

### In this issue:

In June 2020, Arizona had a series of fires in the Tonto National Forest. The Bush Fire was one of the largest in Arizona's history and it's the one we take a look at in the article [Bush Fire Survivors](#). Looking at the area one year after the devastating fires, there is both sorrow and hope.

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### In this issue:

Do you have a *Kalanchoe* in your collection? Or do you avoid them like a plague? Maybe you'll change your mind after reading [Kalanchoe! An Often Overlooked Genus](#).

Above: *Kalanchoe blossfeldiana* 'Calandiva'

**CSSA Calendar of Events 2021**  
Full details and updates at  
[\*\*CSSA Calendar\*\*](#)

# Rare Arizona Plant Threatened by Rosemont Copper Mine Receives Endangered Species Act Protection

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Bartram's stonecrop (*Graptopetalum bartramii*)  
Photo courtesy of Alan Cressler

TUSCON, Ariz. August 30, 2021— Following a petition and legal action from the Center for Biological Diversity, the U.S. Fish and Wildlife Service announced today that Bartram's stonecrop, a succulent found in southern Arizona, will receive protection as threatened under the Endangered Species Act.

Bartram's stonecrop is one of more than a dozen imperiled animals and plants threatened by the proposed Rosemont Copper Mine near Tucson, which would affect more than 145,000 acres of wildlife habitat.

Bartram's stonecrop is a striking, blue-green succulent that typically lives on rocky outcrops in narrow canyons, usually close to streambeds, springs or seeps. Historically, this plant was found across sky island mountain ranges in southern Arizona and northern Mexico, but currently only 4,628 adult individuals are known to exist in the United States.

"Federal protection for Bartram's stonecrop is more than 40 years overdue," said Randy Serraglio, a conservation advocate at the Center. "The beautiful little plant faces threats at every turn, from the ecologically disastrous Rosemont mine to uncontrolled livestock grazing and historic drought driven by climate change. Without the Endangered Species Act, the stonecrop would have little hope of survival."

Due to the small size of the stonecrop's populations — more than half of the 50 known populations contain fewer than 50 individuals — the species is particularly vulnerable to an array of threats, including water withdrawal for mining and other uses, fire, livestock grazing, climate change driven drought and poaching.

Four populations of the stonecrop were recently lost due to the drying-out of its habitat. Drying is associated with loss of water in nearby drainages, such as from mining or drought. The population near the Rosemont mine is threatened by insatiable groundwater pumping for mining activities.

Increasing wildfires are also a continued threat to the species. Between 2007 and 2017, the Service identified 11 wildfires that burned in Bartram stonecrop sites in southern Arizona. Non-native grasses that have taken root throughout the stonecrop's remaining habitat increase the frequency and severity of wildfires.

The stonecrop occurs in Pima, Cochise and Santa Cruz counties. It was first identified as a candidate for federal listing in 1980. The Center petitioned for protection of the plant in 2010, and in 2020 sued the Trump administration for failing to decide whether 241 plants and animals across the country, including Bartram's stonecrop, should be protected under the Endangered Species Act.

Thanks to Cheryl Albert and *On The Dry Side*, Monterey Bay Area Cactus & Succulent Society for alerting TTP to this information.

## Discover These Websites

A very interesting and searchable site devoted to African plants is maintained by the South African Biodiversity Institute:

<http://pza.sanbi.org>.

One section, "Plant of the Week", features almost 2000 illustrated articles on all sorts of African plants, including succulents. Two new articles are added each week.



<http://pza.sanbi.org/euphorbia-clavarioides> (Scan QR code on a phone to go to the entry for *Euphorbia clavarioides*.)

To see a zillion photos of identified plants (animals, insects, fungi, etc...), go to:

<https://www.inaturalist.org/>

The site is a joint project of the California Academy of Sciences and the National Geographic Society.

Thanks to *Cactus Corner News*, Fresno C&SS for information about both these websites.

# Save the Date! Biennial Mid-States Cactus and Succulent Conference June 9–12, 2022

After the unfortunate cancelation of last year’s planned Mid-States Cactus and Succulent Conference due to the pandemic, we’re looking forward to reviewing old friendships with like-minded enthusiasts. Coming this spring – June 9–12, 2022 – the Kansas City Cactus and Succulent Society will resume hosting this biennial event. As in previous years, this in-person conference will feature vendors, speakers, auction, banquet, and socializing at the Stoney Creek Inn in Independence, Missouri – a new and spacious hotel and conference center.

Special room rates for conference attendees will be offered by the host hotel where all conference activities and the banquet will take place. The Stoney Creek Inn’s convenient location just east of Kansas City on I-70 provides easy access to travelers, and it is nearby outside dining options, shopping, and other attractions in Kansas City and historic Independence. The site of the Harry S. Truman Presidential Library and Museum, Independence is also home to several other points of interest that will appeal to history buffs. Of course, Kansas City, itself, has many attractions for those who want to pair the conference with tourist activities. There are activities in Kansas City for every taste – and yes, the Royals will be in town, playing a four-game series against Baltimore!

Planned events for the Biennial Mid-States Cactus and Succulent Conference, itself, include an opening night reception, plant and pottery sale, raffle, silent auction, banquet, and entertaining speakers. Several well-known cactus and succulent experts are looking forward to appearing and giving two talks each. These travel and educational presentations are a great way to vicariously visit remote corners of the globe with an expert guide and learn about their exotic flora. We can also count on our sale vendors to tempt us with unusual plant specimens that we may rarely see in local nurseries and succulent friendly, hand-made artisan pottery.

