# Tucson Cactus and Succulent Society

## Thursday January 4, 2018 from 7 - 9 pm

## "Where Did I Go Wrong"

## Presented by Chuck Hanson

Come with me on a three-month safari to East Africa of the 1960's. Although much of the area looks like SE Arizona, it is(was) populated by an amazing and diverse megafauna. The safari is mostly in the savannahs of Kenya and Tanzania, but we also go north into the vast desert area of northern Kenya to join the Royal Geographical Society's Turkana Expedition. A safari such as this will never be possible again, for reasons you will soon see!

Curriculum Vitae for Chuck Hanson

1950-'51 US Air Force, Korea.
1952-'56 Virginia Tech, BSc in Zoology.

1957-'59 National Science Foundation Scholarship, Ohio State University, MSc in Zoology.

1959-'60 Ohio Division of Wildlife, Upland Game Biologist.

1960-'64 Naturalist, U. S. Forest Service, Coronado National Forest.

1965-'69 Naturalist, Tucson School District 1.

1969 3 months in East Africa.

1969-'78 Curator of Large Animals, ASDM.

1978-2007 Founded and ran Arid Lands Greenhouses. Made numerous trips to Africa, Madagascar and Asia studying succulents in habitat.

1993-'95 President, Tucson Cactus and Succulent Society.

2008-'12 Lived in Ecuador, studied native cacti, succulents and orchids.

2013 Retired to Sonoita, Arizona

I want to welcome everyone to our introductory program for 2018. Please come and enjoy a marvelous presentation, have some refreshments, meet and talk with friends, take home some plant giveaways and accept great raffle plants. Also, be sure to take a free TCSS plant provided as you leave for the evening.

# Tucson Cactus and Succulent Society

## Thursday February 1, 2018 from 7 - 9 pm

## "Lessons from Tortilla Flats or No Species is an Island"

### Presented by Ted Fleming


Lesser long-nosed bats

In this talk I will briefly discuss our 11-yr research program on the pollination biology of four species of Sonoran Desert columnar cacti that we conducted at Bahia de Kino, Sonora, Mexico. My recent book **'No Species is an Island' (University of Arizona Press, 2017)** summarizes our major findings, and I will highlight these with readings from the book. I will use illustrations from the book and my photographs to support our research results.

I have been a professional biologist for over 50 years. For most of my career I have studied ecological interactions between seed- and/or pollen-dispersing phyllostomid bats and their food plants in Latin America. My seed dispersal studies were conducted in tropical forests in Costa Rica between 1970 and 1986. My pollen dispersal studies were conducted in the Sonoran Desert of Mexico and Arizona between 1989 and 2000; my graduate students conducted parallel studies in Curacao, Venezuela, and Peru. My students and I studied the evolution of phyllostomid bats in the West Indies between 2000 and 2006. My current research involves the use of hummingbird feeders by nectar bats in southern Arizona.
I have been professionally employed by the Smithsonian Institution (1966-67), the University of Missouri-St. Louis (1969-78), and the University of Miami (1978-2008). I directed the theses or dissertations of 22 graduate students and have won several national awards for my research. I was associated with the Association for Tropical Biology and Conservation (ATBC) for many years and served as its president in 2001. I have authored/co-authored over 150 publications and eight books, including "The Ornaments of Life: Coevolution and Conservation in the Tropics (University of Chicago Press, 2013; co-authored with W. John Kress) and "No Species is an Island: Bats, Cacti, and Sonoran Desert Secrets" (University of Arizona Press, 2017). I retired from the U of Miami in 2008. My wife and I live in Tucson, AZ near our daughter and her family.

I've always had an interest in art and have used photography as a creative outlet for this for many years. I've become deeply involved in digital photography and digital art in retirement. I've enjoyed being a member of Club Camera Tucson and served as its president in 2010-12. My photo website is: **www.tedflemingphotography.com**

Please come and enjoy this special program presentation, have some refreshments, meet and talk with friends, take home some plant giveaways and more. Also, be sure to take a free TCSS plant provided for those who stay until our closing.

