What are the three most widespread cactus, *Agave* and *Aloe* species in the world? Be sure to read Tom Gatz’s article in this issue to find out. Hint: the *Opuntia ficus indica*, (Indian fig) pictured above, is one of them, and is primarily grown for its sweet fruit on plantations in Sicily, Italy.
HOLIDAY PARTY  
By Sue Glenn

Happy Holidays to one and all. **There is no meeting in December.** Plan to attend the Holiday Party Sunday, December 2, 1-3 p.m., at Tumbleweed Recreation Center, 745 E. Germann Road, Chandler. RSVP to Sue Glenn at 920-327-3137 or ekmglenn@hotmail.com now.

Please RSVP with your name and item you will bring to pass (main dish, appetizer, salad/vegetable or dessert). Please include a serving spoon/fork with the item you bring. We will supply plates, napkins, eating utensils, and turkey and ham for all to enjoy. We will need volunteers to help set up and clean up at the end. We will have a plant exchange for anyone interested. If you bring a plant, you will get a ticket from Jo Davis. Jo will conduct the exchange during the meal, so please wait for your number to be called before taking a plant.

EDUCATION GROUP MEET AND GREET

The first new member Meet and Greet was held November 10, at Sue Hakala’s garden. Seven new members participated, with 2 no shows. Two hours were spent reviewing club resources, a garden tour, choosing lots of plants to take home, and getting to know each other. Growing knowledge acquired over 46 years was shared. Everyone had a great time and learned a lot about growing cactus and succulents in the low desert.
If you have been in the club for a while, you probably know that Agaves and cactus (with one exception, *Rhipsalis baccifera* found in Africa and surrounding islands) only occur naturally in North and South America. *Aloes* only occur naturally in Africa and the Middle East. However, some cactus and other succulent species have been introduced in other areas of the world. They now grow wild, often becoming invasive weeds if conditions suit them. If you are a world traveler, here are three species you might encounter almost anywhere in warmer climates.

The **Indian Fig Cactus** (*Opuntia ficus indica*) has been cultivated for so long around the world that it’s exact origin in the wild is unclear, but it was likely somewhere in central Mexico. It was first brought to Europe in the 1500’s by the Spanish for red dye production, and is still used for human consumption, cattle feed and erosion control. It has become invasive in many parts of the world, colonizing abandoned agricultural fields in the Mediterranean region, and may increase even more with climate change.

*Agave americana*, tolerant of heat and cold, can survive in scorching Arizona and on the south coast of England. It has been cultivated for fiber, fencerows and as an ornamental plant in many parts of the world, but is believed to have originated in Mexico. It is considered an invasive species in many areas of the world.

A runner-up might be the cold-sensitive **Agave sisalana**, grown for sisal rope and fiber in warmer regions of the world, and also considered an invasive species in many areas, including Florida. *Agave sisalana* is likely a sterile hybrid of cultivated origin.

*Left: Sharon McMullan of Paignton, Devon in southern England with a 30-foot Agave flower spike that has grown in her front garden.*

*Aloe vera* is believed to only be native on the southeast Arabian Peninsula. However, its popularity as a medicinal,
cosmetic and ornamental plant has resulted in its spread to many other areas of the world where it sometimes has become naturalized, and it is considered invasive in some parts of the Caribbean. Apparently, however, there is conflicting evidence concerning the effectiveness or safety of Aloe vera extracts for either cosmetic or medicinal purposes.

Right: Aloe vera field by Canva.
The scientist does not study nature because it is useful to do so. He studies it because he takes pleasure in it, and he takes pleasure in it because it is beautiful. Jules Henri Poincare

For members who do field work studying cactus and succulents in habitat, keeping records can add to scientific knowledge within your lifetime and in the future. This interesting book, Field Notes on Science and Nature, gives the reader a glimpse into how it’s done by eminent living field scientists and naturalists.

“The 12 authors were asked to provide excerpts from their field notes along with their perspectives on how field notes could or should be kept, problems and solutions they have encountered, and lore from the field,” editor Michael R. Canfield states in the introduction. Authors also talk about why it’s important to keep notes and drawings on paper. Many use the computer, but none exclusively.

Actual copies of notes are presented, some by Darwin and Linnaeus. Imagine holding the original field diaries of these illustrious men! Who knows, your notes could prove vital in the future changing world.

Although I’m not a field researcher, I do keep track of what happens in my yard. Club member, Leo Martin M.D., encouraged me to keep plant records decades ago. He assured me it would help me be a better grower.

