Rich Zeh captured this spectacular bloom on his *Echinocactus platyacanthus*. Members are invited to submit photos for newsletter publication. Email all submissions to: Editor Sue Hakala at cacsscentralspine@gmail.com.
Researchers have long recognized the importance of Agaves to Mesoamerica and its cultures, the plants providing food, fiber and beverage. However, their significance to these cultures has overshadowed and distorted the plants’ role for indigenous peoples north of the U.S.-Mexico border. Pre-Columbian farmers grew no less than 6 and possibly as many as 8 or more domesticated Agaves in Arizona dating to at least 600 AD. Because of their longevity and primarily asexual reproduction, relict Agave clones have persisted in the landscape to the present, providing an opportunity to study pre-Columbian nutrition, trade, migration, and agricultural practices. Additionally, the remnant clones present a rare opportunity to examine domesticates virtually unchanged since they were last cultivated within a prehistoric cultural context.

DNA sequence data, in addition to plant morphology, suggests that at least three may have originated in Arizona—suggesting this state as a secondary center of domestication. These discoveries underscore the necessity of viewing landscapes and some plant species from a cultural, rather than “natural” perspective that may help discern potential cryptic species veiled by traditional taxonomic treatments. Understanding these plants and their ecological/cultural roles requires interdisciplinary collaboration between botanists and archaeologists.

Wendy Hodgson is herbarium curator emeritus and senior research botanist at the Desert Botanical Garden. She has personally collected some 32,000 of the DBG herbarium’s 89,000 specimens. Initially hired as an illustrator, Wendy first came to the DBG in 1974, with a ASU bachelor’s degree in wildlife biology. Early in her career at the DBG, Wendy was encouraged to go out into the field and collect plants for the herbarium. These adventures led to her pursuing and receiving a master’s degree in botany in 1982. Presently she is also an adjunct professor of conservation biology at ASU, and has authored Food Plants of the Sonoran Desert (2001, University of Arizona Press) which won a Klinger Book Award given by the Society of Economic Botany. More recently in conjunction with fellow curator and researcher Andrew Salywon, she has been instrumental in discovering several new species of domesticated Agaves in Arizona cultivated by early Native American cultures.
Agave sanpedroensis (left) and Agave phillipsiana (below) are Arizona domesticated Agave species. The photo of the Agave phillipsiana was taken in the Clear Creek drainage in Grand Canyon National Park during a survey backpack trip in October 2018. Plants in the background are all Yuccas.
A member asks: How do I remove a plant from a graft and successfully grow roots?

To root soft stem items, you need to take a nice clean cut at a slight angle with a sanitized knife (with alcohol), and immediately put it into water until you are ready to insert into a pot with clean potting medium.

Slightly moisten the potting soil, dip your cutting into some rooting hormone if you have some (this is not mandatory, but recommended), and insert the cutting into the medium. Place the pot out of direct sun and mist to keep it moist for the next couple weeks. After two weeks, you can test it for roots by slightly tugging on it to see if it is starting to root. If roots appear to be growing, place the item in some filtered sunlight and watch it grow. Keep in mind that at this point it is young and fragile.

For a hardwood cutting, follow the same basic rule except place the item into a zip lock bag to maintain moisture level as this item takes much longer to root. Do not completely close the bag as it needs some air flow to keep from rotting. Hardwood cuttings take a lot of patience, and I have found the success rate is much smaller.

I have found the best way to root cuttings is to play the odds and take several cuttings to make sure you get a couple successes. Good luck and keep in mind that in nature many seeds fall from the flower to make sure the success rate is reached.

NOTE: The specialists listed in the newsletter are available to answer questions like this. Just contact them directly anytime.

