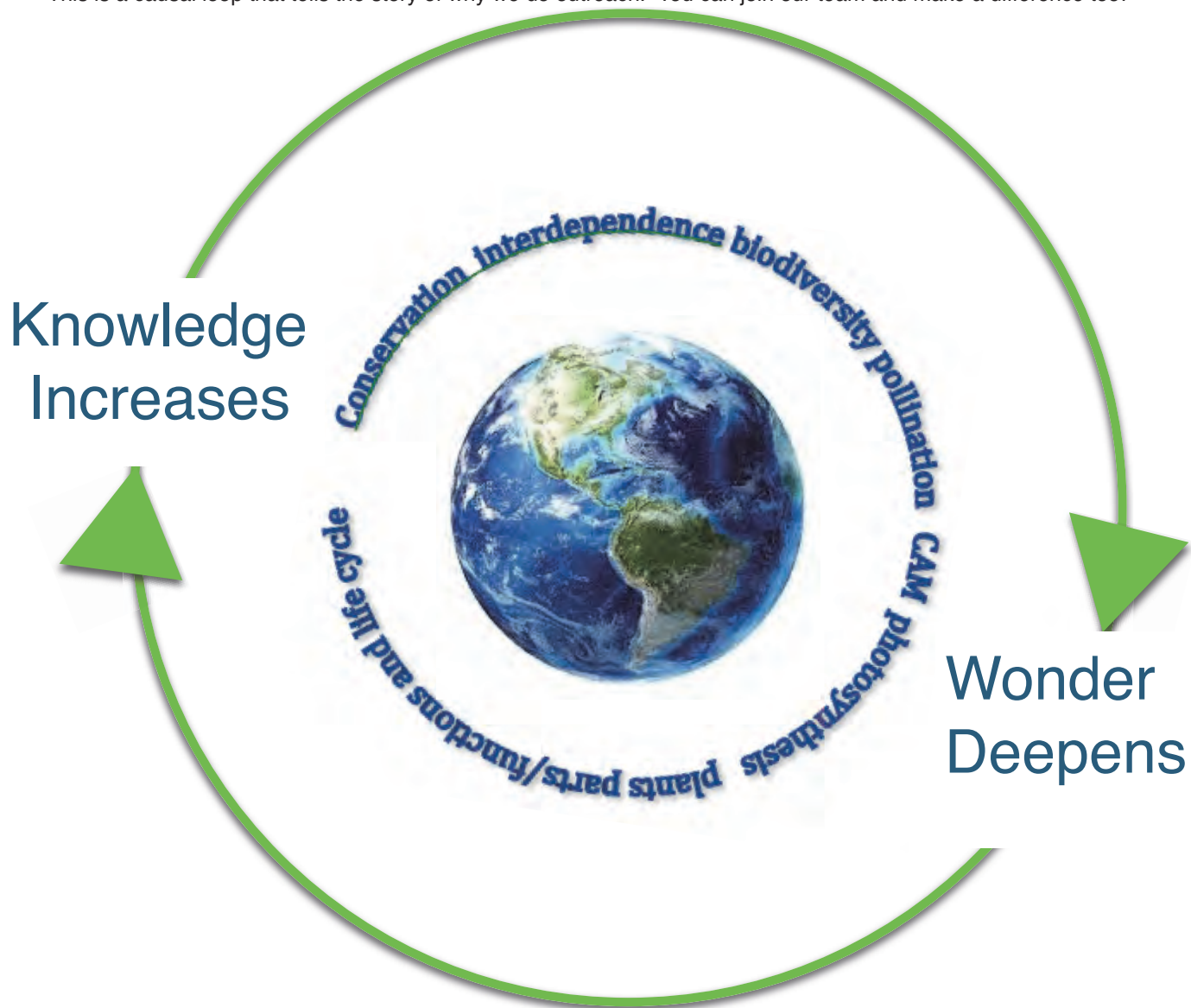
Can we say that plants have senses? You will learn how plants sense their environment and how scientists study plant senses. You will be exposed to both classic and modern experiments in plant biology, and may even start to question what defines us as humans.

Watch Intro Video



TCSS Educational Outreach Committee Volunteering for our Tucson Community children!

This is a causal loop that tells the story of why we do outreach. You can join our team and make a difference too!



Great Book to consider reading: A Bat Man in the Tropics by Dr.Theodore Fleming. What a journey as you read and listen to a scientist do his THINKING and his DISCOVERY... all related a familiar ecosystem and to our cacti pollinators, the bat. An AMAZING account of science in action and at its best!