Following his advice, I’ve kept a garden diary for decades, and so enjoy going back and seeing when the rain came and how much, when the freeze occurred over the years, when a plant flowered, etc. In a notebook, I keep a sheet on each plant I grow. Some in our club tell me they use spreadsheets. I like it on paper (see example next page). I have a picture of the plant with its name (so if tags are lost I still have it), where and when I got it, where it comes from, what minimum temperature it can take, and basic care instructions gleaned from other growers, books, and the internet. Having all the basic information in one place has made my life easier.

Has keeping notes made me a better grower? You bet it has. Plus it’s fun and another way to interact with my plants. It helps me remember who likes being in full winter sun and who needs to go behind some sunscreen when summer comes. I can easily tell who needs frost cloth on a cold night, and who’s tough and can take the cold.

All the authors in this interesting book encourage researchers to keep notes. I also encourage you to keep notes. It’s fun and you’ll learn a lot. Leo was right!
SARCOCAULON (MONSONIA) HERREI                Min 50F

7/17 purchased from Desert Creations at CSSA convention
Soil must have at least 75% pumice. Comes from
Namaqualand up to 2,000 feet in white quartz fields and
likes it hot and bright. White fluffy flowers. They lack leaves
for most part of the year and produce leaves and flowers
after heavy fog or sufficient rains. Stop watering when the
leaves wither and turn yellow. Mainly water at the end of
winter/beginning of spring and at the end of summer/
beginning of autumn. Full sun here in winter, filtered shade
in summer. Scott M says to bring it in on really hot nights.

9/18 repotted
10/20/18 leafed out after a big rain

TIME TO RENEW YOUR MEMBERSHIP By Membership Chair, Beth Kirkpatrick

It is time for your CACSS membership renewal for 2019. If you have not paid ahead,
your membership dues are due: $20 for single and $25 for household or family by
December 31 for your 2019 membership. Our membership is on a calendar year,
January 1 to December 31.

Please pay via PayPal or credit card HERE.

You can also download the membership form from the website and pay via surface mail
or at one of our meetings.

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accompanying the material) provided proper credit is given to the Central Arizona Cactus and Succulent Society and the author,
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HOW'D YOU GROW THAT PLANT? Compiled by Kathy Miller


PURCHASED: My *Jatropha cuneata* was a gift from Chris Ginkel. I visited his yard, spring 2015, and was impressed by this plant (and everything). I told him that I had one for 20+ years and then poof, it died. Chris just took this out of the ground and gave it to me. I was very touched by his kindness.

POT: I bought this pot on the CACSS Facebook swap page. I collect turquoise pots to match my pool and house trim.

FERTILIZER: I use Pro Sol 10-16-38 in the early spring.

POTTING MEDIUM: It's in half Black Gold cactus mix and half pumice

SUN EXPOSURE: Chris grew this on the south side of his house, but I have it in east exposure since it's in a pot and I've exposed the thick roots.

WATERING: I water monthly in winter, then biweekly into weekly watering for the summer heat. Also, more water whenever leaves are present and the evenings are above 60F.

FROST PROTECTION: This plant grows in Arizona into Mexico so it should be ok unless we have unusual weather.

SPECIAL NEEDS: This plant had such a pretty windswept shape as it was growing towards the light. When Chris gave it to me, I noticed how large the two main roots were and wanted to highlight them in a pot instead of planting it in my yard. I'm trying to maintain the appearance.
HOW'D YOU GROW THAT PLANT?


PURCHASED: Dan grew this plant from seed. The seeds were purchased in early 2013.

POT: He grew it in a plastic pot for about three years, then moved to the current unglazed pot.

FERTILIZER: It is fertilized every time he waters with a weak mixture of ProSol 10-16-38.

POTTING MEDIUM: Dan has it in his typical mixture of approximately 50% Black Gold cactus mix, 25% pumice and 25% coir chips.

SUN EXPOSURE: This plant never left the greenhouse for several years. The greenhouse is covered with 50% shade cloth. It's now in dappled shade in Dan’s backyard during the summer, and in the greenhouse during the winter. He never lets it go dormant.

WATERING: The plant is watered about three times a week during the summer and when it's dry in the winter. Dan cautions to “always remember, cold and wet means rot.”

FROST PROTECTION: It is protected from frost. This tender little beauty stays in the heated greenhouse during the winter.
Show Chair’s Choice for a Succulent of the 2018 Show: \textit{Adromischus maculatus}. Grown by Sue Hakala.

PURCHASED: No idea

POT: This plant likes a glazed pot as it dries out slower.

FERTILIZER: I use the club’s fertilizer 10-16-38 at one-half strength about once a month during the spring into summer.