SAVE THE DATES

- September 21, PEG meeting on *Copiapoa* in Dorrance Hall
- September 29, Board and CACSS meeting
- October 27, MEGA silent and live auction in Dorrance Hall, chaired by Nick Diomede
- November 17, CACSS meeting
- December 8, Holiday Party, chaired by Sue Glenn, at the Tumbleweed Recreation Center, 745 E. Germann Road, Chandler, AZ 85286. Set up starts at noon, lunch starts at 1 p.m.
- April 3-5, 2020 DATE CORRECTION CACSS Annual Show and Sale, chaired by Thom Young
A member asks: Can *Haworthias* be grown on a windowsill?

The genus *Haworthia* represents the smallest plants, on average, of the family *Asphodelaceae* (the *Aloeaceae*). They have great appeal in the world of succulent growers/collectors as they can have very interesting foliage while still being very modest sized plants.

*Haworthias* can be looked at as having two somewhat distinct forms or groups. The first group have tough looking leaves which are usually fairly dark in color and very firm to the touch. Examples of this group are *H. limifolia* and *H. scabra*. The second group appear to have softer looking leaves, and tend to have translucent panels in the leaves (usually at the tips) that act as windows to allow sunlight into the leaf interior where photosynthetic tissue contains the chloroplasts that produce the food and energy the plants require. Examples of this second group would include *H. cymbiformis*, *H. cooperi* and *H. truncata*.

The first group, with the tougher appearing leaves, seem to tolerate much brighter light conditions than the second group. My experience with them has been that *H. limifolia*, and its cousins, really do better in good light, evidenced by maintaining good tight rosettes and flowering annually. The second group, with their leaf windows, really seem to do better with lower light exposures. This translates into the second group being better candidates for windowsill culture. They will require a growing medium with very good drainage, adequate watering during their growing season(s) and adequate light.
What is their growing season? Indoors, they could potentially grow year-round, but will more often seem to have least active growth November through February. Some will shut down and go dormant in our monsoon season, even though indoors, although being indoors can certainly modify this considerably.

Don’t be surprised if the occasional plant seems to lose all its roots during these resting periods. They will come back when the plant feels the conditions are right to grow again. Watering is the same mantra as the general rule for all succulents: water when the soil is completely dry during their growing periods. Being inside, this may vary considerably from the same plant in the same soil grown outside.

Become one with your soil and channel its water desires; or at least don’t hesitate to unpot the occasional plant and see how moist the soil is since the last watering.

The plants can’t take direct sunlight (except very short times early in the day), but they like as much reflected or indirect light as possible given our tendency to have significant overhangs over many windows. Watch the plants, they will give you some indication if the light is too much or too little by change in color from what would be considered normal.
HOW’D YOU GROW THAT PLANT?


PURCHASED: From Home Depot about two years ago.

POT: In a decorative, glazed cereal bowl from Goodwill.

FERTILIZER: It has yet to be fertilized.

POTTING MEDIUM: It's in 60% Black Gold cactus soil and 40% pumice.

SUN EXPOSURE: It lives under 30% shade cloth.

WATERING: It has a hard life and is watered infrequently.

FROST PROTECTION: No special winter care yet.

SPECIAL NEEDS: None

PURCHASED: The *Copiapoas* were purchased from AZ Cactus Sales, Miles to Go and other sellers.

POT: They are in a ceramic pot.

FERTILIZER: I use the club’s fertilizer at 1/2 strength, growth or flowering type, with most waterings done in the growing seasons (spring and monsoon season).

POTTING MEDIUM: Any fast draining cactus mix works well.

SUN EXPOSURE: November to February they get full sun. February to November they are under 30% shade cloth. In mid-June, if there is intense heat (110+F), I will cover with a second layer of 30% shade cloth until the heat drops below 110.

WATERING: Regular light weekly watering is done spring to fall, less when it rains or if there is high humidity. They love summer and winter rains.

FROST PROTECTION: I protect them from frost and freeze.

SPECIAL NEEDS: *Copiapoas* are very tough plants that can be very slow growing. Their habitat is very humid and mild with temperatures rarely above 80 degrees and humidity usually above 50%. They get almost no measurable rain throughout the year. The rains fall mainly in the winter. They will grow the fastest with the most pupping in a humid greenhouse. Watering too much will lead to tall ugly plants or splitting up the sides of the plant.