Early Acceptance.... we are now taking names for volunteers at the SARSEF student science fair and Innovators Night. March 3 from 7:30am til noon is the judging of science projects and March 4th from 5:30-8:30pm is Young Innovators Night where we host 2 tables of hands-on science. Volunteer Now!

Would you like to join our TCSS EDUCATIONAL OUTREACH COMMITTEE? It is a fun way to participate in our TCSS organization. Contact Caryl Jones at education@tucsoncactus.org.

TCSS Educational Outreach volunteers at Plant Science Family Night 2015
THANK YOU.... BILL, LESLIE, JOE, PATSY, CHERYL, JESSIE, and BARRY



Preparing burseras and jatrophas for winter

Living in a very cold (8° F in 2011) winter location by Tucson standards, I mostly grow local natives and plants from Texas and the Chihuahuan Desert region of Mexico that are reliably cold hardy. However, I have had an interest in *Bursera* and *Jatropha* for several decades. These plants are decidedly not fond of the words “freeze warning” and would not survive winters outdoors at my location. I grow these plants in containers and move them indoors when the first freezing temperatures of the season arrive. Prior to the great annual migration of the elephant tree herd, I take a few steps to prepare them. Some species readily go dormant in October, but others require encouragement. Except for seedlings, I stop all watering at the end of the third week in September. This usually ensures enough warm, dry days for the plants to stop growing and many of them to defoliate. A bonus is autumn color with yellow and orange leaves adorning the plants. Who needs to go see aspen trees when the burseras wax golden? Prior to the move I clean the containers

and remove dried leaves from the twigs and soil surface. This minimizes the introduction of interesting arthropods for the cats to interact with. And it is inconvenient to rake leaves indoors. The plants are located where they receive bright light from a south-facing window, but many do not receive direct sunlight. A spouse who is a plant person is helpful in maintaining domestic harmony while usurping a portion of the living room. Seedlings receive a light watering approximately monthly. Larger plants are not watered again until they migrate back out into the patio at the beginning of April. The species that I grow are from the dry tropics of Mexico where winters have little or no rain. This is their dormant season. Excess moisture during this time combined with low light and relatively cool temperatures is a recipe for root problems. Since moving to our current location in 1994, this has been an annual event. The plants take it all in stride, snug inside the house while the frigid winter winds howl.

Succulent Plants-Conserving Water, Outwitting Climate Change available on Amazon Kindle for \$1.00

For many years my research, writing, and hobbies have featured succulent plants, especially cacti. A recent desire to reach a wider audience has culminated in a light-hearted booklet described below (published October 1, 2015). It is available on Amazon Kindle for \$1.00 (free on kindleunlimited). The price is low to encourage others to learn about these plants; I believe the booklet would be of interest to members of the Tucson Cactus and Succulent Society.

Succulent Plants-Conserving Water, Outwitting Climate Change by Park S. Nobel Distinguished Professor of Biology Emeritus, University of California, Los Angeles

The two greatest environmental challenges facing our era are (1) shortages of water and (2) climate change. This booklet is a light-hearted rendering of these serious topics with respect to succulent plants. Park has been called the international guru

for the ecophysiology of cacti and agaves (Ali Nefzaoui) and the rock star of cacti (Nadean Lindberg). He has published five books and over 300 research articles on these remarkable plants (plus 12 other scientific books, with translations into Spanish, Russian, and Chinese).

For this booklet everybody said Keep it short Keep it simple, and Make it fun to read. It involves an imaginary dialogue between his two grandchildren interspersed with some adult interpretations and details. This booklet discusses the unique biology of these special plants, the reasons for their outstanding efficiency in conserving water, and how they are responding to climate change.

Park Nobel

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trips@Tucsoncactus.org

Editor: Karen Keller • editor@Tucsoncactus.org

Deadline for November newsletter text or photos:
Thursday, November 19, 2015

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.

76005 4

Cacti Rescued - Since 1999 360 Rescues - 25,828 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

November 2015

Thursday November 5, 2015 at 7:00pm
"An Overview of Succulents in Cultivation"
Presented by Jeff Moore

Tuesday November 10, 2015 at 7:00pm
Board meeting at the U of A College of Pharmacy

Holiday Party
Sunday, December 6, 2015
Sky Island School
6000 E. 14th St.