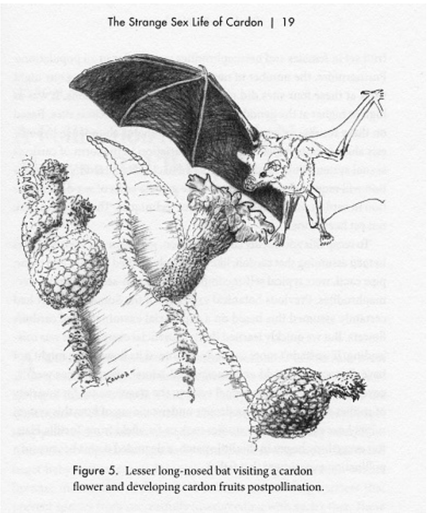



Figure 5. Lesser long-nosed bat visiting a cardon flower and developing cardon fruits postpollination.

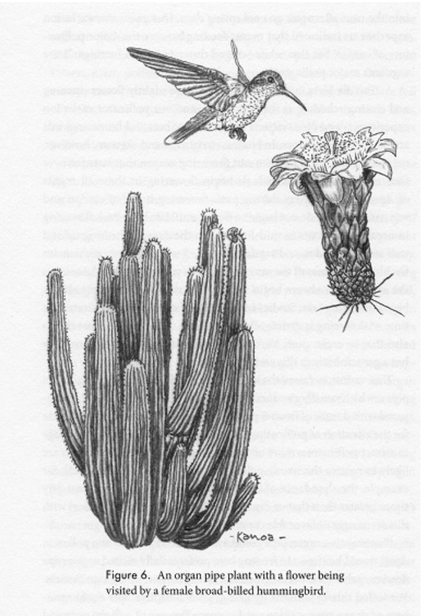


Figure 6. An organ pipe plant with a flower being visited by a female broad-billed hummingbird.

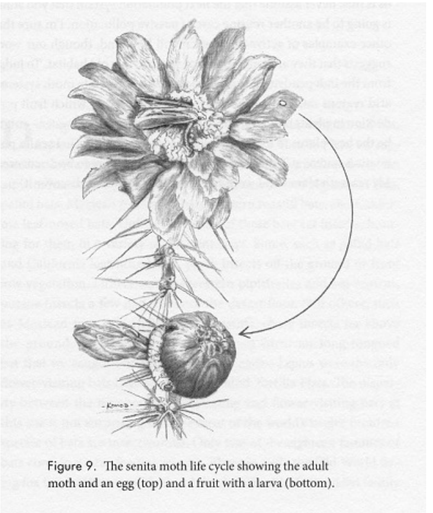


Figure 9. The senita moth life cycle showing the adult moth and an egg (top) and a fruit with a larva (bottom).

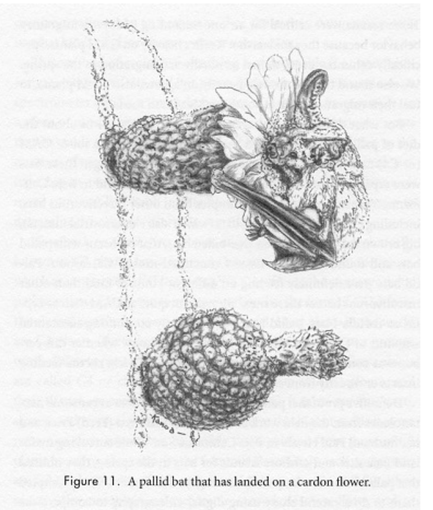


Figure 11. A pallid bat that has landed on a cardon flower.

# Tucson Cactus and Succulent Society

**Thursday March 1, 2018 from 7 - 9 pm**

## "Rooted in the Islands: Documenting changes in the perennial flora of the archipelago of Bahia de Los Angeles, Mexico"

**Presented by Sula Vanderplank**
**CICESE (Centro de Investigación Científica y de Educación Superior de Ensenada) and San Diego Natural History Museum**

Sula Vanderplank is a field botanist who studies natural history, floristics, and conservation science, her research has focused on the botany and ecology of Baja California, Mexico. For the last thirteen years Sula has published broadly on the flora of this region including field guides, academic books chapters and more than 25 peer-reviewed papers. Sula also serves as an adjunct researcher at San Diego State University and the Center for Scientific Research and Higher Education of Ensenada (CICESE). Sula is also a research associate at the San Diego Natural History Museum (The Nat) and science advisor at Terra Peninsular.