PURCHASED: This was acquired in a private transaction about seven years ago.

POT: The glazed pot was purchased from a vendor at a show.

FERTILIZER: I’m currently using 10-16-38, available at our club meetings. It is low in nitrogen and high in potassium, good for cacti and succulents.

POTTING MEDIUM: It’s in Uni Gro cactus and succulent mix, cut with 50% pumice for improved drainage.

SUN EXPOSURE: It grows under 60% shade cloth inside my greenhouse.

WATERING: I usually water the collection once a week in the summer, once a month in the winter, except the Mesembs.

FROST PROTECTION: Parodias can take some frost, but I don’t know how much. Mine are protected inside the greenhouse.

SPECIAL NEEDS: I check to see if the growth is heading in one direction, and if so, I turn the plant in the opposite direction to keep its uniformity.
This summer, members have shared photos and stories of how they keep their plants alive during the extreme heat of summer. Ranging from building shade structures, moving plants indoors, to taking plants with them on vacation, our members do whatever it takes to keep their plants happy and healthy.

As summer winds down, it is time to take the shade cloth down and move our delicate plants outdoors to enjoy the wonderful fall weather. One of my favorite things about the Central Arizona Cactus and Succulent Society Facebook page is the wealth of knowledge members share in their posts. I learn something new every day. I look forward to utilizing this knowledge in my garden this fall once the morning temperatures drop. I know many of you are as excited as I am to get back in your gardens. Happy gardening!

Don’t forget to post your photos and stories on the CACSS FB Page at https://www.facebook.com/group/cacss2/

This month’s Cactus and Succulent of the Month honors go to Robert Serrano. Our first double honoree! Cactus: *Pilosocereus leucocephalus* (left) posted August 4, and succulent: *Adenium* sp. posted August 28.
*Euphorbia resinifera*, commonly referred to as Moroccan mound, has been in my collection for twenty plus years. It has been one of the few plants with the ability to thrive in a full southern exposure.

When I first moved into my condo, Dr. Leo Martin visited and saw the plant. His advice was heavy summer watering and keep up potting it. Doing exactly that, it grew out of control quite rapidly. Approximately ten years ago, I planted it in its present pot and moved it to a place where it would not have to be moved again as it is quite heavy.

The pot is one of those Ikea purchases, a heavy-duty terra cotta pot with a black coating on the outside, usually a no-no for potted plants in a southern exposure due to its heat attraction. The pot is about 18” wide by 18” high, and the *E. resinifera* itself is about 24” by 24”. It is undoubtedly root bound, however I can tell it wants to keep growing, but I have no more room to give it.

The plant gets (heavily) watered weekly during the warmer days, including those high humidity and temperature summer periods. I pour two gallons through the top of the plant. It gets fertilized about once per month throughout the summer using the club’s fertilizer (whichever one is more readily available) at full strength.

You will notice a saucer at the bottom of the pot. Yes, water collects after watering and sits there, at most a day or so. This is usually another no-no for *Euphorbias*, but it has not caused any problems.
BEGINNER’S CORNER: FINDING PAST NEWSLETTER ARTICLES

There is so much knowledge in past newsletters about how to grow plants here in the low desert. It really is the brain trust of our members since the late 1970’s. Especially familiarize yourself with the Plant and Miscellaneous Indexes for a treasure trove of articles to help answer your questions and make you a successful grower.

Keep these directions next to your computer until you are familiar with the process. It really is very easy.

- Go to the club website: centralarizonacactus.org
- Click on Central Arizona Cactus—we love cactus at the top.
- Hover over Newsletters.
- Click on Newsletter Archives.
- Choose Miscellaneous Index to find articles that deal with growing plants here and lots of other topics; or choose the Plant Index to find articles about a particular plant.
- Scroll down to the heading you are interested in, and note the month and year of the article you’d like to read.
- To find the article, just go back to the Newsletter tab and click it.
- Scroll down to find the year the article is in, and click on the year.
- Find the month and click on that.
- The newsletter will open. Then just scroll through it to find the article.

