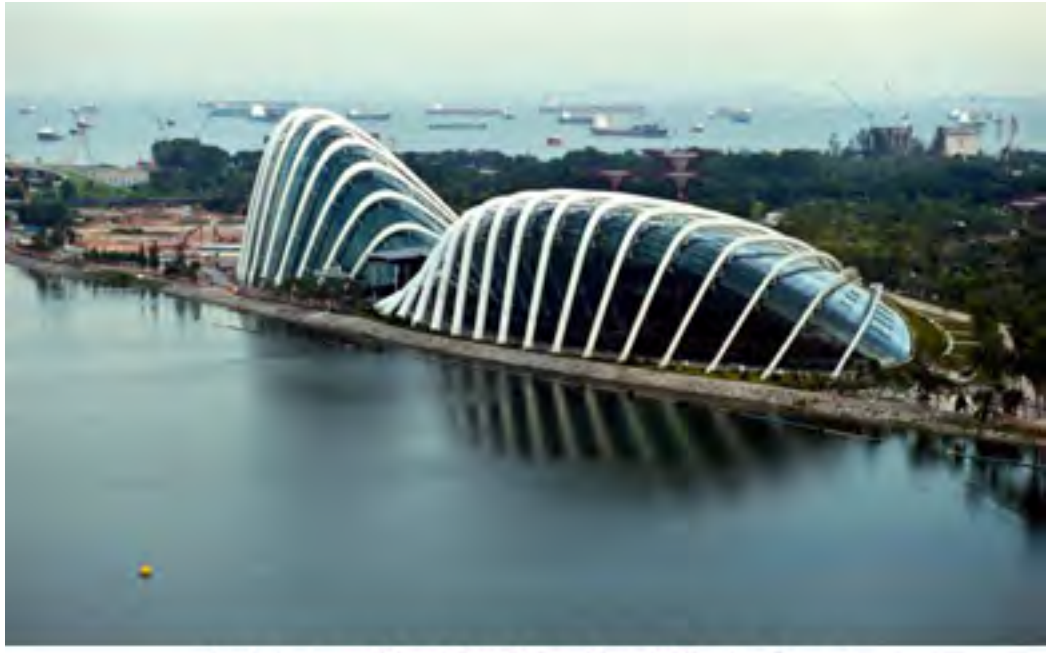
Tucson Cactus and Succulent Society

Monthly Meeting

Thursday January 3, 2013 at 7 pm

"The Road to Singapore"

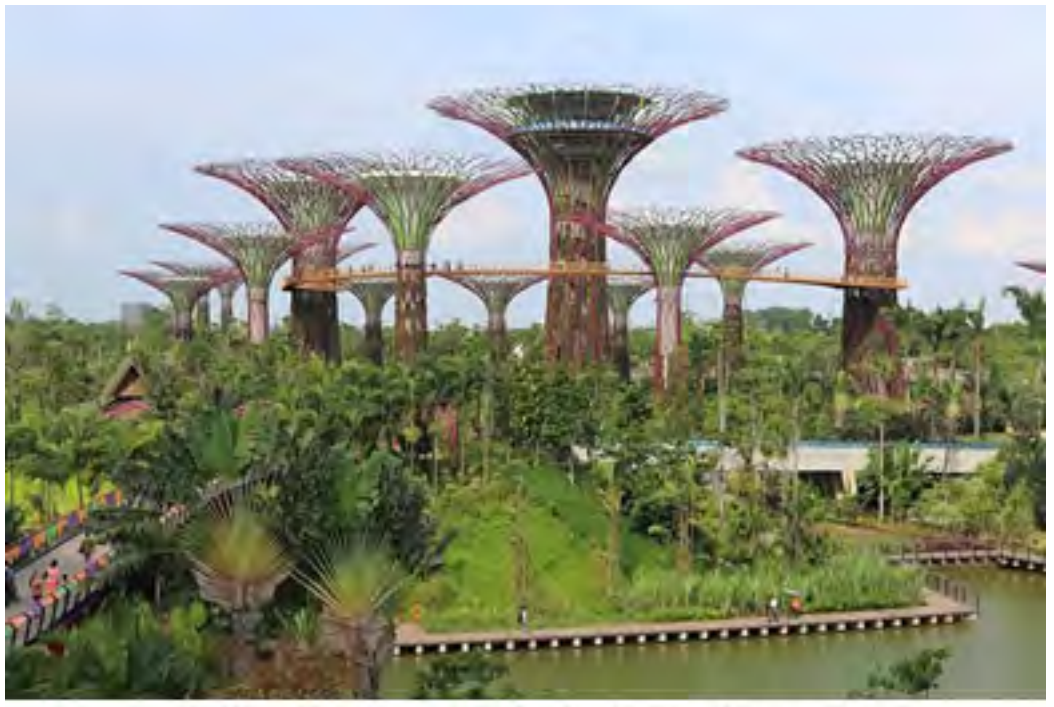
Presented by Val Little with Mark Dimmitt and Gene Joseph



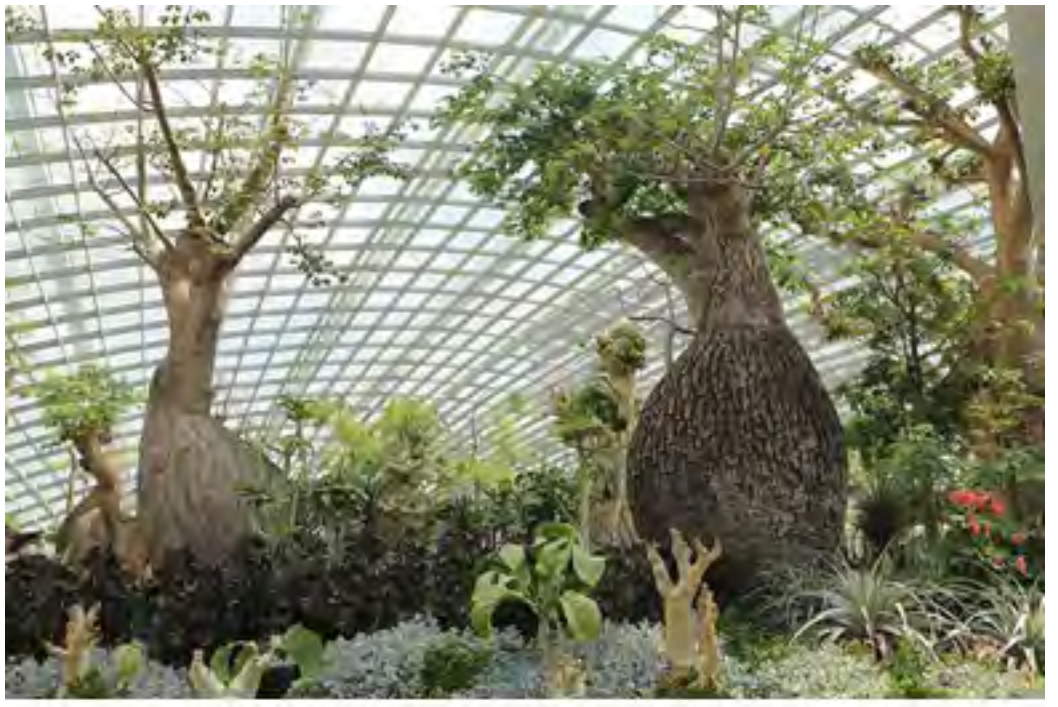
Aerial view of the Cloud Forest and Flower Dome, Gardens by the Bay, Singapore

Trained as both a Landscape Architect and an Anthropologist,Val Little is best known as the Director of the Water Conservation Alliance of Southern Arizona. A long time traveller and plant geek, Val attended the opening of the new, Gardens by the Bay, botanic garden in Singapore last summer. This One Billion Dollar garden is the new home to many plants grown right here in Tucson by our local plant legends (Mark Dimmitt, Jane Evans, Gene Joseph, Dan Bach, etc.) These specimen plants have been integrated with the over 700,000 plants that make up this tough-to-describe, twenty-first century garden. Come share the travel experience of these plants as they are prepared to travel, and see the opulence of where they now live and are seen daily by thousands.

Be sure to place this program on your calendar as a "must attend" for the new year! This will be a special program that everyone should truly enjoy. Come and experience the program, find conversation with the multitude of cactus and succulent fans, ask some questions, have some great refreshments and truly enjoy an excellent start to 2013.