Want to know more about what is happening in Baja California? Plan to attend this program presentation and enjoy a wonderful night with Sula Vanderplank. Also, enjoy some great snacks, win some beautiful plants and pick up your free plant when you leave.

# Tucson Cactus and Succulent Society

## Thursday April 5, 2018 from 7 - 9 pm

## "Relocation of the Loran Whitelock Cycad Collection"

### Presented by Gary D. Roberson
### Huntington Botanical Gardens, San Marino, California

Gary D. Roberson

In the spring of 2015, **The Huntington Library and Botanical Gardens** more than tripled their existing collection of cycads with a donation from the estate of a Loran Whitelock of Eagle Rock, California. Loran was a locally famous passionate plantsman whose collection included many unusual and rare plants, with an emphasis on cycads. Within a three month window, we transplanted 620 cycads from his private garden into a new planting at the Huntington. Each of those specimens had to be identified, labeled and recorded before this herculean move could even start.
Jim Folsom, our Director of the Botanical Gardens, worked with Loran to design a “ribbon” of cycads that cuts through from the easternmost Desert Garden to the westernmost Japanese garden. This allowed us to keep the cycads in botanical families and closely match the climates of their homelands. The plants have responded amazingly well to the transplant, especially remarkable when you realize we dug them out of the ground bareroot, trucked them down York Boulevard and plopped them into their new home in San Marino.

Loran’s estate has also generously endowed a permanent position on the Huntington Botanical staff for cycad research. We are already collecting and freezing pollen to attempt hand pollinations of these rare prehistoric species. Now that the plants are settling in, putting out lush new fronds and spectacular flowering cones, you’ll be able to walk the ribbon and sense the beauty that captured Mr. Whitelock’s heart.

Gary Roberson has enjoyed plants for most of his life, starting with his own garden at the age of 6, and was inspired to pursue horticulture as a career by his Grandfather. His involvement with Future Farmer’s of America took him to Germany and Australia as an horticultural intern. He has worked in the nursery industry, both retail and wholesale.
When an opportunity arose to work at the Huntington Library and Botanical Garden, he moved from Washington state to Southern California. Gary has worked in several gardens, including the Desert Garden, at the Huntington for over 15 years. He now serves as the Lead Project Gardener for the Cycad and Palm Collection.

When a large donation of cycads was willed to the Huntington from the estate of Loran Whitelock, Gary was instrumental in coordinating the move of over 640 cycad specimens from Eagle Rock to the Huntington grounds. All in all, over 2800 plants (clivias, staghorn ferns, orchids, aloes, agaves, palms, etc.) were collected from Loran’s extensive garden.

# Tucson Cactus and Succulent Society

## Thursday May 3, 2018 from 7 - 9 pm

## "Our Vanishing Cacti"

### Presented by Bill Thornton

Nearly 500 species of our favorite plants are threatened with extinction. Twenty seven species are listed as “critically endangered”.

In this program Bill Thornton looks at some of the leading threats to all cacti, with special attention to three endangered Arizona species, what has been and is being done, and with examples from some of the world’s most endangered plants and what needs to be done to save them. Are we up to the task?

Bill is a second generation native Arizonan, lifelong desert plant lover, long time TCSS member and frequent cactus rescuer. He also serves on the boards of the Arizona Heritage Alliance and Friends of Ironwood Forest.

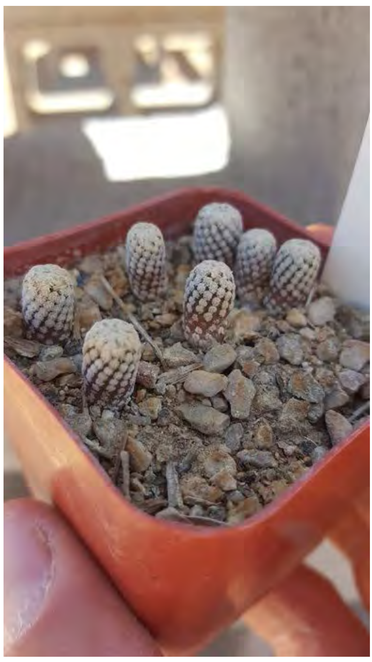
Please come and enjoy an evening with Bill. Have some excellent refreshments, win some wonderful plants and take home a free plant provided by TCSS. It is an opportunity to learn a few things, gather some plants and enjoy a great program.