**Meetings are held on the first
Thursday of each month.**



Junior League of Tucson, Kiva Bldg.
2099 E. River Road

November Meeting Refreshments

Those with family names beginning with
D, E, F, G, H, I, and J, 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

December 2015

Sunday, December 6, 2015 • 3-5pm

Tucson Cactus and Succulent Society Holiday Party and Gift Exchange

NEW
LOCATION

Sky Island Public Charter School, 6000 E. 14th St,
Setup: 1pm - 3pm • Dinner: 3pm -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 or more servings): Hot or Cold Salads -Starches - Vegetables - Dessert (please bring serving dish and serving utensils).

Food Bank: For years now, we have been collecting money and/or food for the Community Food Bank. This year the need is as great as ever, so let's make it special for others. Please bring donations (cash or check donations are preferred, they can get 10 times the food) 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 the fun is how they will be distributed.

Meeting: Additionally there will be a short Annual Meeting, Election Results, Awards and Table prizes.

Holiday Party and Gift Exchange



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





President's Message

The Holiday Party is Sunday, December 6, I hope to see you at our new location for this annual event. There is always great food, friendship and fun. If you haven't RSVP'd please email me at president@tucsoncactus.org. Don't forget that we have been very generous over the years in raising money for the Tucson

Community Food Bank.

More than 1,130 individuals and family members make us the largest local Cactus and Succulent Society in the world. Although numbers are impressive, it is the character and activities of this Society that make it outstanding. Our "Field Guide to Cactus and other Succulents of Arizona" has been a great accomplishment and success. In only 9 months, more than 1,600 copies are in use around Arizona and the world. This would be a great Holiday Gift for friends and family. They will be available for sale at the Holiday Party along with our logo t-shirts.

Our monthly meeting presentations have been outstanding and we extend our appreciation to Vonn Watkin for continuing to bring us the very best speakers and programs.

Educational outreach is another area where we excel. Caryl Jones and her committee continue to meet the challenge of providing quality educational programs to young people and this year her outreach to teachers was a great success. We all need to support and participate in these educational activities. As a Society, we have a tremendous amount of knowledge that we need to share.

The economy of Arizona has rebounded and we can see that development is on the increase. This means that 2016 will be

a challenging year for our rescue program. I can't believe that we have saved over 76,000 cacti and succulents since 1999. Leadership of this program will have many new faces and will need everybody's support and cooperation to continue the success of this important activity. We are saving desert cacti and other succulents!

Pima Prickly Park is a logical step related to our rescue program. If you save as many plants as you can and can't find a home for all of them, what do you do? Simply, create a park. I can't thank enough the thoughtful representatives of Pima County for their approval of Pima Prickly Park. This is a great example of a public/private partnership. Our volunteers have made great progress in the development, planning and planting and we will be continuing this progress in the upcoming year.

April 16 and 17 are the dates for Sonoran XI. This is our 2 day conference of speakers, workshops, plant show and sale and more celebrating the Sonoran Desert and thanking all of you for your contributions and support of this Society. This event was created primarily to say Thank You for your support.

Change is always a challenge. Our move to the Sky Island School is a challenge that effects all of us. I know you will support this effort and help us make it a success. We need your support, ideas for improvement and participation.

Finally, Special Thanks to our Editor, Karen Keller, who is dedicated to publishing a quality newsletter every month.

It is my great pleasure and honor to serve you another year.

Thank you.

Dick Wiedhopf, President

Old Pueblo Brass Band Concert Saturday, December 5, 2015

The Old Pueblo Brass Band will have two Christmas concerts this year. Come see Tom Van Devender in a suit, playing his bass trombone in a trombone quartet! OPBB is a great volunteer community group with gifted musicians. This will be a good concert. Please come and enjoy the music.

Saturday, Dec 5, 2015; 7 p.m.; Saguaro Christian Church; 8302 E. Broadway Blvd (corner of Sarnoff and Broadway)

Sunday, Dec 6, 2015; 12:30-1:30 p.m.; Oro Valley Arts Festival; SW corner Oracle and Tangerine between Olive Garden and Red Lobster

Thank you goes to Mark Dimmitt for his Adenium article and Matt Johnson for his Bursera article.

They both appeared in the November Desert Breeze.

Thanks

Dick

**TCSS Program Presentation
Thursday, January 7, 2015**

Program presented by
Doug Dawson

FROM THE FLORILEGIUM

Flor de Nochebuena, the Christmas poinsettia, is indigenous to Mexico and Central America where the shrub can grow to 15 feet with few branches—a rather sprawling, scraggly thing when compared to the full, bushy cultivated plants we expect to see every December.