Supertree Grove, Gardens by the Bay, Singapore



Baobab and Bottle Tree Garden, Flower Dome, Gardens by the Bay, Singapore

Tucson Cactus and Succulent Society

Monthly Meeting

Thursday February 7, 2013 at 7 pm

"Rarely Seen and Rarely Found Native Cacti and Succulents of Arizona"

Presented by Peter Breslin

Most well known for larger, charismatic flora such as the Saguaro, the Arizona deserts are also home to some of the smallest, rarest and hardest to find cacti and other succulents in existence. For the past several years, Peter Breslin has been traveling into many of the obscure locales of Arizona from his home base of Tempe, searching out the least well known, marginal, rare and endemic cacti of the state. From Peniocereus striatus in Tohono O'odam country to the vast expanses of the House Rock Valley and Kaibab Plateau areas, from the Mojave County transition zones to the Mojave Desert to the far southeastern transitions to the Chihuahuan Desert, Peter has found and photographed many of these elusive, cryptic cacti and succulents, not often seen in habitat except by luck or after a long search. His presentation will feature dozens of photos and a lot of information on the plants and their habitats.

Peter teaches high school mathematics at New School for the Arts and Academics, a charter school in Tempe, AZ. He has logged more than 80,000 miles on his 1991 Honda Civic in the past 7 years or so, searching out and photographing rare, endemic cacti in Arizona, New Mexico, California, Texas, Sonora and the entire Baja Peninsula. He is also a performing drummer and pianist, and he grows a collection of mostly North American cacti which now takes up every available square foot of sunlit space in his very small Tempe yard."

I hope that you will come to this special program presentation and find out what is truly out there in Arizona! Peter will present an excellent program that should truly be a challenge to those wanting to know more about the rare and unusual cactus and succulents of Arizona. We will enjoy Peter's excellent program, have some great food, win a few raffle plants and get a free plant at the closing bell!

Do you know which three unusual Arizona cacti these (below) are and where they are found? Come to the February meeting and either brag about it or find out more!

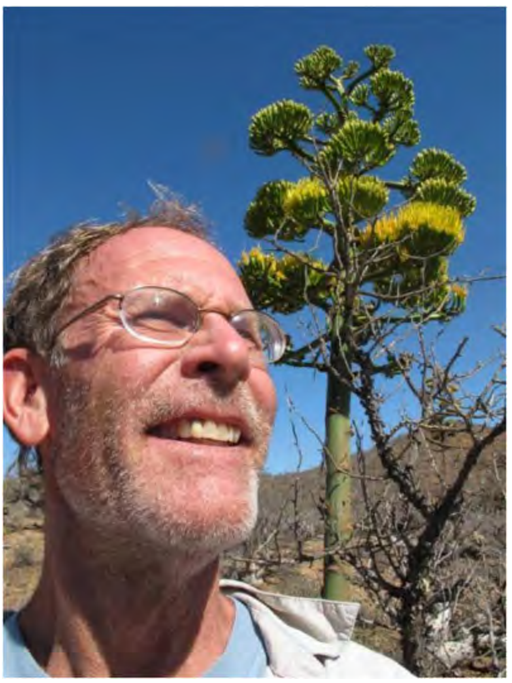
Tucson Cactus and Succulent Society

Monthly Meeting

Thursday March 7, 2013 at 7 pm

"The Agaves of Baja California: New Finds, Old Favorites"

Presented by Greg Starr and Bob Webb



The Agaves of Baja California have long fascinated botanists and hobbyists alike owing to their endemism, beauty, hardiness, and the landscapes that they evolved in. Howard Scott Gentry devoted a monograph to these Agaves, describing new species and speculating on their evolution on a long peninsula that once was separated into islands by shallow seas. Now, new species have been described, certain species groups have been revisited, and the time has come to revisit Gentry's assessment of the Agaves of this peninsula that is so iconic to the Sonoran Desert and succulent plants in general.

Bob Webb and Greg Starr have been evaluating the Agaves of Baja California for several years as part of larger, separate efforts. Webb has been mapping succulent plant biodiversity on the peninsula for 18 years and described Agave turneri, a new species from near Mexicali, in 2011. Starr has written extensively on the Agaves of mainland Mexico and recently turned his attentions to the Baja Agaves. Using the combined techniques of DNA analysis with good old-fashioned botany, Webb and Starr are coming up with a new framework for characterizing the 26 taxa on this peninsula, all but one of which are endemics.

This will be a special program presentation that you should not miss!. Please plan to attend and enjoy a great program, have some food, talk to those that love cactus and other succulents, win a few raffle plants and also, stay to the closing and take home a free plant!

Agave species nova Picachos 25

Tucson Cactus and Succulent Society

Monthly Meeting

Thursday April 4, 2013 at 7 pm

"Odd plants in odd places: Why an evolutionary and ecological theorist studies the natural history of cactus and succulents"

Presented by Root Gorelick

Melocactus paucispinus with its tiny photosynthetic portion and enormous cephalium looks comical. If we had not been so familiar with these plants, we might think they were grafted or a hoax. Why would any plant evolve such a strange architecture, especially a genus that has been so successful, with representatives throughout most South American and Central American deserts, as well as the Caribbean?

Part I: **Plants in unexpected places**
Euphorbia antiquorum meters from the Andaman Sea, Stenocereus eruca on mainland Baja, Coryphantha dasyacantha in New Mexico and Ferocactus emoryi in Maricopa and Pinal Counties

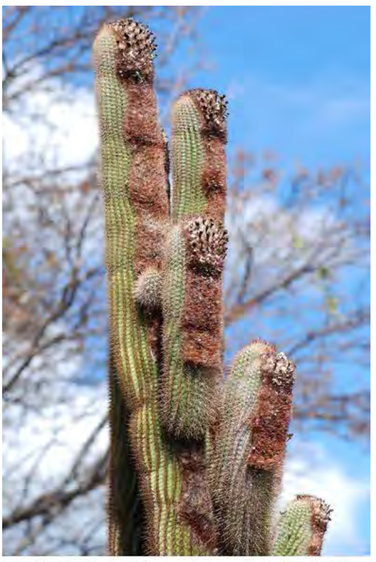
Part II: **Surprising cactus biology**
Mammillaria grahamii without chlorophyll in Tempe and Gynodioecious cacti with showy flowers

Part III: **Cephalia are not adaptive**
Terminal cephalia: Melocactus, Discocactus, Backebergia, Arrojodoa, Stephanocereus
Lateral cephalia: Espostoa, Espostoopsis, Cephalocereus, Micranthocereus, Facheiroa
Branching cephalia and determinant growth of areoles: the odd case of Coleocephalocereus

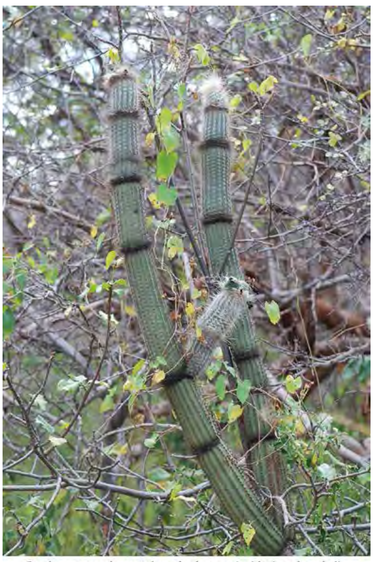
While Discocactus catingicola is probably closely related to Melocactus, it is not quite as maladaptive as Melocactus. As can be readily seen here, unlike with Melocactus, photosynthetic portions of Discocactus can continue growing once a cephalium has formed.

Root Gorelick is an associate professor of biology, mathematics & statistics, and interdisciplinary studies at Carleton University in Ottawa, Ontario, Canada. He teaches plant form and function, evolution of sex, and Indigenous perspectives in ecology and evolution. His research is largely in evolutionary theory, mostly on evolution of sex and evolution of biodiversity, but is pleasantly surprised that many of his graduate students are working on climate change biology. Before Carleton and his PhD, Root worked and was trained in mathematics, physics, and economics. He also spent a year advising the Bush administration on their non-existent environmental policy. Root recently was appointed to a second term as editor of Haseltonia (send him your technical manuscripts). As is true with almost all decent academic botanists, Root has a brown-thumb. He only grows cacti that will survive with no care, except for weeding. Given that most years Ottawa has at least a week around -30Â°C, usually just a few weeks before he taps the surrounding sugar maples, these few species of Maihuenia, Pediocactus, Coryphantha, Cylindropuntia, and Opuntia have to be tough. Root usually commutes to work via canoe along the Rideaeu River, often seeing beavers, otters, muskrats, lots of birds, and many aquatic plants. Occasionally this entails over long stretches of frozen river . Sometimes this means showing up for teaching or meetings with a paddle in hand and really cold toes. While on sabbatical at the beach on the central coast of California, he is trying to make up for this lack of canoeing with the proxy of a stand-up paddle-board.