# Tucson Cactus and Succulent Society

## Thursday June 7, 2018 from 7 - 9 pm

## "Sowing Cacti: where Art and Science meet"

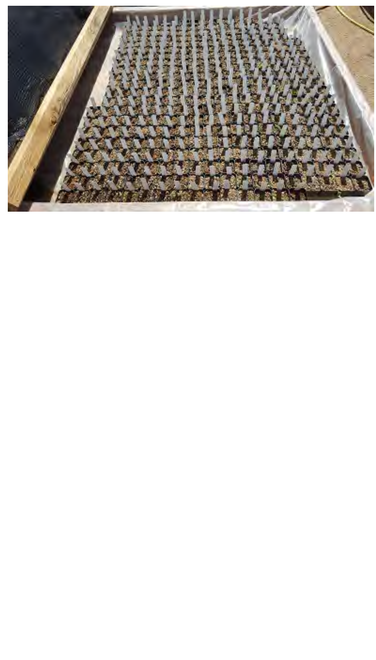
### Presented by Michiel Pillet



Cacti are everywhere here in Tucson. Simply looking at our prickly landscape, it is easy to forget that if you go back far enough in time, every single cactus you see was once a tiny seed. Growing cacti from seed is one of the most rewarding and educational activities a cactophile can engage in. It allows commercial growers to offer the plants we love. It also permits conservationists to propagate plants for reintroduction into the wild. Unfortunately, very few enthusiasts end up giving sowing a shot. As we will see, it really is not all that difficult. However, seedlings need vastly different conditions than their adult counterparts, and there is lots of conflicting information out there. Together, we'll attempt to make sense of it all, and hopefully some of you will go home having caught the seed-growing bug. Make sure to bring your glasses so you can enjoy the intricate diversity seedlings have to offer!

Growing up in Belgium, home of the biggest cactus and succulent conference in the world, I moved to Montana in 2008 for college. In 2016, I started my doctoral studies at the University of Arizona, working on the impact of climate change on plants, including cacti. Early this year, my wife and I acquired property here in Tucson to start a succulent conservation nursery. I currently grow the majority of critically endangered and endangered cacti, most from seed. My goal is to propagate every single species of cactus to protect against extinction and to make rarely grown taxa more widely available. Tucson is without a doubt one of the world's centers of cactus mania, much of it revolving around the many beautiful nurseries here as well as the activities of TCSS.

Please join us for an excellent presentation by Michiel. Enjoy some great refreshments (please bring food and snacks if your last name initials are requested). Also, win a plant and get a free plant (provided by TCSS) when you retire for the evening.



# Tucson Cactus and Succulent Society

## Thursday July 5, 2018 from 7 - 9 pm

## "Using DNA to help sort out Adenium species"

### Presented by Mark Alan Dimmitt and Taylor Edwards

How many species of Adenium are there? DNA analysis sheds light on the question

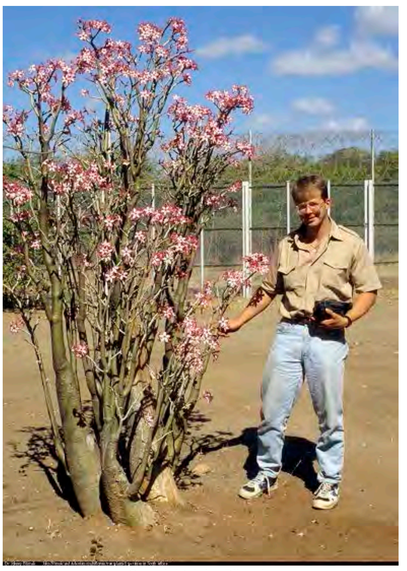
Adeniums are succulent plants native to Africa and the Arabian Peninsula and which are popular ornamental plants. Most botanists recognize 10 or 11 species, but both the taxonomy and nomenclature of this genus are unresolved. In fact, both are a mess. On the taxonomic side, we don't know how many species there are. Semi-spoiler – there is more than one species, but almost certainly fewer than 10. As for nomenclature, at least two "species" (arabicum and obesum) have invalid names that need to be corrected.