As the Kansas City Cactus and Succulent Society prepares to resume the in-person conferences that we’ve enjoyed in years past, we hope that other enthusiasts will mark their calendars for June 9–12 in 2022. Club members, our presenters and our vendors are looking forward to seeing you! More details and a conference registration form will soon be available on the KCC&SS website ([kc-cactus.com](http://kc-cactus.com)) and [Facebook](#) page.



Unique pottery by local artists will be offered at the 2022 Biennial Mid-States Cactus and Succulent Conference in Independence, MO.

## San Diego February Brag Table

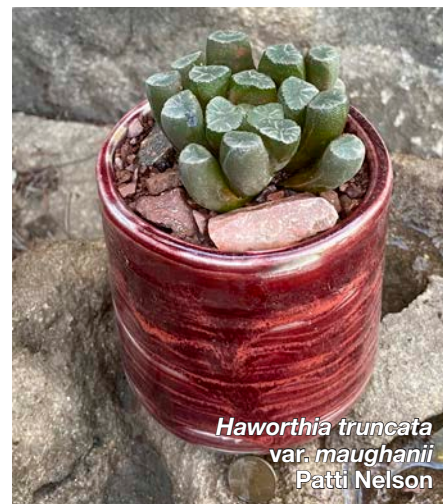
Reprinted from Espinas Y Flores, March 2021, San Diego CSS



*Neoporteria wagneknechii*  
Ruth Contino



*Euphorbia aeruginosa*  
Norb Roden



*Haworthia truncata*  
var. *maughanii*  
Patti Nelson



"Helping Hands" at the annual event to plant cacti that were overwintered in the greenhouse, Fort Worth Cactus and Succulent Society, at the Fort Worth Arboretum.  
Photo: Irwin Lightstone

## Delay Watering After Repotting

Tom Gatz

Reprinted from *Central Spine*, September 2021  
Central Arizona CSS

Even experienced growers of cactus and other succulents admit to sometimes losing plants not very long after repotting them. There could be several reasons for this, but one cause might be rot triggered by watering too soon after repotting and before damaged roots and caudices have a chance to callous over and heal. I watched some videos of Peter Walkowiak in California repotting succulents recently, and he said he too encountered this problem years ago, but now has a three-step method that works well for him.

1. Give the plant a good watering a few days before potting it up to make sure it is well hydrated.
2. When you repot the plant, use extremely well-draining potting media that is moist, but not soaking wet.
3. Don't water it again for at least a week or longer, depending upon local temperature and humidity.



### *Frailea castanea*

Bob Stewart, Reprinted from *The Eastern Spine*, January 2021, National Capitol CSS

Not many C&S enthusiasts grow fraileas because they are not always readily available and they are very shy to flower. Fraileas are cleistogamous; they can produce fruit and seeds without flowering. In summer, when it is hot, they do occasionally produce their bright yellow flowers. The seedlings above are 20 months old and will go outside this year in late spring.

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## VIRTUAL COFFEE IN THE GARDEN

Monica and Robert Mosack  
Reprinted from *Cactus Courier*,  
July 2021, Newsletter of the Palomar  
Cactus and Succulent Society



Thank you for visiting our garden. Following some decisive pruning, and its first dose of actual fertilizer, we figured it's never going to look better than this, so now is the time to invite you for a virtual tour. Flanked by our neighbors' junipers and cypress, this garden combines succulents, drought tolerant plants and herbs. My neighbor calls me a "close planter" for my fondness for arranging my plants entirely too tightly. "Excessive" would be a good word to describe our use of colorful rosettes, quirky trees, and fluffy, cascading fillers. Many thanks to PCSS friends for the cuttings and advice that have helped this garden to thrive.

Mangave 'Mission to Mars',  
Graptoveria opalina, Echeveria  
'Blue Sky' (top)  
Dudleya brittonii, Othonna capensis  
'Ruby Necklace', Echeveria  
'Dusty Rose', Echeveria cristata  
'Topsy Turvy' (bottom, left)  
Dracaena draco, Echeveria  
'Afterglow' (bottom, right)

# Bush Fire Survivors

Cliff Fielding

Reprinted from *Central Spine*, July 2021

Central Arizona C&S



Above: The view looking east on the south side of Highway 87 between Scottsdale and Payson, AZ.

Anyone driving highway 87 from Scottsdale to Payson cannot help but be horrified at the destruction caused by the 2020 Bush Fire. They might also be amazed that there are green spots emerging from the base of many of the burned plants. What plants have survived the fire? What is the outlook for the area to recover? With these questions in mind, I conducted a brief non-scientific survey of what is left behind one year after the start of the Bush Fire.

The Bush Fire was a human-caused fire that burned 193,000 acres last June 2020. It burned through several different vegetation zones along highway 87. The focus of this article will be on the low desert section near the Bush highway where the saguaros and other cactus grow.

As I start my survey on foot, it is already 100 degrees at 8:30 in the morning. Four Peaks is only a hazy shadow in the distance due to several large fires burning to the east. I am surrounded by the almost complete devastation from the fire. The fire around the Bush highway and highway 87 left almost no unburned areas. The following is

a summary of what the impact of the fire was for different plant groups.

## CACTUS:

Most cactus were burned in the fire. The only saguaros (*Carnegiea gigantea*) to survive were large ones that did not receive as much stem damage. Many have the look of a plant that has died, but the top section of the plant hasn't gotten the news. Some very large saguaros bloomed profusely and set lots of seed despite being blackened completely around their base. Small saguaros, which were few to begin with, were all killed in the fire.