This will be a very special program presentation from the past and present editor of the CSSA Haseltonia Journal. Please plan to attend the excellent presentation that should be high on your list of things to do in 2013! Come and enjoy a fantastic program, have some food, talk to those that love cactus and other succulents, win a few raffle plants be sure to stay and take home a really special free plant!



Some specimens of Coleocephalocereus goebelianus defy expectations by branching from cephalia and only from cephalia. By contrast, when most other cephalium-bearing cacti branch, it is from photosynthetic parts, with the regularly accepted notion that cephalia cannot branch because (1) this would put too much mechanical strain on the stems and (2) areoles in cephalia have determinate growth, i.e. are no longer active.



Stephanocereus leucostele and other cacti with ringed-cephalia, however, show that Coleocephalocereus may not be as unique as usually thought because S. leucostele and Arrojadoa species usually only branch from cephalia. While this may not be maladaptive (pardon the double negative), it is also not obviously adaptive.

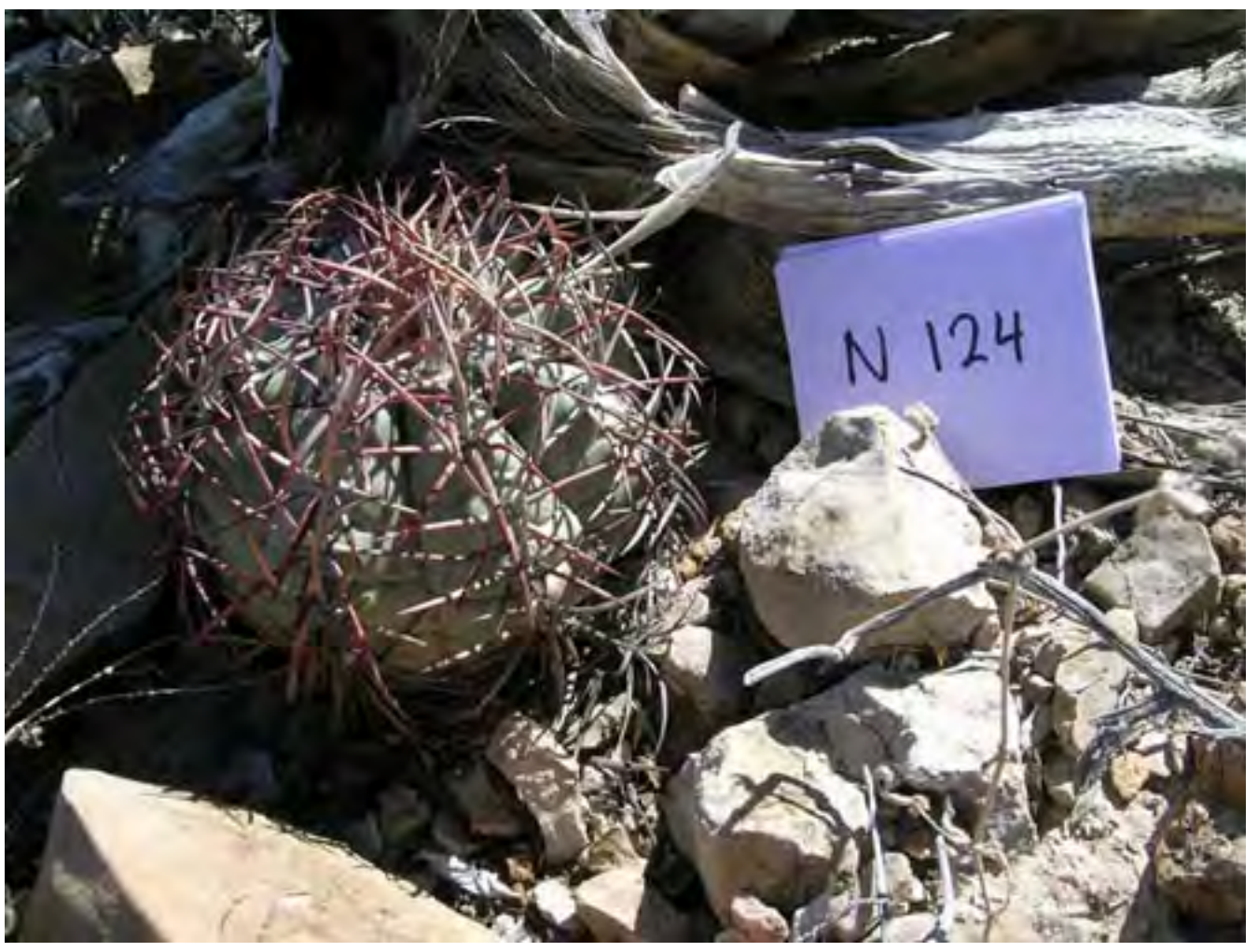
Tucson Cactus and Succulent Society

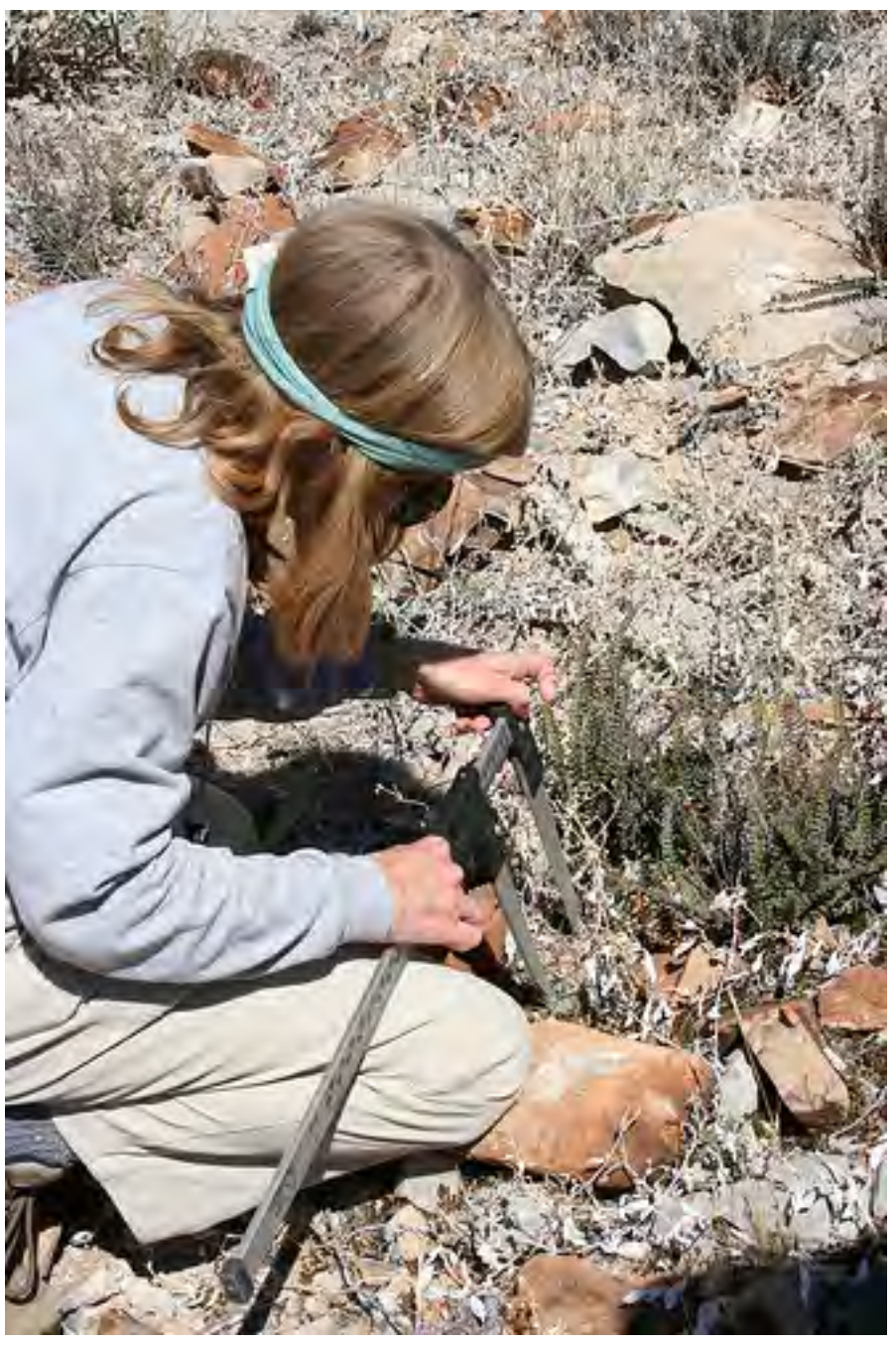
Monthly Meeting

Thursday May 2, 2013 at 7 pm

"The long-term monitoring study of *Echinocactus horizontahalonious var. nicholii*"