TCSS and CSSA funded a DNA analysis to help resolve these issues. We sequenced five loci (sections of chromosomes) of 43 cultivated Adenium specimens, mostly from known wild localities representing nine morphologically described species. In addition, we tested several additional specimens of unknown or hybrid origin. The results indicate that most of the currently recognized taxa are indeed valid species, while some others are probably not.

This was a preliminary study, and the project is ongoing. The DNA results will be correlated with physical character measurements and geographic distribution data to help settle the questions. Sequencing of more specimens is needed, as well as more field observations. The latter may be a difficult task. The least studied and understood Adenium populations are in countries that are not safe to travel in, such as Somalia, Yemen, and Mali.

Mark A. Dimmitt has a Ph.D. in biology (herpetology) from the University of California at Riverside after earning an M.S. from UCLA and a B.S. from Pomona College. He worked at the Arizona-Sonora Desert Museum from 1979 to 2011, first as Curator of Botany, and eventually as Director of Natural History (field ecologist). His areas of research included botany and vertebrate biology, and he is the author of more than 50 scientific and popular publications about ecology and horticulture. He is a Fellow of the Cactus and Succulent Society of America. His major publication is the plant and ecology chapters of A Natural History of the Sonoran Desert (2000), and is the senior editor of the revised edition (2015).

Mark's other and ongoing career is as a plant breeder. He spent a couple of decades hybridizing Trichocereus(Echinopsis, cacti), then Tillandsia(bromeliads); he has introduced about 50 cultivars. Since the late 1970s his main focus has been on hybridizing the genus Adenium; 'Crimson Star', 'Evelyn Marie', and 'Bouquet' are among his creations. He is coauthor of the book Adenium: Sculptural Elegance, Floral Extravagance (2008). Mark also collects and grows a number of other weird plants, mostly succulents and epiphytes.



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# Tucson Cactus and Succulent Society

## Thursday August 2, 2018 from 7 - 9 pm

## "The Art of Naming a Species: Can They Really do That?"

### Presented by Greg Starr

Greg on a horse

Agave FO-076

Have you ever wondered how a new species gets named and described? Greg has had a little experience with the process in describing some Hesperaloe species and Agave species and will shed some light on the secret world of botany. For the past 20+ years, Greg has been especially interested in the genus Agave although he has dabbled in other plants, succulent and non-succulent, as well. The genus Agave is a relatively young one as far as plants go and seems to be in the process of speciating as we speak. In 1982, Howard Scott Gentry published his monumental monograph on the Agaves of Continental North America, in which he delineated a total of 136 species, 25 subspecies, and 29 varieties for a total of 190 recognized taxa in Agave sensu stricto, or in the strict sense, which does not include the genus Manfreda. Since publication of Gentry's book, there have been a total of 41 new species described or pulled out of synonymy and elevated back to species status. Some of the new species described are very localized while others are a result of splitting up some seemingly highly variable species.
In the past three years, Greg has traveled three times to Oaxaca, thanks in large part to funding by TCSS, to study the question of variability in Agave titanota. This has led to a larger study of the agaves in the Marginatae group, that is the one with a continuous woody margin, and to some other, very interesting side projects, including one which will be presented next month. The results of the Agave titanota project are still a long way off as the DNA sequencing still needs to be conducted and then the analysis will need to be performed.

Greg has both a BS in Plant Science and an MS in Botany/Plant Science from the University of Arizona. While working on his MS degree, Greg worked at the University herbarium under the tutelage of Dr. Charles T. Mason. It was there he learned the details of taxonomy and nomenclature and honing his skills at plant identification using botanical keys. For his MS, Greg blended his love of both horticulture and botany to produce a thesis covering the species of Salvia that had been in cultivation since 1900. Greg opened a small, native or near-native plant nursery in July 1985 and although he had an interest in cacti and succulents, it took several years for that interest to become an infection causing him to produce his book, Agaves: Living Sculptures for Landscapes and Containers, and to be a co-author on the Field Guide to Cacti & Succulents of Arizona. Currently, Greg spends the heat of summer days in the relatively cool environment of his house sitting in front of the computer hoping that a random assault of his hands on the keyboard will result in article for the CSSA journal or another book.

Please be sure to clear your calendar for Thursday, August 2, and join everyone at an excellent evening of friends, fun, books, raffle plants, free plants and lots of excellent refreshments. You will really enjoy Greg's program so, do not miss it!