There were no living barrels (*Ferocactus acanthodes*) in any burned area. Many of the *Ferocactus* skeletons showed signs of being eaten after the fire. This predation may have been facilitated by the spines being burned off and there being little else to eat in the area. Several barrels had fruit that may still contain viable seed. Hedgehogs (*Echinocereus engelmannii*) had some living specimens but only where there was no fire. Only one species of cholla, the Teddybear



Cholla, (*Cylindropuntia bigelovii*) was able to shrug off burns and continue to grow in some places. There were no survivors of any other cholla species. Prickly pears (*Opuntia engelmannii*) were much more difficult to decide if they will survive. They were significantly burned and dead looking on most lower pads, yet they occasionally had green pads towards the top of the plants.

**TREES AND SHRUBS:**

About 20 to 30 percent of the dead shrubs and trees have new green

Left: A barrel cactus showing spines that were not burned.  
Bottom: These Teddybear Cholla were sending up new growth from their tips.



shoots growing below them. Several years ago, while driving with other cactus lovers, we saw a huge stretch of desert covered in bloom spikes of hundreds of banana yuccas (*Yucca baccata*). It was twilight so the thousands and thousands of white blooms almost seemed to glow across the desert.

**WILDFLOWERS:**

There is evidence in the arroyos and washes of other desert plants and grasses returning.

**WILDLIFE:**

There was almost no sign of wildlife or insects. No flies or ants or bees were seen in the area. The only animal seen was an emaciated squirrel with lots of fur missing.

What will the future hold? It is very encouraging that some of the native trees, shrubs and plants will be growing in the burn area. Unfortunately, the ongoing drought will certainly impact any regrowth in the area. The

smaller and younger cactus, which were very sparse before the fire, will take several generations or more to be found again in this locale. Hopefully, the larger saguaros that were blooming have not been damaged by the fire and will preside over the desert for many years to come.



TOP: Banana Yucca (*Yucca baccata*) sprouting from base  
BOTTOM: Little leaf palo verde (*Cercidium microphyllum*) showing new growth from the soil line.



# LEGACY OF YOUR PLANTS

David McClellan

Reprinted from the *Central Spine*, June 2021, Central Arizona C&SS

About 15 plus years ago, Steve Miller, a nonmember but still a collector of cactus and succulents, was moving to Little Rock, Arkansas to be closer to family. He called the Fort Worth Botanic Garden to ask about donating some of his plants. The director pointed Steve to Darwin Breaker, then president of the Fort Worth club. The result was Steve donated some 300 plants to the club. Fast forward to a couple of weeks ago. Steve contacted me asking if we would be interested in another donation. Some small to medium size plants, and a few that were reaching roof line of his home including a Saguaro. Yes, he is still a resident of Little Rock, Arkansas. Actually, it is the larger plants that he is most concerned about as he has had them for over three decades. The plants are wrangled into a small greenhouse and his garage over winter and it's a struggle every spring to get them back out.



That got me to thinking about all the vast number of plants we all have. Most of us do not have a history

of decades with a single plant or group of plants, but wait, some of us do. Just like any collection, at some point in our life, what brings us joy must find a new home for others to appreciate. As for plants, a living thing, who will take them? Are there individuals or groups who will care for my collection? When do I start the search for that special individual or group? Do I make an effort to sell my plants that are most likely more personal than valuable?

Finding no good answers to my questions, even on Google, I pulled together a list of suggestions based on legacies used for non-living collections.

- Start with contacting botanical gardens, arboretums, or conservatories. Even if they are hundreds of miles away.
- Donate to clubs or societies with full knowledge that some will be sold off by the organization.
- Sell some of the collection either in person or online.

Some additional suggestions:

- Do your best to label every plant with the scientific name and some survival information.
- Create a list of your plants indicating the common plants to the rare ones.
- Video the collection (smart phones do a great job) giving some information and history.
- Last but not least... make a plan of action.



# KALANCHOES! AN OFTEN OVERLOOKED GENUS

NIKKI MURDICK

REPRINTED FROM THE HENRY SHAW CSSA DIGEST OCTOBER 2021

Vivipary in *Kalanchoe daigremontiana*

By Gmihail at Serbian Wikipedia - Own work, CC BY-SA 3.0 rs, <https://commons.wikimedia.org/w/index.php?curid=86413157>

When one hears the name *Kalanchoe*, most people immediately think of the plant known as Mother of Thousands. They will then state that they don't want that hated plant as it sends its plantlets to reproduce everywhere! But if you are one of those people, you should reconsider as these are a group of fascinating plants.

The first question most people ask is "how do I say that name"? Most books say that it is pronounced as "kah-lan-KOH-ee" although it is also pronounced "kah-LAN-cho" in some areas of the country. I don't think the plants care how we say its name, though, do you?

The genus *Kalanchoe* was first identified in the 1700s by Adanson. He named it based on a Chinese word for one of the species. Others say the name is possibly from India. In early 1900 Raymond-Hamet included two different genera into this group—*Kitchingia* and *Bryophyllum*, both found in Madagascar. Today the genus is divided into two groups—the main group being *Kalanchoe* and the other *Bryophyllum*, which some still consider to be a separate and independent genus.

*Kalanchoe* is a wide-spread and easily introduced genus. It is said to be found from South Africa

including Madagascar, South Africa, Botswana, Namibia, Eastern Cape, Zimbabwe, Angola, and Mozambique to Vietnam and other tropical areas of South Asia. There are many different and interesting plants in this genus with some that we see often at stores and nurseries and others that are quite rare. They are a wonderful group of plants for both beginners and those with more experience as they are extremely varied in their size (from small shrubs to 20 ft. tall plants), their flower color, and their leaf design—there's something for everyone!