Presented by Margrit Macintosh

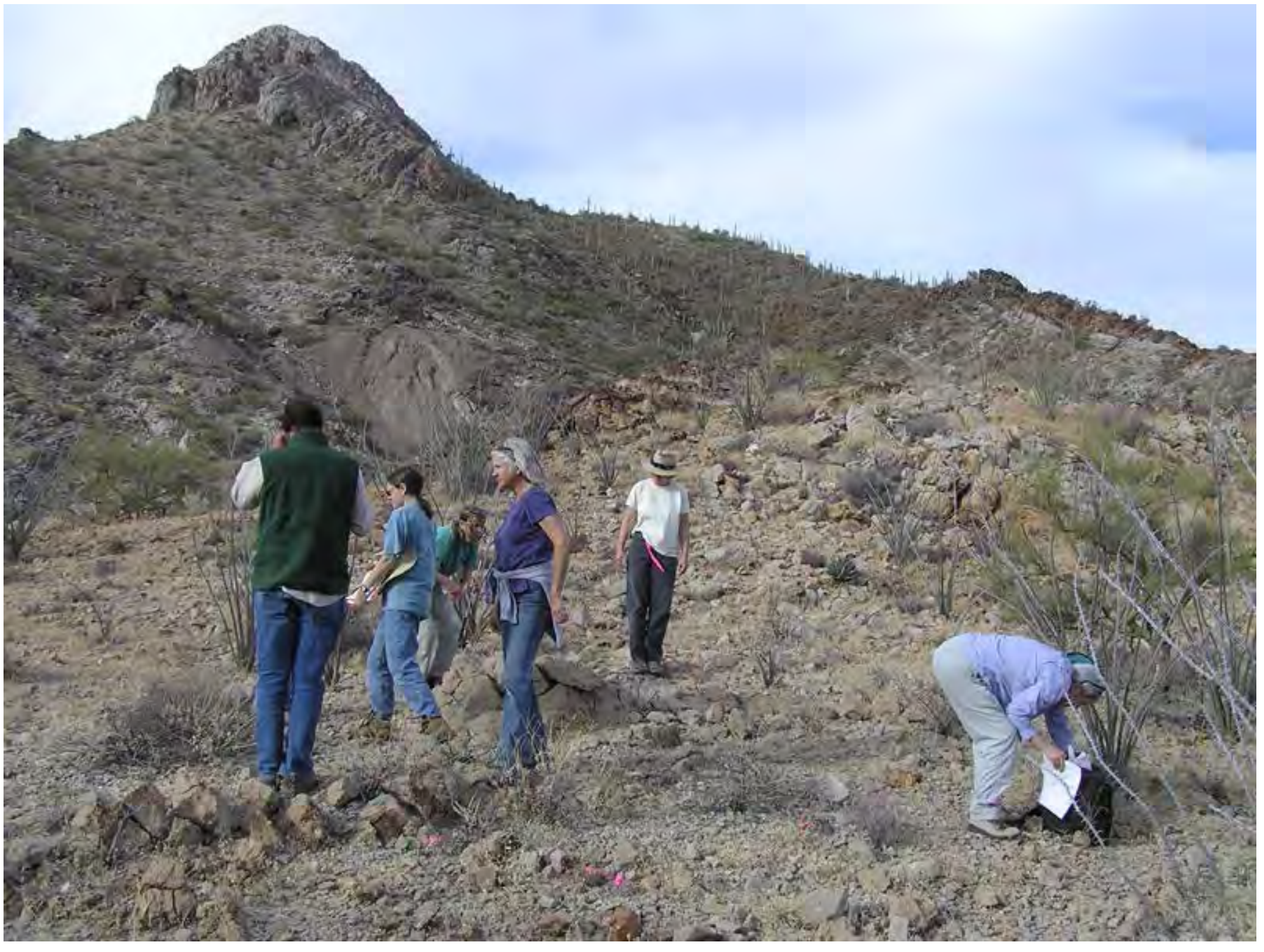




This program is about the long-term monitoring study of this one variety of Echinocactus that is native to only one small area of southern Arizona.

Margrit McIntosh grew up in Manhattan, spent many summers in the Berkshires of Massachusetts, and was a frequent visitor to the American Museum of Natural History in her young years. She has had a varied career and has a background in English Literature and Library Science. She received a Ph.D. in Ecology and Evolutionary Biology from the University of Arizona in 2001, and her dissertation was on the reproduction of barrel cacti, and the behavior of native solitary bees that specialize on cacti. Since graduating she has remained in Tucson working for the University as a web designer and programmer, while continuing to study cacti and cactus bees in her spare time.

Be sure to attend this special presentation and find out how and why these special studies can make a difference. Invite your friends, enjoy some great food, get a free plant and join the multitude of others in our organization who love to talk about cactus and succulents.



Tucson Cactus and Succulent Society

Monthly Meeting

Thursday June 6, 2013 at 7 pm

"Hedgehog Heaven, the diverse *Echinocereus* of OroGrande."

Presented by Rob Romero

The Jarilla Mountains near OroGrande, New Mexico are a special place indeed. A quite unassuming little range but the cacti within are quite spectacular. There are a few species of Echinocereus (hedgehog cacti) that grow here and they hybridize to create some incredible flowers of varying shapes and colors. In 2010, there had been good winter moisture in this region so the plants really put on quite a show.

Rob Romero has been a hobbyist cactus grower for about 20 years after a chance visit to the New Mexico C&SS show and sale in 1991. There he met Steven Brack of Mesa Garden and was officially bitten by the cactus bug. Originally from New Mexico, Rob moved to Tucson in 1998. In addition to growing cacti, Rob takes several trips a year to see the plants in habitat. His first visit to OroGrande was in 1992 and he kept going every year up until 2010. The program will focus on the 2010 trip and will show many different flowering plants to highlight the diversity of the population.

This will be an excellent program that everyone should really enjoy so please bring your friends. There will be lots of great snacks, food and more. We will have an excellent selection of raffle plants and you will even get a nice free plant to take home.

Tucson Cactus and Succulent Society

A Very Special Program Presentation Sponsored by Arid Lands Greenhouses and hosted by TCSS

Friday June 14, 2013 at 7 pm

"An Aloe Miscellany"

Presented by Len Newton

Len's program will feature the Aloes he has named and Aloes named by others with interesting stories, primarily from West and East Africa. His program will be quite autobiographical in content and reflect his long career as a botanist interested in succulent plants from Africa. A movie by Gordon Rowley will also be shown. Gordon was the President of the British Cactus and Succulent Society, 1983 to 2003. The film is autobiographical and made for Gordon's 90th birthday party several years ago. The movie really covers much of the mid-20th century of cactus collecting in England and some of the more colorful characters involved, including Rowley himself (as well as Len Newton).

Len Newton
Highly censored biographical note.

Born in England a long time ago at the age of 0. Interested in living things at an early age, but too lazy to run after animals so became a botanist. Became interested in succulent plants whilst at secondary school, so studied botany at the university, eventually gaining his PhD on biosystematics of some tropical aloes. Since then I have persuaded several institutions to pay me a salary for continuing my schoolboy hobby, under the guise of being a botanist. After teaching in England for several years, went to Kumasi University in Ghana. Went to Ghana on a two-year contract as a Lecturer in Botany, and left 18 years later as a Professor. Returned to England to take up a Fellowship in the Botany Department of the Natural History Museum, in London, but after one year came to Kenya, as a Professor at Kenyatta University. Also an Honorary Associate at the Royal Botanic Gardens, Kew (UK). Main research interests are taxonomy, ethnobotany and anthecology. Have carried out field work in many countries, including Kenya, Tanzania, Djibouti and Yemen, and have described about 60 new species. President of the International Organisation for Succulent Plant Study (IOS) from 2006 to 2012.

The TCSS will be hosting this special program, so please mark your calendar and be sure to attend! Everyone is invited so please come, meet Len Newton and enjoy the evening.

Tucson Cactus and Succulent Society

Note the day change for the monthly meeting:

Tuesday NOT Thursday!!

Tuesday July 2, 2013 at 7 pm

"Crossing the Andes: Cactus and Succulents of Chile and Argentina"

Presented by Guillermo Rivera

The Andes, is the longest continental mountain range in the world and is the backbone setting for this trip. We will start in central Argentina, visiting the provinces of Cordoba, Salta, Jujuy, for their Gymnocalycium, Echinopsis, Parodia. The first cross to the west will lead us right into the Atacama dessert. The scenery combined with more than 15 species of Copiapoa will stun any cactus enthusiast. The spectacular crossing eastbound at 4700 meters will amaze anybody: aquamarine lakes, flamingoes, and volcanos reaching 6800 meters! Returning to Argentina we will see Puna bonnieae, Tephrocactus geometricus, and other cacti in the provinces of Catamarca and La Rioja.