Agave titanota at Rancho Tambor

Agave titanota

# Tucson Cactus and Succulent Society

## Thursday September 6, 2018 from 7 - 9 pm

## "The Trail of the Unknown: Adventures in Discovery"

### Presented by Tristan J. Davis

Have you ever wondered what it is like to do botanical field work? How about field work in places where you are pretty sure no one who knew the plants has ever been before? Well, buckle up, because we are going to follow the best trail of all: The Trail of the Unknown. Tristan was honored to be invited to participate in botanical field work in 2017 by our very own Greg Starr to study – you guessed it – Agaves. And, for Tristan, who has spent over 30 years on scientific expeditions across the globe, this was his first botanical expedition.

Tristan will take you on his first trip with Greg to a potential study site for his agave research – a site secluded and difficult to reach: surely a site unknown botanically. And, of course, because Tristan's primary botanical interest is cacti (though Greg's influence is significantly making his interests shift a bit towards agaves), he was like a little kid in a candy shop the entire time. Cacti were around every corner...and under every foot! Tristan will show you the different plants he discovered along the way – ones he knew, ones he didn't (but others did), and ones that...well...no one really knew! It truly was an Adventure in Discovery!

Born into a very "outdoorsy" family, Tristan was introduced to the natural World at a very young age. His initial interest was specific to South American birds, and subsequent education at Louisiana State University and the University of Kansas allowed him to accompany scientific expeditions to most South American countries, as well as China, the Philippines, and Equatorial Guinea. It was obvious early on in his travels that Tristan much preferred those locations with less humidity (western Peru, the pampas of Argentina, etc.), and this was a significant reason he moved with his husband to Arizona in 2001. Once arriving in Arizona, Tristan readily transitioned his scientific passions to cacti and succulents, and although Tristan has authored numerous scientific publications related to ornithology, he published his first paper on desert succulents in 2011 in the Cactus & Succulent Journal. As most people know, Tristan's botanical passions are primarily centered around South American columnar cacti and the species of ocotillo (Fouquieria). Additionally, he continues to accompany scientific expeditions to locations around the World hoping to again get to some desert-like locations! Tristan currently resides in Chandler, AZ and is a member of the Central Arizona Cactus and Succulent Society; he served on the Board of Directors for the society, and currently administers the Propagation Education Group (PEG), the Research Grant Program, and the Seed Depot for the society. Tristan also volunteers in the Horticulture, Research, and Education departments at the Desert Botanical Garden.

Please be sure to join everyone at this very special program. Have an excellent evening with friends, fun, books, raffle plants, free plants and lots of great refreshments. Don't miss this evening with Tristan!

# Tucson Cactus and Succulent Society

**Thursday October 4, 2018 from 7 - 9 pm**

**"The Tropical Deciduous Forest: Where cacti became succulent, and other biological explorations in Sonora"**

**Presented by Robert A. Villa**

Robert is a proud Tucsonan deeply in love with the Sonoran region. He has been studying, exploring, and documenting it's biological and cultural diversity (often with violin in tow) most of his 32 years. He specializes in amphibians, reptiles, plants, ethno-ecology, and regional gastronomy. He has consulted for and assisted in the production of national and international broadcast television episodes, the 2nd edition of Natural History of the Sonoran Desert, Arizona's Amphibians & Reptiles: A Natural History and Field Guide, and published his findings in academic and popular outlets. He currently presides Tucson Herpetological Society, assists with ongoing developments at the Desert Laboratory on Tumamoc Hill, is a member of NextGen Sonoran Desert Researchers, and grows plants. He considers himself a follower in the footsteps of Sonoran naturalist explorers such as Howard Scott Gentry, Paul Martin, Charles Lowe, Tom Van Devender, and others, documenting and espousing the land where north and south embrace.

Please be sure to come and enjoy Robert's very special program. Have an excellent evening with friends, fun, books, raffle plants, free plants and lots of great refreshments.

# Tucson Cactus and Succulent Society

**Thursday November 1, 2018 from 7 - 9 pm**

**"NAMIBIA A dry place in a wet time 2011"**

**Presented by Wendell S. (Woody) Minnich**

Namibia, rivaled only by the Chilean Atacama, is one of the driest regions in the world. Much of its western coast, located in the southern reaches of the African continent, rarely, if ever gets rain. Some of these areas are only sustained by the seasonal nightly fogs. Due to these unique conditions, it is in some of these very arid, Mojave desert-like landscapes, where many of the worlds most unique plants and animals can be found.