## Flowers

All *Kalanchoes* have 4-part flowers but there are two different types. The *Kalanchoe* type have upright flowers with petals that are separate. The *Bryophyllum* group have tubular flowers that sometimes look like hanging bells. Those plants with tubular flowers are endemic to Madagascar although they have become naturalized throughout much of the tropics.

In addition, there are several species within the *Bryophyllum* group that have what is known as adventitious vegetative buds—that is, they produce tiny plantlets from a variety of places on the plants. These plantlets are also known as bulbils or

gemmae. This is the behavior that most of us think of when one says “kalanchoe”! The best known of these plants is *Kalanchoe diagamontiana*, also known as Mother of Thousands.

### Care

*Kalanchoes* mostly grow in xeric habitats, so you need to be careful not to overwater them. On the other hand, during their growing season (in most cases our summer), they need regular watering, usually every week or so. They also need water during the winter although their watering schedule should be reduced to about every two weeks. They do best if they are in well-draining soil, and some say that clay pots which do not hold water are the best options for this type of plant.

*Kalanchoe* are not cold hardy here in Missouri so they must return to the greenhouse or your house for the winter. They do best in temperatures between 50 and 80° F. although they will tolerate our higher summer temperatures if they have plenty of water and well-draining soil. In addition, they do not seem to mind our humidity, so they are a good plant for this area of the country.

*Kalanchoes* do need a lot of sunlight in order to bloom, as they are photoperiodic. They also will become “leggy” if they do not get enough light during their growing season. Although they need the sunlight you must be careful as they will sunburn easily. It is best to give them morning sunlight and then shade them from our direct summer sun. Along with sunlight they do like to have some fertilizer to enhance blooming. They should be fertilized about once a month with a general fertilizer during the spring and summer.

These plants are susceptible to aphids and mealybugs, so be alert after you bring them into your house. Whenever you buy a new *Kalanchoe* it is best to check the roots and leaves for infestation, wash it thoroughly if any suspect is found, and then provide it with new soil.

### Beware!

The one concern many people have is that these plants are toxic to animals. The leaves and the flowers are the culprits, as they contain a chemical compound called bufadienolide (bufadienolide cardiac glycosides). This compound is also found in many of the Crassulaceae family including *Tylecodons* and *Cotyledons*. It is believed that this compound which is a neurotoxin probably evolved as a defense mechanism against grazing animals. The symptoms of poisoning include vomiting, diarrhea, and abnormal heart rhythm. Be sure to keep these plants out of reach of your pets or children.

### *Kalanchoe* in my Collection

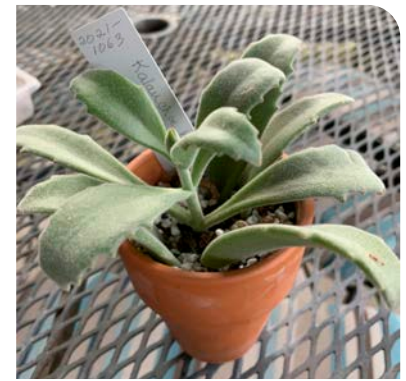
Currently I have 6 different *Kalanchoes* in my collection. They are:

*Kalanchoe behartii* is one of the many hybrids that are on the market. This is a hybrid of *Kalanchoe beharensis* and *Kalanchoe millottii*. It is a small plant with soft fuzzy leaves that are pale grey brown in color.

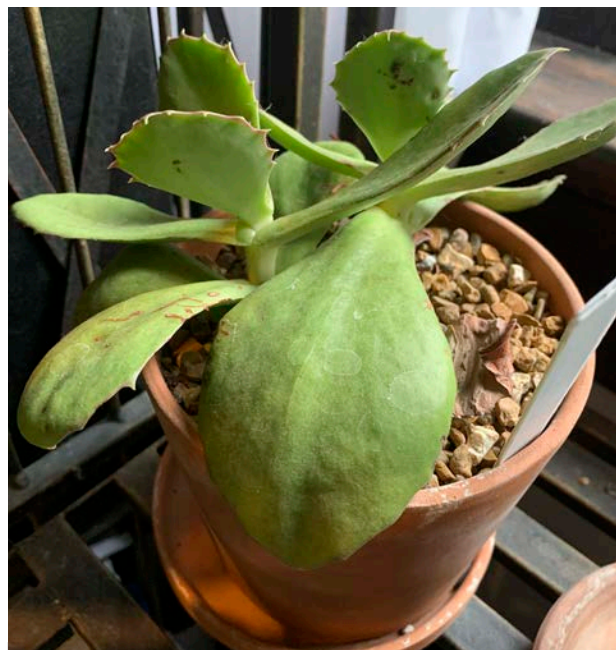
*Kalanchoe blossfeldiana* ‘Calandiva’ is endemic to the country of Madagascar. It is a bushy succulent that can grow up to 1.5 feet tall. It can bear large clumps of showy flowers in white, cream, yellow, salmon, light pink, rose, lavender, red, and burgundy. The flowers can last for up to 6 weeks.

*Kalanchoe tomentosa* ‘Chocolate Soldier’ is a cultivar of *K. tomentosa*, the “panda plant” from Madagascar. This cultivar has pale to medium green somewhat fuzzy leaves with brown edging, thus the name. The color of the leaves can change depending on the light in which this plant is kept. It blooms in the spring with maroon to copper flowers.

*Kalanchoe diagamontiana* ‘Mother of Thousands’ is an upright-growing plant with arrow-shaped leaves which bear tiny plantlets along every edge. It has large blue-green leaves and can grow up to 3 ft. tall. It is from Mexico.