The man who first brought the plant to America was Joel Roberts Poinsett (1779-1851), a diplomat and politician from South Carolina. He trained in Scotland to be a physician, but left his studies to travel in Europe. He eventually found a career in politics, serving first in the South Carolina legislature, then as U.S. Congressman from South Carolina until his appointment as the United States' first ambassador to Mexico. His political career culminated with his appointment as Secretary of War under President Van Buren.

Poinsett was keenly interested in botany and collected plants throughout his travels for cultivation in the greenhouses at his home. While serving as ambassador in Mexico, he collected live specimens of an unusual plant known as cuetlaxochitl that he found growing in Taxco de Alarcón, southwest of Mexico City, and sent them back to South Carolina for cultivation. He shared the plant with botanist Robert Buist of the Pennsylvania Horticultural Society who, in 1829, exhibited the plant as *Euphorbia pulcherrima* at the Society's flower show. By 1835, the plant was being grown enthusiastically in the U.S., Scotland, and England. Robert Graham, professor of botany at Edinburgh University, prepared an account of the species for *Curtis's Botanical Magazine* in 1836, where he named the new

introduction *Poinsettia pulcherrima*. Today, the plant is once again named *Euphorbia pulcherrima*, but Poinsett's contribution to horticulture is recognized in the common name "poinsettia".

From Europe, the poinsettia spread throughout the world as a rare winter-blooming plant whose brilliant red bracts could brighten the dreariest days. In America, the plant found its way to California where the climate was favorable for commercial cultivation. The enormous market for poinsettias was largely created by the Ecke family, immigrants from Germany who settled in Encinitas and began selling poinsettias in 1909. Within ten years they were shipping poinsettias to New York and Chicago, and at present, the poinsettia has become the country's top-selling potted plant, with over 100 cultivars of varying size and color.

The richly colored illustration shown here accompanied Graham's 1836 article in *Curtis's Botanical Magazine*. At the center of the red bracts are the distinctive flowers characteristic of the Euphorbias. The male and female flowers of the poinsettia have very prominent cup-shaped nectaries that appear to be two slightly open thick yellow lips. The structure of these unusual flowers is more apparent in Lucretia Hamilton's pen and ink drawing of the poinsettia. Male and female flowers are in the lower left corner of the drawing, and the yellow-lipped nectaries can be seen on the sides of the flowers. The plant's magnificent color is missing in this drawing, but there is remarkable clarity in her depictions of all other aspects of the plant. --CLH



Poinsettia pulcherrima
Illustrator not credited.
Curtis's Botanical Magazine, Vol. 63, 1836.
Image courtesy Missouri Botanical Garden. <http://www.botanicus.org>



Euphorbia pulcherrima
Lucretia Breazeale Hamilton

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

Bill Sievers
Linda Matson
Julie Hallbach
Don Featherstone
James Zaino
Stephen Chesser
Susan Richards

Conservation Fund

William Thornton
Saralaine Millet

Conservation Fund

Stephen Baier & Family
Marie Hirsch
Thomas Pringle
Library
Robbie Willingham
Florilegium
Alan & Susan Rogers

Sonoran Desert Florilegium

Dan & Sharon Mendenhall
Carol & Randy Owens

William Thornton
Linda Heisley
Diane & Ardner Cheshire
Rebecca Bushner
Keimpe Bronkhorst

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Edith Jane Ulmer & Family
Cathy, Elias, Naheli & Ellis Cabezas

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Huntington Gardens 2015

Photos by Karen Keller



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Floilegium: Margaret Pope • art@Tucsoncactus.org

Librarian: Joie Giunta • librarian@Tucsoncactus.org

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Editor: Karen Keller • editor@Tucsoncactus.org

Deadline for November newsletter text or photos:

Thursday, December 21, 2015

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.**

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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

December 2015

Sunday, December 6, 2015 3:00pm - 5:00pm

Tucson Cactus and Succulent Society

Holiday Party and Gift Exchange

Sky Island Public Charter School, 6000 E. 14th St

Tuesday, December 8, 2015 at 7:00pm

Board meeting at the U of A College of Pharmacy

**Many of our local Garden Centers and Nurseries have
beautiful Holiday Wreaths and Christmas Cactus**

Photos by Karen Keller at B & B Cactus Farm