Guillermo Rivera was born in Argentina and is the owner of South America Nature Tours (former Cactus Expeditions). His company is dedicated to the organization of tours throughout South America (Chile, Argentina, Brazil, Peru, Bolivia, Ecuador, Baja California and South Africa) with an emphasis on plants (bromeliads, cacti, and orchids), or birding. He is a former researcher at the University of Cordoba, Argentina. BS degree in Biology, University of Cordoba, MS in Marine Biology at Northeastern University and PhD in Botany at the University of Cordoba.

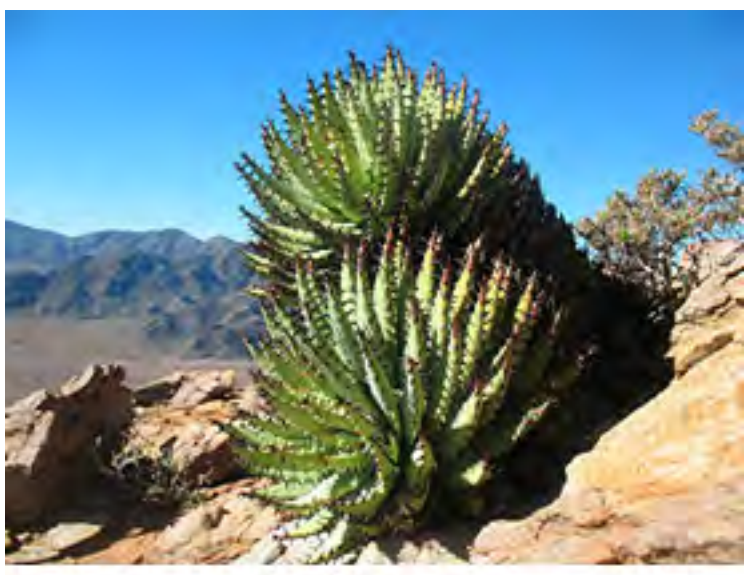
Be sure to keep Tuesday evening open and join us for a wonderful evening exploring the Andes of Chile and Argentina with our special guest, Guillermo Rivera. Also, stay and have some great refreshments, join in on excellent conversation, win something special and part with a free plant.

Tucson Cactus and Succulent Society

Thursday August 1, 2013 at 7 pm

"Namibia - Drought to Deluge"

Presented by Doug Dawson



Aloe erinacea

Conophytum friedrichiae

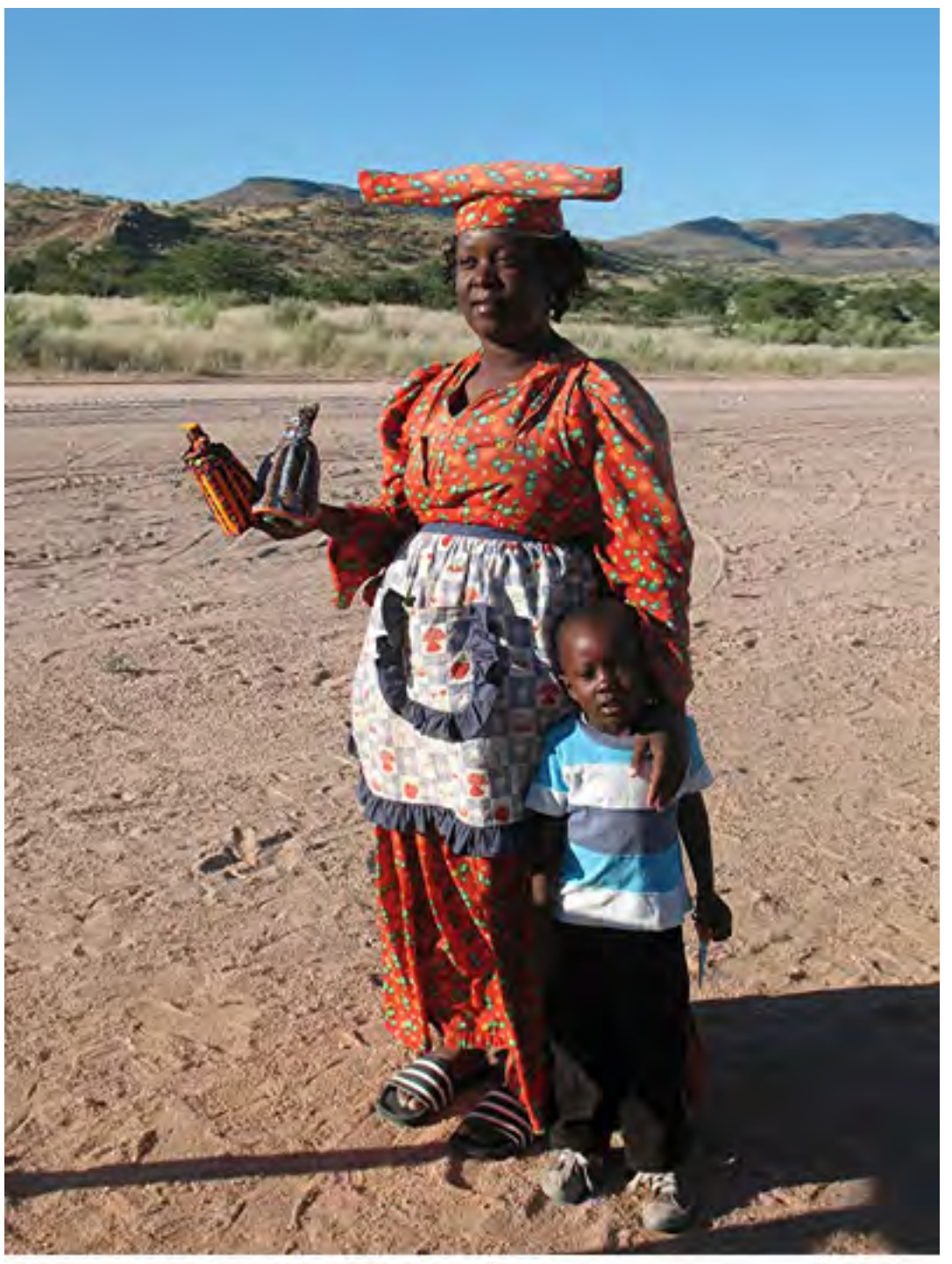
Lithops ruschiorum

Namibia, Africa, is always a fascinating succulent desert to experience. A new dimension of Namibia was shown during my May, 2013 trip. A severe drought occurred in 2012 followed by one of the most extreme wet periods in recent Namibian weather history. From January through April of 2013, it rained, and rained, ….. and rained. It would have been like living in Phoenix or Tucson and having a fall season with over three months of good rains most days. The rivers and dry arroyos all flooded. The Orange River, forming the Namibian/South Africa border was swollen for months, overflowing its banks dramatically. In the north of Namibia things were equally wet. Luckily when arriving in Windhoek, Namibia in early May, the timing was right. The skies opened up, rivers subsided and traveling to all the regions were safely conducted as planned.

Doug is a retired math professor and does extensive botanical travels to areas of the world where succulents grow. These include Mexico, Chile, Argentina, Yemen, Soccotra, and Africa as well as our own state of Arizona. In recent years, he has organized 8 botanical exploratory trips to South Africa and Namibia, camping on local farms and public areas by night and exploring the surrounding mountains and hills by day. To aid in his travels, he has a background in languages. These include German and French. Nowadays Afrikaans has become a much more useful language for him in rural South African areas.

For many years, one of his key interests has been seed-growing of cacti and succulents. Other interests are photography and PowerPoint presentations with succulent content. He has delivered many workshops and speaking engagements in Arizona and other states.