Similar to the infrequent rainy El Nino years that affect our California and Chilean coasts, Namibia had an extreme summer rain fall this last January thru April 2011.It is reported that this was one of the heaviest summer rains ever experienced in Namibia.

Our objectives were to visit this amazing country in this unusually wet time when the plants and scenery may be different than what most explorers might normally experience. We were in luck and our timing was perfect. When we arrived, the last of the torrential rains were spiting and sputtering off into the eastern reaches of the country. Windhoek, the capital of the country, was green and the weather looked promising. Needless to say, unlike some of our other friends who had visited the country the previous month, we were blessed with open roads and passable river crossings. The weather stayed sunny, warm and accommodating for the entire three weeks.

From Windhoek we took a giant clockwise loop to the south and then did the same from Windhoek to the North. We experienced the succulent rich areas to the Orange River, and from there we migrated up to the famous Luderitz Bay. The Richtersveld vegetation in these southern environments included many fantastic plants from the statuesque Pachypodium namaquanum to the many jewel like mesembs. One could spend a life time studying all these different genera, some of which included: the Lithops, Sarcocaulons, Tylecodons, Conophytums, Othonnas, Aloes, Hoodias, Cerarias, Haworthias, Titanopsis, Adromischus, Pelargoniums, Crassulas, Avonias, Larryleachias and many, many more. On our northern loop we traveled to the west towards Swakopmund and then up to the impressive Epupa Falls on Namibia's northern border to Angola. From there we eventually meandered our way back to Windhoek. On this northern journey we encountered a very different group of succulent genera. The plant taxa generally became larger and often very sculptural. We saw: Cyphostemmas, Pachypodiums, Welwitschias, Commiphoras, Sesamothamnus, Adansonias, Moringas, Aloes, Hoodias, Adenias, Adeniums and so on and so on. We also stumbled across many wonderful animals, not in the game reserves, as well as some of the most beautiful indigenous peoples. The Herero and Himba tribes were both unexpected cultural highlights of this amazing trip!

I took over 10,000 photos, and a few have found their way into this presentation. Be prepared to see the trip of a life time and the total of Namibia, edited of course!

Woody, as he is commonly known, grew up in the Mojave Desert and has had an attraction to desert plants and animals since the early 1950's. He has been involved with the cactus and succulent world as a grower, field explorer, club and organization leader, writer, photographer, lecturer and presenter.

Having been a speaker all over the world, Woody is most often associated with giving presentations on his field work from the places he has traveled, such as: Argentina, Australia, Bolivia, Brazil, Chile, Madagascar, Mexico, Namibia, New Zealand, Peru, Socotra, South Africa, the United States and Yemen. He is also recognized for having operated the nursery Cactus Data Plants since 1975. Woody's show quality plants were often considered one of the standards for staging and horticultural achievement. His favorite genera include: Adenium, Ariocarpus, Astrophytum, Copiapoa, Cyphostemma, Fouquieria, Gymnocalycium, Lithops, Mammillaria, Melocactus, Pachypodium, Turbinicarpus and Pachycauls in general.

He has published numerous articles in various journals and his photography is featured in many books including; "The Copiapoa" by Schulz, "The Mammillaria Handbook" by Pilbeam, "The Cactus Lexicon" By Hunt and Charles, as well as many others. As of this last November 2017, he is featured as the primary photographer in the new book "The Xerophile." This book specializes in what the authors call, The Obsessed Field workers from around the world.

Woody and his wife, Kathy, live in Cedar Grove, New Mexico. He is a retired secondary school teacher of 32 years where he taught Graphics, Art and Architecture. In the cactus and succulent hobby, Woody is recognized for his high energy and creative spirit. As an educator, he has become an important part of the hobby and thus is an honorary life member of ten C&S societies. With 45 years in the hobby and 64 years in the field, he has many experiences to share and numerous photos to show.

Again we have quickly arrived at the last program presentation for 2018. Please come and enjoy this very special program and have an excellent evening with friends, fun, books, raffle plants, free plants and lots of great refreshments.