*Kalanchoe behartii* (top)  
*Kalanchoe blossfeldiana* Calandiva’ (center)  
*Kalanchoe tomentosa* ‘Chocolate Soldier’ (bottom)  
*Kalanchoe diagamontiana*



*Kalanchoe katapifa* 'Tarantula' is a succulent cultivar that produces small clumps of pink flowers. It can easily be grown on a windowsill.

*Kalanchoe longiflora coccinea* is from South Africa where it can be found growing along cliff sides in the Tugela basin. It has scalloped red and green leaves that grow on thin stems.

*Kalanchoe synsepala* is a short-stemmed plant with leaves that are disproportionately large. It is unique in the *Kalanchoe* group as it develops stolons from its leaf axis. These elongate and eventually bend down to the soil where they produce new plantlets that root and become independent plants. It is from central and central southern Madagascar.

#### Resources

- Baldwin, D. L. (2013). *Succulent simplified*. Timber Press.
- Court, D. (2010). *Succulent Flora of Southern Africa* (Rev. Ed.). Struik Nature, Random House.
- Driskill, E. (2015). *Kalanchoe—Plant of the Month*. <https://hscactus.org/resources/plants-of-the-month/kalanchoe-2015/>
- Dortort, F. (2011). *The Timber Press Guide to Succulent Plants of the World*. Timber Press.
- Grant, B. L. (2021). *Kalanchoe care—Tips on how to grow kalanchoe plants*. <https://www.gardeningknowhow.com/houseplants/kalanchoe/growing-kalanchoe-plants.htm>

*Kalanchoe katapifa* 'Tarantula'  
*Kalanchoe longiflora coccinea*  
*Kalanchoe synsepala*

Photos, except where noted, by Nikki Murdick

- JoyUsGardens. (2020). A popular succulent houseplant: Caring for flowering Kalanchoes. <https://www.joyusgarden.com/flowering-kalanchoes/>
- Smith, G. F., Figueiredo, & Van Wyk, A. E. (2019). *Kalanchoe* (Crassulaceae) in southern Africa. Elsevier. <https://doi.org/10.1016/C2017-0-00602-X>
- VanZile, J. (2021). How to grow kalanchoe. <https://www.thespruce.com/growing-kalanchoe-plants-1902982>
- Wikipedia. (2021). *Kalanchoe*. <https://en.wikipedia.org/wiki/Kalanchoe>
- World of Succulents. (2015). How to grow and care for kalanchoe. <https://worldofsucculents.com/how-to-grow-and-care-for-kalanchoe/>

# Tips & Spines

Sue Haffner

Cactus Corner News, August 2021, Fresno Cactus & Succulent Society



Ouch! A stab from a sharp cactus spine hurts, but the pain usually is temporary. Botanically, cactus spines are modified leaves, adapted to shade the plant from the desert sun. Look closely at a barrel cactus to see how its tightly laced spines create a nice lattice of shade for the tissue below. (They also insulate the plant's epidermis and collect condensed water vapor so that droplets run down the plant to the soil at the base.) The more "naked" the plant is—that is, that its spines are few and far between—the more protection you need to give it from the direct sun.

Cactus glochids can produce longer-lasting discomfort; these fine, barbed bristles grow in tufts and often surround prickly pear or cholla spines. Some glochids aren't noticeable. Others provide attractive polka dots of color, such as the reddish-brown glochids covering the deceptively named "Cinnamon Bear" or chenille prickly pear cactus (*Opuntia aciculata*). All it takes is a gentle brush against the plant for a clump of glochids to stick to skin or clothing. They break off easily, leaving minute fragments in the skin that cause irritation and pain. The common "Bunny Ears" (*O. microdasys*) is also a prime offender, as it looks so soft but leaves a lethal deposit of golden or red glochids as a calling card. The duration of a victim's discomfort depends on the number of glochids and skin sensitivity.



Teddybear cholla (*Cylindropuntia bigelovii*) (top), Joshua Tree National Park - Cholla Cactus Garden. Public Domain, <https://commons.wikimedia.org/w/index.php?curid=89323209>

*Opuntia* (Prickly Pear) glochids & spine base (above right). Glochids are barbed and break off very easily to penetrate the skin, etc. Magnification X20 Rosser1954 - Own work, CC BY-SA 4.0, <https://commons.wikimedia.org/w/index.php?curid=65158297>

How do you remove glochids?

- ✦ Use tweezers (and a magnifying glass). Glochids are easier to grasp if you can see the affected area horizontally (i.e., hold your hand up to your eye and look across) rather than straight down.
- ✦ Spread household glue over the area, let it dry and peel off.
- ✦ Spread glue, press gauze on top, wait for it to dry, and remove.
- ✦ Press a piece of tape on the area and pull it off.
- ✦ If all else fails, shave the spines off. Yes, you'll leave the remnants under the skin but at least you won't have the spines sticking up and irritating you.

Avoid wearing regular gardening gloves when working with cacti, as they will not shield hands from spines or glochids, both of which poke through fabric and stick into leather. Once the gloves have picked up opuntia spines you'll just have to throw them away. Instead, choose heavy-duty rubber gloves that provide a reasonable barrier against glochids. Garden gloves made with puncture-resistant hardened resin are another option. Originally designed to safeguard health care workers against needle sticks, or industrial workers against chemical spills, these turn out to be good protection against other pointy things. They are probably too stiff for general gardening purposes, but they can be a good investment if you do a lot of work around cacti. You can find them in hardware stores. (Look for Nitrile™ coated gloves.)