Doug's private plant collection has an emphasis on seedlings, lithops, other mesembs, Arizona natives, and other cacti. He is a member of the CSSA, Central Arizona Cactus and Succulent Society, and the Tucson Cactus and Succulent Society



Herero family

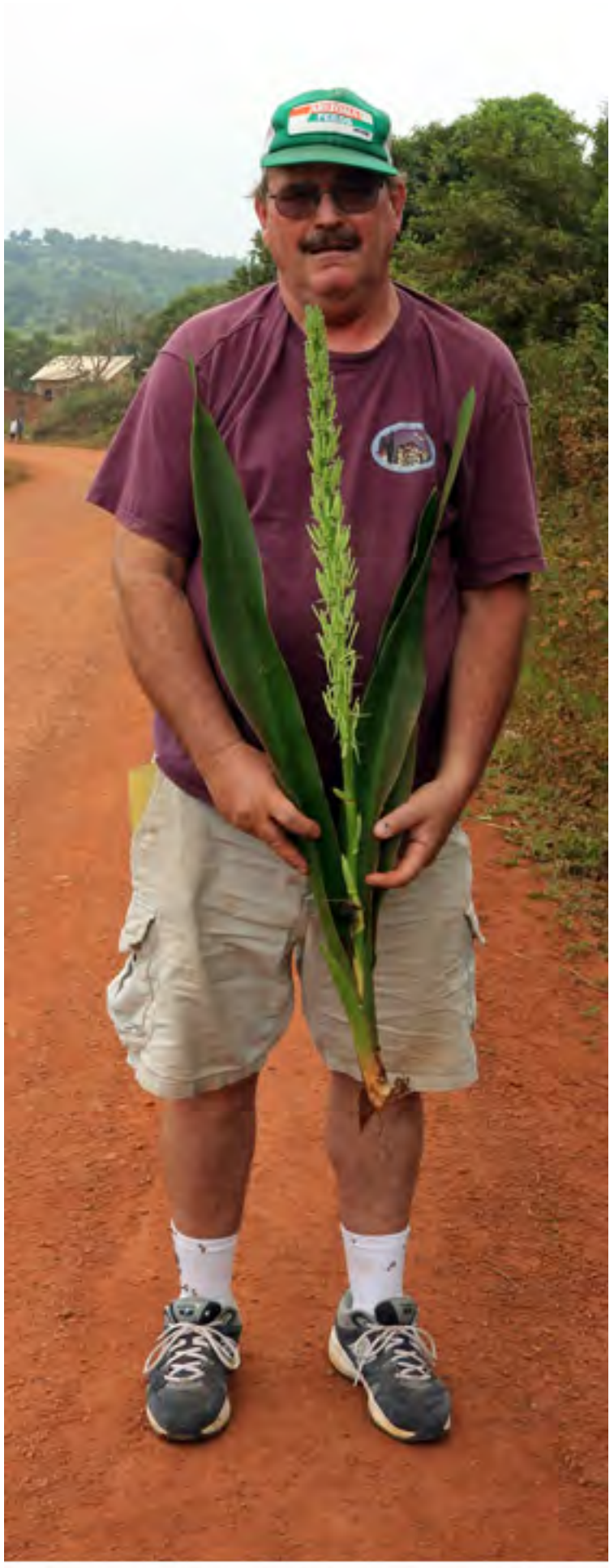
Psilocaulon dinteri

Tucson Cactus and Succulent Society

Thursday September 5, 2013 at 7 pm

"Travels in Africa and ArabiaX: The Greatest Hits from East Africa"

Presented by Bob Webb and Toni Yocum of Arid Lands Greenhouses



Bob holding a specimen of Sansevieria dawei at the type locality in Uganda

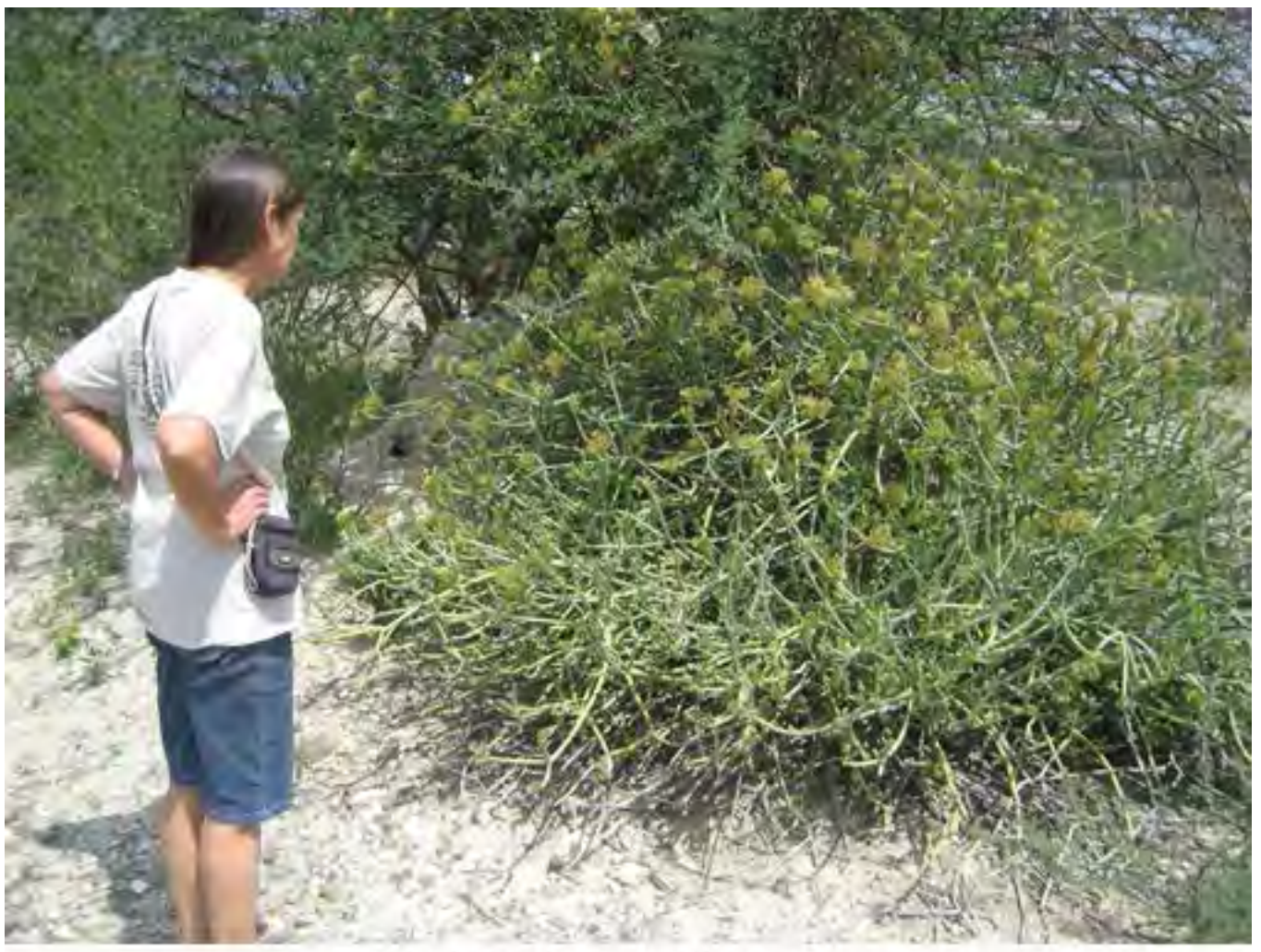
Bob Webb and Toni Yocum have travelled for 3 months in East Africa, mostly with Len Newton, renowned succulent plant taxonomist from Nairobi, and Bhwire Bhitala, a Sansevieria horticulturalist from Tanzania. Their trips have been focused on seeing and photographing succulent plants in the wild. The first trip started off focused on Aloes, but other plants were easily observed as well. Recent trips have focused on finding new species of Sansevieria and starting a revision of the genus. Bob and Toni have traveled to Kenya, Tanzania, and Uganda in their journeys, seeing a wide variety of landscapes in this highly variable region.

In this program, they will discuss their favorite 10 groups of succulent plants they have seen, arriving at a top 10 list of succulent plants they have observed in the wild. Ranking favorite finds from perhaps more than a thousand species seen in the wild is no easy task, but they sorted through their images to show everything from baobabs to small Euphorbias, from small succulent plants to arborescent Sansevierias. Included are several undescribed species that they have found with their friends, as well as some rare species observed well outside their known ranges.