POTTING MEDIUM: It’s in 1/3 cactus mix, 1/3 pumice, and 1/3 perlite.

SUN EXPOSURE: It likes being behind 50\% shade screen on the second shelf, south side only. Yeah, it’s picky!

WATERING: It’s watered once a week in the hot months. No water in winter.

FROST PROTECTION: It spends the winter in my heated plant house.

SPECIAL NEEDS: It needs to be kept out of the sun after watering or the leaves will sunburn.
A member asks: Where is a good place to buy plants locally?

All nurseries with the bullet dot are ones we have visited on club sponsored field trips. Others, call before you visit as some may have closed and/or are by appointment only.

- Arizona Cactus Sales Inc., Chandler, 602-963-1061
- Arid Lands Greenhouses, Tucson, 602-883-9404
- Bach's Cactus Nursery, Tucson, 520-744-3333
- B & B Cactus Farm, Tucson, 520-721-4687
- Dan's Desert Plants, Tucson, 520-325-4967
- Landscape Cacti, Tucson, 520-883-0020
- Living Stones Nursery, Tucson, 520-628-8773
- Miles' To Go, Tucson, 520-682-7272
- Phoenix Desert Cactus Nursery, Phoenix, 602-243-7064
- Plantas Del Sol, Tucson, 520-682-8883
- Starr Nursery, Tucson, 520-743-7052
- Sticky Situation, Tucson, 520-820-0997
- Tohono Chul Nursery, Tucson, 520-742-6455 ext. 0
- Tucson Botanical Gardens Nursery, Tucson, 520-326-9686
- Desert Aura Cactus Nursery, moved new address: 47027 N. New River Road, Phoenix, 623-465-5225
- Goldfield Cacti Nursery, Apache Junction, 480-983-6456
- Cactuslands, Tucson (no phone)
- Boojum Unlimited, Tucson, 520-682-7441

This list comes from cactus-mall.com. A great source for on-line information about cacti and succulents.
A member asks: Where can I buy shade cloth?

Shade cloth comes in knitted or woven form. Decide which you think looks best. Personally, I prefer woven as it looks the best to my eye and find it doesn’t catch on spines as much as the knitted. I contacted all our members identified as “specialists.” Here’s what they said about where to buy shade cloth.

Arizona Bag Company, LLC
602-272-1333
2530 West Buckeye Road, Phoenix
Shade cloth comes in 30% ($3.50), 40%, 50% ($7.30), 60%, 70% in knitted form, or 80% knitted and woven form. Each comes 10 feet wide, prices are per lineal yard. No minimum, but you will pay a $10 cut fee on any amount. They will also hem and grommet any shade cloth which is priced per piece. **Ask for Melanie and you can get a 10% discount on your purchase before the end of 2018.**

Arizona Cactus Sales
480-963-1061
1610 S. Arizona Ave, Chandler
Shade cloth comes in 47%, 6 feet wide, $2 per lineal foot, woven form. There is a discount for members.

Plants for the Southwest
520-628-8773
50 E. Blacklidge Drive, Tucson
Shade cloth comes in various sizes, prices, woven or knitted

Sue Tyrell, who works in the gardening industry, says retail nurseries and big box stores carry 70% and higher. This is usually too high a percentage for plants, but great for creating shade on your patio.

Chris Ginkel may be the smartest of us all as he says, “I never use any. Plants are placed in appropriate locations in my yard to give them adequate protection.”
CACSS FACEBOOK PAGE

By Michelle Schrade

The Central Arizona Cactus and Succulent Society Facebook page, 4,250+ members strong, continues to grow, educate, and amaze followers by providing a platform for fellow cactus and succulent aficionados.

November FB postings covered a range of topics. I enjoy following the comments on postings because many times our knowledgeable members will share information related to the posting. Often these informal discussions result in fascinating gems of

Cactus photo: Opuntia polyacantha ‘Crystal Tide’ by Chris Ginkel.
information. Just a reminder: if you don’t bother reading the comments, you are missing out!

Popular topics this month included:

• *Stapelias!* Photos of everyone’s favorite stinky flowers, including the flies who love them.

• *Euphorbias*: Member Ken Luiten of the CACSS Education Group did a marvelous job of sharing photos and information on the November Featured Plant.

• The arrival of cold weather brought many questions: Should I cut back on watering my cactus? Is it too late to plant cactus? Should I move this plant indoors, etc?

• How do I keep critters (birds, rodents, javelina, and rabbits) from eating my plants?

Succulent photo: *Echeveria ‘Just After the Rain’* by Lori N Ed.
• While many postings shared stories of losing plants due to heavy October rains, many shared photos of plants that did surprisingly well. Most folks attributed this to adding pumice to their soil allowing their plantings to drain well and avoid rot and pests.