Cacti are deceptively heavy. If you need to transport an unpotted barrel or columnar cactus, place it on a sturdy tarp or piece of fabric and enlist an extra set of hands to help, carrying the plant in a sling. If you must do it yourself, though, you can usually drag the plant from one place to another. Some growers have constructed ingenious means to help support and carry cacti.

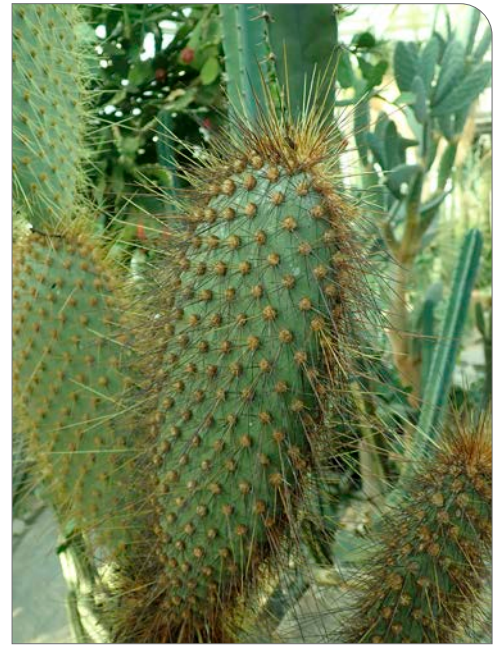
Columnar cacti cuttings: if you've taken cuttings of columnar cacti, don't leave them lying around for very long. If you do, you might find the growing end of the cutting is turning upwards, pretty much ruining the cutting. It would make more sense to stand the cuttings upright in a location out of the direct sun.

Although some cacti can grow to massive proportions, even a little old lady with a pruning saw can bring one down. The plants may look tough, but they're generally pretty soft.

Opuntias, maybe to make up for the annoying glochids, are quite easy to propagate. (Too easy, some may say.) Any pad or cholla joint will root; even the fruits will root. The pads don't even have to be propped upright. Just lying on the ground, the pad can put out roots from any areole.

In fact, opuntias in habitat are so efficient at vegetative propagation—dropping pads and joints everywhere, latching onto passing animals for transport—that many appear to have given up sexual reproduction altogether. Why go through all the bother of producing seeds when you can just detach a few pieces of yourself and get the same result. Jon Rebman, in his studies of opuntias in the Southwest, has uncovered the many shenanigans these plants are resorting to: changing genders—male flowers one year, female the next; producing neuter flowers, sometimes showing all three types on the same plant at the same time! It may be that the neuter blossoms are easier, less effortful for the plant to produce, as they possess no reproductive parts. (But then, why bother blooming at all...? Questions, questions ...)

We may study our plants, claim that we know why they do what they do, and we can usually be right. But then, the plant throws us a curve and we realize that we didn't know as much as we thought we did.



Opuntia galapageia (top), botanical garden in Berlin.

By Salicyna - Own work, CC BY-SA 4.0, <https://commons.wikimedia.org/w/index.php?curid=87360433>

Opuntia microdasys (center)  
Frank Vincentz, CC BY-SA 3.0 <<http://creativecommons.org/licenses/by-sa/3.0/>>, via Wikimedia Commons

Up close photo of the tree cholla, or Cylindropuntia imbricata (bottom)

By Skarz - Own work, CC BY-SA 4.0, <https://commons.wikimedia.org/w/index.php?curid=36017498>

Have you ever eaten a fig? If so, you've already met the family Moraceae. Another genus in that family is *Dorstenia*, one of my very favorite plants, and the only genus in Moraceae to exhibit succulence. You've likely noticed a member of *Dorstenia* at a club show or sale—they make for interesting specimens, often exhibiting stark coloration, textured leaves, and explosive hand-like “flowers” of various shapes and colors. While doing research for this article I was amazed to find so little nonacademic material available about this remarkable genus. So, the purpose of my article will be to introduce you to some common features and interesting facts about *Dorstenia*, info about its culture, and a closer look at some thrilling *Dorstenia* species.

### A large and widespread genus

*Dorstenia* are found in equal numbers in the Afrotropics and Neotropics, as well as in Sri Lanka. There are over 100 accepted species of *Dorstenia*, with new discoveries being made every year. All *Dorstenia* have a milky latex (which often smells terrible), minute flowers, and a unique form of inflorescence. Additionally, *Dorstenia* can either self-pollinate or require a genetically distinct partner, and while most are monoecious, a few species have independently evolved dioeciousness as well. At present, the fossil record of *Dorstenia* is incomplete, so it's unclear if *Dorstenia* crossed from Africa over the landbridge to the Americas, or if the genus traveled directly from Africa to South America during a geologic era when the continents were physically closer together. Generally speaking though, the majority of succulent *Dorstenia* are found in the Middle East and Africa.