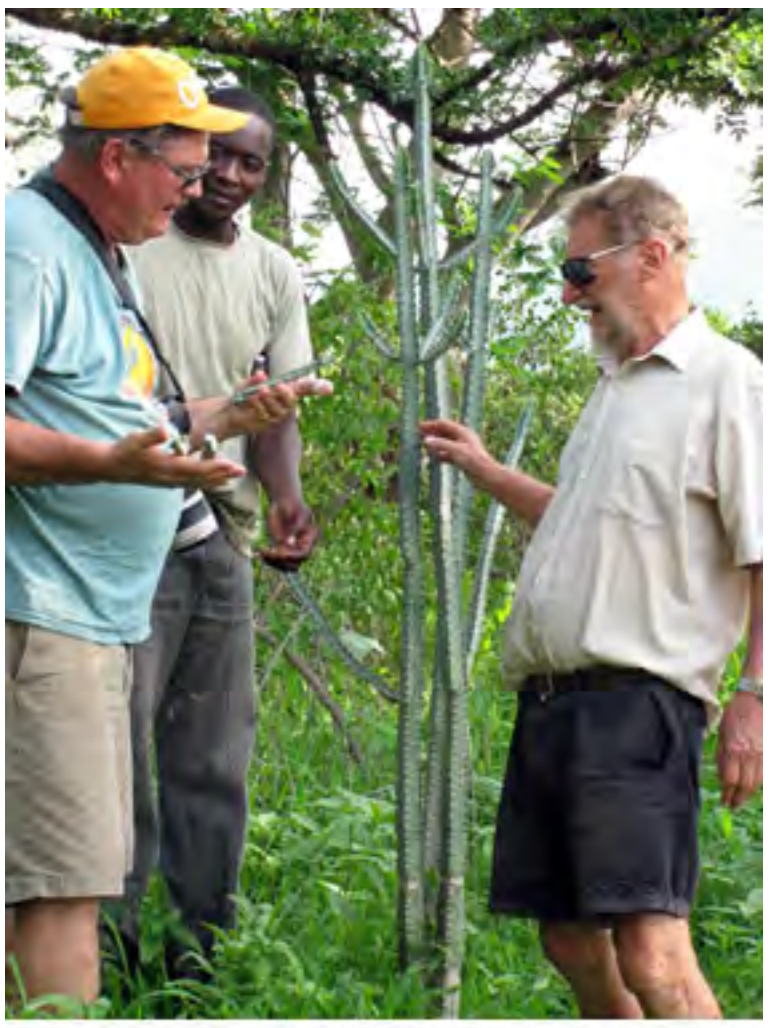
Bob Webb and Toni Yocum are owners of **Arid Lands Greenhouses** at 3560 W. Bilby Road Tucson AZ 85746 Phone: (520) 883-9404. Bob and Toni have collected succulent plants for over 30 years. Recently, Bob retired as a hydrologist with the U.S. Geological Survey in Tucson; however, he has worked as a plant ecologist in the southwestern United States and Baja, California for more than 35 years. Toni retired as a registered nurse as well. They have been traveling to the Arabian Peninsula and Africa since the late-1990s and have visited Oman, Kenya, Tanzania, Uganda, Namibia, Botswana, Socotra, Yemen and South Africa in search of succulent plants.

Bob has produced around 200 publications, including 14 books, with many more on the way. Several of these books are benchmark volumes on environmental change in the Mojave and Sonoran Deserts. In his "retirement," he's focused on plant taxonomy and ecology, writing papers on Baja California and Africa.

Please be sure to come out and enjoy this fantastic program from our notable members, Bob Webb and Toni Yocum. It will really be a great way to begin the month of September. Be sure to bring a friend and also enjoy the great refreshments, win a plant and get a free plant at the end of the evening.



Toni looking at a large Kleinia odora



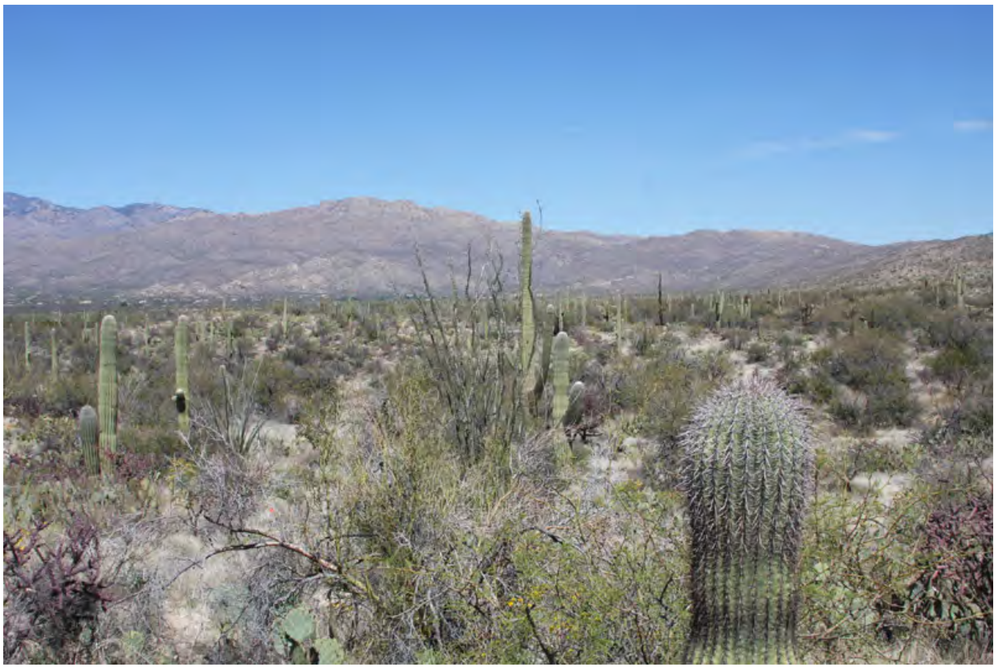
Bob, Bhwire and Len examine a Euphorbia quadrangularis

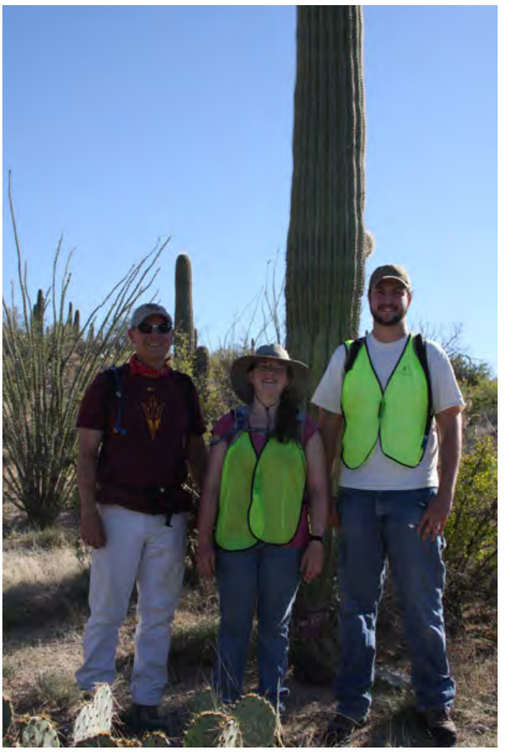
Tucson Cactus and Succulent Society

Thursday October 3, 2013 at 7 pm

"The Long Term Effects of Cattle Grazing on a Population of Carnegiea gigantea in Saguaro National Park"

Presented by Elizabeth Krone, Instructional Professional, ASU, Polytechnic Campus



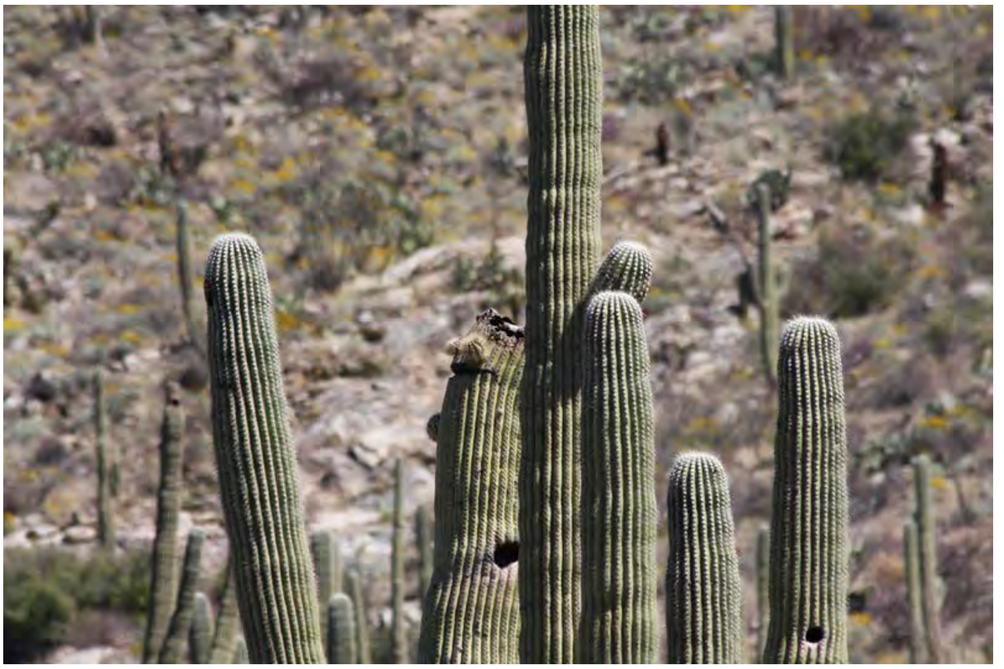


The subject of this talk was also the subject of the Master of Science thesis Elizabeth Krone wrote, which you can read **here**.