DEsert Botanical Garden Fall Classes

Visit the DBG website to register for these classes and see lots of other interesting offerings.

- Sea-themed Succulent Garden, October 2, 6:30-8:30 p.m., $35 members/$44 non-members
- Succulent Container Gardening, November 6, 6-8 p.m., $35/$44
- Cactus Dish Garden, October 5, 2-4 p.m., $85/$105

FLy Fertility Fact

Fly eggs hatch in 10 days. A single fly can lay a dozen broods in one summer. With ideal conditions, plenty of food, no predators, and perfect weather, a pair of flies beginning its family in April could end up being grandparents many times over. Researchers say something like a billion, billion flies by August. That’s enough to cover the earth in 47 feet of flies. So where’s the fly swatter!
Agave desmetiana (formerly misspelled desmettiana*) was originally on a list I compiled of my favorite Agaves in a draft article for the Central Spine (February 2007) titled, Agaves—The Good, The Bad and The Ugly, available on our club website under the “Plant Info/Plant Articles” heading. However, after so many of this frost-sensitive species were killed or damaged in the devastating 2007 freeze, I took it off the list.

Since then, I have learned to plant it in protected places under trees or protect it from frost in exposed areas by double wrapping it with frost cloth if temps are predicted to drop much below 30 degrees for very long. So, after several warm winters, it is now back on my list of favorites. In fact, of the approximately 200 Agaves of 30 different species growing in my yard, 20 percent are some variety of this species.

There is the original green version, but to me, the variegated form is more attractive. More recently, a really cool cultivar variously named ‘Quicksilver’ and ‘Silver Peso’ has become available. Another interesting form called ‘Joe Hoak’ can be seen at the Desert Botanical Garden, but I have yet to see it for sale locally.

Why is it a favorite? It is fairly friendly (for an Agave), and it grows quickly to a nice, medium size—about 3 feet tall and 4 feet across. It produces enough offsets (pups) to keep your friends and neighbors supplied but not as many or as difficult to remove as Agave americana or Agave lophantha. It is fairly short-lived (about 10 years more or less), but it (and its pups) can be popped out of the ground pretty easily if you want to move one to another spot or after it blooms (leave the stalk on for leverage). They can grow, with watering once a week in pots, or only a couple of times a month in the ground but it will also thrive in an irrigated garden situation, even near a lawn.

Unlike many Agaves, they still hold their attractive urn-shaped form pretty well in almost full shade but can also be acclimated to full sun (start in November), even in a pot. My neighbor’s are in full shade all winter but still take the blasting summer sun, an unusual trait for any succulent. And, so far (fingers crossed), I have not seen any attacked by agave snout weevils.
No natural populations of *Agave desmetiana* are known, and its origin remains a mystery. Some think it came from eastern Mexico; others speculate from Cuba. However, this species is cultivated widely in Mexico, Europe and the western United States. And remember, its Achilles heel is frost, so double-wrap it on those really cold nights.

*As “desmettiana,” the species was named for Mr. De Smet, a common Belgian surname meaning “Smith.” The epithet (species) should only have one “t.” From tropicos.org Missouri Botanical Garden, August 6, 2019 http://www.tropicos.org/Name/1200378

Thanks to Wendy Hodgson, Joni Ward and Kenny Zelov for helping me with this article.

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CACSS PROGRAM AND COMMITTEE CHAIRS 2019

2020 Annual Show Chair: Thom Young
Archivist/Historian: Lois Schneberger
Audit Committee: Mike Gallagher
CSSA Representative: Mike Gallagher
Donations: Jim Oravetz
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Fertilizer Sales: Eric Holst
Holiday Party 2019: Sue Glenn
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Membership: Beth Kirkpatrick
Newsletter: Sue Hakala
October Auction Chair: Nick Diomede
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Private Plant Sales: Sue Tyrrel
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Propagation Education Group (PEG): Tristan Davis
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