• Mystery seedlings. The October rains brought an abundance of mystery seedlings sprouting up in yards. CACSS members were happy to help in identification of these and many other plant photos posted.

• Can this plant be saved? Photos of sunburned, overwatered, leggy, droopy, and sad looking plants were shared. Advice was given by members who hopefully saved several plants.

• Some of my favorite posts included cactus related holiday decor, recycling food containers for use as seedling starters, and wonderful photos by Tristan Davis, Cricket Caires-Peterson and Kallee Ornelas of new planting areas in their gardens. Thank you for sharing your garden photos!

• CACSS members Jeff Thompson and Chris Ginkel posted several amazing photos of cactus blooms in habitat.

• Member Anthony Wray gave watering and substrate advice for growing Lithops, everyone’s favorite plant to kill.

• Member Jeffery Moore posted photos and info showing the subtle difference between Fouquieria madougalii and F. duguetii.

• An informal Q & A was led by Tristan Davis in telling the difference between varieties of Ferocactus and definitions of botanical terms.

• CACSS FB members from Argentina, Germany, Mexico, Russia, and Turkey shared posts of beautiful plants from their countries.

You can join the CACSS FB page at: https://www.facebook.com/groups/cacss2/

Each month photos of a cactus/succulent taken by CACSS FB members are selected to be featured in the Central Spine. This month’s featured plants were taken by Chris Ginkel and Lori N Ed.

A new category is: “Post with Most Likes.” This month’s post of a great horned owl was taken by Karen Hermes with 222 likes. Thank you all for your wonderful photos. Keep posting!
SPECIAL THANKS TO 2018 CONTRIBUTORS

By Editor Sue Hakala

I hope you agree that our newsletter articles have been interesting and educational this year. Many great ideas have come together to make this happen: dedicated writers have produced exceptional articles, fabulous photographs, timely ideas, new features, and so much more.

Say a big thank you to all authors and encourage them to write more: Grant Meyer, Tristan Davis, Scott McMahon, Dan Smith, Cliff Fielding, Nancy Mumpton, Jo Davis, Linda Larson, Nick Diomede, Chris Ginkel, John Begeman, Elton Roberts, Dean Patrick, Sue Hakala, Greg Starr, Loran Rodewald, Ken Luiten, Cathy Babcock, Gard Roper, Woody Minnich, Tom Briggs, Steve Plath, Ed LaMay, Javier Gurrola, Diana Rogers, Beth Kirkpatrick, Rita Gosnell, Jim Oravitz, Doug Dawson, Lance Runkles, Michelle Schrade, and Judy Tolbert.

Thank you to Nick Diomede who serves as the newsletter technical advisor. Because of Nick, technical issues have been brought under control and make laying out the newsletter a breeze (sort of). Nick has a great eye and contributes layout improvement ideas too.

Nancy Mumpton, plus our other proofreader who chooses to remain anonymous, and I endeavor to produce a product free of errors. It doesn’t always happen, but we are trying. Thank you to all for help with this arduous task.

This year Tom Gatz and Kathy Miller volunteered to contact all show winners and compile the How’d You Grow That? articles. These contributions teach us all how to grow here, in the low desert, successfully. Wendy Barrett took all the photos for the articles this year.

Wayne Kramer volunteered to work with Program Chair Gard Roper. Wayne provides all program articles and photos for monthly program presenters; a challenge at times.

Thom Young has encouraged us monthly to join the CACSS Facebook page and has the lucky job of choosing the featured photos. Michelle Schrade has volunteered to take over for Thom.

I hope you agree that is has been fun peeking into a grower’s toolbox to see their favorite. Favorite Tool contributors for 2018 include: Edmund Hunt, Lee Brownson, Doug Dawson, Claudia Helfgott, Veronica Countryman, Tom Gatz, Anthony Wray, Cricket Peterson, Judy Tolbert, Russ Faust, Rita Gosnell, Ken Luiten, Thom Young, Tristan Davis, and Carol Parrott. Please contribute your favorite tool to the address below.

A new feature comes from the Education Group. They came up with the idea of surveying members at meetings to see what questions they need to be answered. The Ask an Expert idea was born.

Thanks must be given to all the multitude of photographers who have contributed photos that make each issue lively and entertaining.

If you have an idea for an article or regular feature, comments, suggestions, etc., please submit to CACSScentralspine@gmail.com. It will help to make our newsletter great!
### SPECIALISTS TO CONTACT WITH QUESTIONS

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