Livestock-grazing, in particular cattle grazing, is a common use of public and private lands in western North America. As a result, the effects of grazing on both plants and animals are widely studied. Few studies, however, look directly at the long-term effects that cattle grazing may have on a particular species. The goal of this experiment was to continue research that began in 1988, to determine if the effects of cattle grazing are still seen in the age structure of two populations of saguaros at Saguaro National Park - Rincon Mountain District (SNP-RMD). The null hypothesis stated that enough time has elapsed since the cessation of grazing, and there is no difference in the age distribution of the saguaros of the two populations. The study area was comprised of a former fence line where a 20 year difference in cessation of grazing occurred. Belt transects were laid on each side of the fence line and height was measured for each saguaro encountered in a transect. Approximate age of the individual was then calculated using an age-height correlation for SNP-RMD. Statistical analysis showed no difference between the age structure of the two populations. After 34 and 54 years rest from grazing, the negative effects of cattle grazing on the retention and recruitment of saguaro seedlings have ended, and replenishment of the populations is now dependent upon factors such as temperature and precipitation. Other factors such as climate change, increasing fire frequency, encroachment by invasive species, and poaching are sources of concern and increased mortality for these and other saguaros.

Elizabeth Krone received her Master in Science degree from Arizona State University in May 2013. Prior to this, she graduated from ASU with a Bachelor's in Conservation Biology in 2008. She grew up in Phoenix surrounded by the beauty of the Sonoran Desert, and has fallen in love with it over the years. When given the opportunity to study the saguaro for her thesis project, she gladly jumped on the chance to learn even more about this iconic species. Elizabeth has continued her association with ASU and now teaches general Biology labs at the Polytechnic campus in Mesa. When not spreading her love of Biology to her students, she enjoys hiking, camping, fishing, and many other outdoor activities. She also keeps busy at home with a 2 year old son, husband, cat, dog, two hens, and a couple of fish tanks.

Please welcome our guest, Elizabeth Krone to our October meeting event. The focus of the program should be of great interest to all of us who love and enjoy the saguaro. Also, be sure to enjoy lots of great food, win some beautiful plants and get your FREE plant at the end.

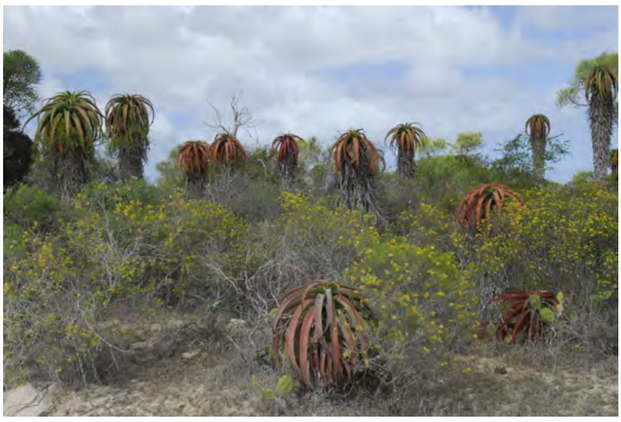


Tucson Cactus and Succulent Society

Thursday November 7, 2013 at 7 pm

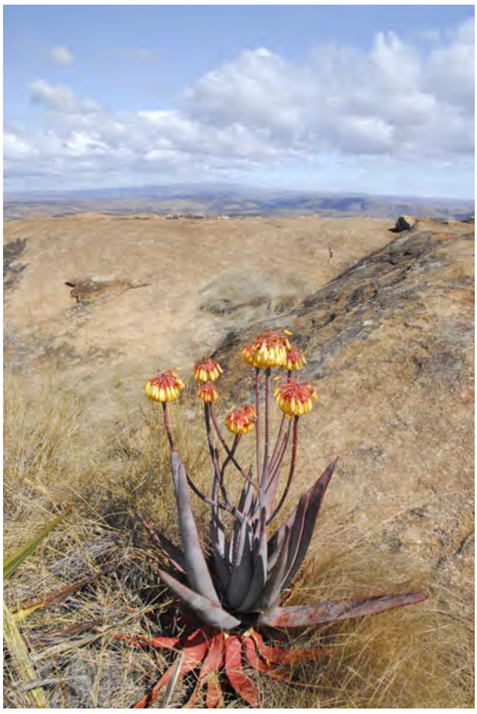
"Madagascar 4"

Presented by Kelly Griffin



Aloe vaotsanda in Cape St Marie, southern most point in Madagascar

The program I will present will be from my most recent trips to Madagascar in October - November 2012 and July - August 2013 just a little over two months ago. On the 2012 trip we traveled the country with Brian Kemble and Jeremy Spath to look primarily for Aloes but of course that was just the tip of the iceberg. The most significant find was a very large population of the supposedly very rare Aloe suzannae. We found at the very least, hundreds of plants. In part, the importance of this find motivated me to return and study that population in more depth. Some of the research will be documented in the CSSA journal by Jeremy Spath but most revealing is that it contradicts several important reported points.



1. Despite the claims in several journals and on the internet that there are fewer than 5 plants left, They do still exist in Madagascar in large numbers and of course there is very little recruitment in this population and the current farming practices and lack of protection are likely going to doom this species eventually.

2. Despite a reported bloom time of October and November in the southern hemisphere habitat, the plants were found in newly dehiscing seed in late October. Hundreds of plants that had flowered but with no sign what so ever of flowers so it is not in flower in southern Madagascar in October and November as stated in the recent work on the Madagascar Aloes The Aloes of Madagascar.

3. Despite the reports of this plant being nocturnally flowering from Wikipedia and in the notable books by Reynolds, the Aloes of Tropical Africa and Madagascar and Aloes, the Definitive Guide. This does not appear to be exclusively the case. In Reynolds book, he anecdotally refers to some flowers that had been removed from the plant that had opened at night and closed during the day. The fact that they had been removed from the plant could account for this. There are no other flowering details given. Wikipedia and the The Definitive Guide state that Aloe suzzanae is nocturnally flowering and perhaps pollinated by Bats and Lemurs without citation. The plants pictured herein where photographed mid day in habitat and show open flowers. In cultivation, they do indeed open during the day and are visited by bees.

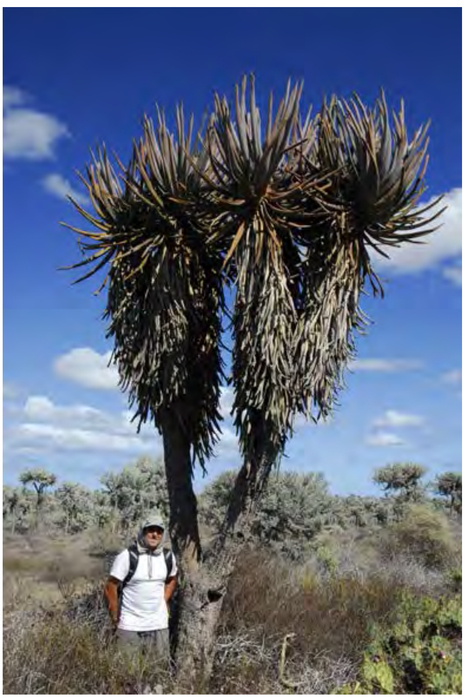
4. While I can only slightly more than speculate as to pollinators, as I saw birds visiting the flower spikes and landing on them and I noticed that some seed had been parasitized by what appeared to be moth larva. I believe this plant is most likely bird and moth pollinated and certainly bat pollination is a possibility. Certainly a whitish flower color would be indicative of moth and/or bats. I think Lemur pollination sounds exciting but I doubt that this ever happens. Although I saw many lemurs in many different locations on this trip, I observed no Lemurs in the area where these plants grew.

More research to do and more details to come!

That was just part of the talk. We visited the Tsingy, limestone formations that are unworldly. The Pachypodiums on the second trip where in the best flower and form I have ever observed. The Aloe capitata were in full bloom as well also, notable were the Baobabs..... I will share what we saw and we saw a lot!

I have studied plants my whole life and I have had the great opportunity to travel to see so many of the worlds plants. Even so, there is so much to see. I currently work as plant development manager for a wonderful and well known company, Altman Plants based in Vista, Calif.

Please welcome Kelly Griffin back to Tucson and be sure to place this date on your to do list for the month of November! You don't want to miss this excellent program by one of the very best. This is the final program on the agenda for 2013 so be sure to attend and take a grand trip to Madagascar! We will also have some excellent plants for you to win as well as lots of good food, conversation, and yes, there will be free plants for those remain!



Aloe suzannae.