### A handy progenitor

The jazzy hand-like flowers of *Dorstenia* are one of its most charming features, and they are oddly enough, closely related to the fig “fruit” we commonly see in stores. Pictured (right) is a fig “fruit,” (Fig 1) as well as a *Dorstenia* “flower” (Fig 2) this one is *D. foetida*. I put those particular words in quotes because neither is a true fruit nor flower, but an inflorescence (hypanthodium), known as a synconium in figs and a pseudanthium in



# Succulent Dorstenia

Der-Shing Helmer  
Reprinted from Espinas Y Flores,  
San Diego C&SS, August 2021

Above: *Dorstenia barnimiana* (Mwarandinda locality) Der-shing Helmer

Right: common fig Wikipedia (CC BY-SA 4.0)

Right, bottom: *D. foetida* hypanthodium  
Der-shing Helmer



*Dorstenia*. Both hypanthia are actually made up of many tiny flowers, whose tiny stamen you can often see if you look at a *Dorstenia* pseudanthium up close. In a fig, the receptacle is completely folded into itself to create the “fruit” we are so familiar with. In *Dorstenia*, the receptacle is open, like a hand. So you can think of a *Dorstenia* pseudanthium to be similar to a fig which has been turned inside out for your viewing enjoyment. Interestingly, recent research suggests that *Dorstenia* might even be an evolutionary precursor to the fig, as some species of flies lay eggs inside *Dorstenia* receptacles in the way that wasps do to the fruit. Neat stuff.



Examples of *Dorstenia pseudanthium*:

*Dorstenia elata* (left)

*Dorstenia foetida* (center)

Photos: Der-shing Helmer

*Dorstenia barnimiana pseudanthium* (bottom)

C T Johansson - Own work, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=19440420>

*Dorstenia gigas* (right) Photos: Der-shing Helmer



*Dorstenia pseudanthium* can take a huge range of shapes, from planar, convex, concave, round, oval, square, lobed, twig, star, boot, or tongue-shaped, and with colors varying from green to yellowish and reddish to violet and brown.

Now that we've gotten that out of the way, let's do a little tour of some of the *Dorstenia* you may find in cultivation.

### Pachycaul *Dorstenia*

Many of the popular *Dorstenia* are pachycaulous, or "thick stemmed" succulent plants.

*Dorstenia gigas* is, as the name suggests, the largest *Dorstenia* species. Found on the Yemeni island of Socotra, wild *D. gigas* cling to rock faces and collect water with their massive bodies. Young *D. gigas* have greenish skin and beautifully prehistoric-looking dark green leaves, and then mature into sculptural plants with pocked white skin. *Dorstenia gigas* are easily propagated from branch cuttings, and also easily grown from seed... if you can find it! While monoecious, *D. gigas* requires two genetically distinct individuals to produce viable seed, and plants can take up to 10 years to flower (given proper care and culture). Since most *D. gigas* available from growers come from rooted cuttings that have been propagated from the same batch of samples collected in the 70's, there is very little genetic variability in these plants. So while you might be lucky enough to see one flower, it's not as likely that you'll be able to collect viable seed, except from a few specialty sources overseas. *D. gigas* gets a bad rap at times, perhaps due to its cost or rarity, but is actually very easy to care for and a forgiving plant to own. It takes a lot of water

in the summer/ growing months, and in our area it sometimes skips dormancy in the winter. While they can be

grown in full sun, I find they stay happiest and leaf the best in bright shaded areas, and can even be grown in the ground with the right type of soil. Friends who cultivate this plant also play with fans, mist, and other ways to simulate the unique climate of Socotra. Definitely a fun and rewarding plant to keep.

*Dorstenia foetida* is another popular *Dorstenia* from the Middle East and North Africa region, and the source of a lot of nursery "riders" due to its prolific and explosive seeding. The seeds also can grow in almost any type of substrate... for a beginner interested in growing *Dorstenia*, I would suggest learning to grow *D. foetida* from seed, as they just require a bit of humidity to really get going. This species produces very large, palm-like hypanthodia which projects stray seeds outwards, and similar to *D. gigas*, green skin that ages to white over time. You can also find a related variety, *D. crispa*, which is a *D. foetida* with wavy leaves. Nursery growers from Thailand have also developed a beautiful and highly variegated version of *D. foetida* which seems to be uncommon in the US, but is definitely worth a google-search. *Dorstenia foetida* has, as the name implies, a rather smelly latex. Despite this, the tuber is eaten in Oman! I wouldn't try it myself.

*Dorstenia gypsophila* is a rare, extremely beautiful *Dorstenia* which I have never seen in person but would like to one day. Coming from only one gypsum-rich small area of Somalia, they are quite attractive, squat white plants with diminutive leaves and spindly red hypanthia.



## Geophytic *Dorstenia*

Geophytic succulents are those where the caudex is located underground. In cultivation, the warty tuber is often lifted to show off its interesting form.

*Dorstenia barnimiana*, one of my very favorite *Dorstenia*, is a diminutive plant found throughout central and eastern Africa, and comes in a variety of forms. The caudex can range from tan to red-brown, the leaves from circular to deeply lobed, and the hypanthodia from a cute “turtle” shape to an elongated spidery form. It’s not a plant that is found or enjoyed widely in the US (based on the last two years of me collecting this plant), but seems to be favored and sold frequently in Eastern Europe and Japan. I’ve read that they have a habit of going dormant at the drop of a hat, and honestly that seems to be the case. But once firmly established (or grown from seed) in an amenable environment, the plant seems to really thrive and enjoy much more water than you would expect. Most of the *D. barnimiana* available in cultivation come from Kenyan and Tanzanian localities, which generally don’t get temperatures above 85°F... seems like it would be a fairly easy plant for many of us to cultivate here in San Diego.

*Dorstenia ellenbeckiana* is a rare plant from Somalia, Kenya and Ethiopia. It has a reddish caudex, small leaves, and produces a (semi-threatening) large red-brown hypanthodium. Yet another plant that is seldom found outside of university collections. My plant recently came out of dormancy, and while *D. ellenbeckiana* requires a genetically distinct partner to produce viable seeds, I am still excitedly waiting for it to flower!

## Other caudiciform *Dorstenia*

There are many other interesting forms of succulent *Dorstenia* available in cultivation! Some of the neat species you might find are *D. lavranii*, a dioecious plant that forms a delightful forest-like thicket in maturity, *D. horwoodii*, which produces tall flowers out of the crown of the plant and looks very much like a miniature palm-tree, *D. cuspidata* var. *longipedunculata*, a plant with massive hypanthodium and a neat warty caudex, and many more.

## Growing *Dorstenia* from seed

*Dorstenia* are sometimes (unfairly, in my opinion) considered weeds because they seed so readily. They are also often accused of seeding only when you don’t want them, and being difficult to grow intentionally. I’ve actually found all the *Dorstenia* I’ve tried (so far) to be easy to seed-- one just needs to provide a ziploc bag or enclosed tray or other humid environment, and the right growing medium. Most seeds I’ve attempted have grown just fine in normal “seedling soil” (sifted 1/16th pumice and coco coir) with some sand added at the top for abrasiveness.

One challenge to grow seed is actually catching the darned things, as they tend to shoot here and yon without much notice. You’ll see them beginning to emerge from the hypanthodium, then an hour later you come back to a hole where your fresh seed used to be. My solution is just to put a



*Dorstenia foetida* ‘Super Clone’ (top)

*Dorstenia foetida* variegata seedling

*Dorstenia barnimiana*

Photos: Der-shing Helmer

little mesh sock (like the kind used at shoe stores) over the plant: this allows it to breathe, is reusable, and most importantly is very handy at catching tiny projectiles.

Why grow *Dorstenia* from seed? Aside from the enjoyment, it's much easier to get a plant with a fat caudex if you grow by seed. Compare below my 2-year old seed-grown *Dorstenia gigas*, with a cutting procured around the same time 2 years ago. Both receive the same care, but the seed-grown *D. gigas* has a huge caudex which the rooted cutting (while healthy), will likely never be able to achieve.

In any case, I hope you liked reading my little write-up about *Dorstenia*! I have been obsessed with the genus for 2 years now, and have a lot more info to share (and am always looking for interesting specimens). Feel free to contact me at my email, [dershing.helmer+dorstenia@gmail.com](mailto:dershing.helmer+dorstenia@gmail.com) if you'd like to chat more about *Dorstenia*!

Sources:

Araújo, L.M. et al. 2017. From anthesis to diaspore dispersal: reproductive mechanisms of rare herbaceous Moraceae species endemic to Brazil. – *Darwiniana*, nueva serie 5: 83-92.

Berg, C.C. & Hijman, M.E.E. (1989). *Flora of Tropical East Africa*, Moraceae: 1-95.

Bihrmann, E.. Bihrmann's Caudex. [www.bihrmann.com/caudiciforms/](http://www.bihrmann.com/caudiciforms/). Accessed June 2021.

Thorogood, C., Dalton, N., Irvine, A., Hiscock, S. (2018). The reproductive biology of two poorly known relatives of the fig (*Ficus*) and insights into the evolution of the fig syconium. *Nordic Journal of Botany*. 36. 10.1111/njb.01832.



*Dorstenia ellenbeckiana* (top, left), with nice dark leaves developing after coming out of dormancy

*Dorstenia gigas* from cutting (center) and from seed (bottom)

Photos: Der-shing Helmer



## *Aloe maculata* - The Soap Aloe

Text by Bob Stewart - Photo by Father Peter Weigand  
Reprinted from *The Eastern Spine*, June 2021, Newsletter of the National Capitol C&SS

*Aloe maculata*, the soap aloe, is a stemless aloe widely found throughout much of southern Africa. In non-frost regions, it is commonly grown as a garden plant, or an outdoor container plant. In the northeast US, it can also be grown as an outdoor container plant but must be overwintered in the house or greenhouse. It grows too large for windowsill growing. The plant in the photograph on the left is being grown by Father Peter as part of his succulent collection at Saint Anselm's Abbey in Washington, D.C.

*Aloe maculata* is a small to moderately sized aloe with thick fleshy, spotted leaves with spiny margins. It produces attractive flowers, the color of which can vary from yellow, orange, pink and red.

Frequently grown directly in the ground as a summer garden plant in frost-free climates, *Aloe maculata* also does well as a container plant. Of course, if you live in an area with below freezing temperatures in the winter, it will have to be brought inside prior to the first killing frost. Standard cultivation includes a sunny location, a well-draining potting mix, watering

whenever the potting mix dries out. Watering with a diluted, water-soluble fertilizer two or three times during the summer is recommended.

*Aloe maculata* is native to South Africa and is called the soap aloe because the sap from the leaves is said to be used sometimes as a substitute for soap.

# At the Desert Botanical Garden RESEARCH & CONSERVATION

The International Union for Conservation of Nature (IUCN) identified cactus as one of the most threatened groups of living organisms, but the Garden is working to protect and conserve these treasured desert plants and many others. The Garden's researchers often collaborate internationally, as well as with federal and state agencies, including the Bureau of Land Management, U.S. Fish and Wildlife Service and the National Parks Service, to protect Arizona flora and habitat.



GARDEN SCIENTISTS ARE FULFILLING OUR MISSION THROUGH PROJECTS IN ARID REGIONS AROUND THE WORLD.

Desert Botanical Garden, 1201 N. Galvin Parkway, Phoenix, AZ 85008 / dbg.org



Often, many viable native plants are simply cleared away with other desert vegetation during construction. Since 1999, TCSS has accomplished hundreds of rescues with volunteers putting in over 39,000 hours. Over 112,185 native plants have been saved and provided new homes throughout Arizona. This video documents some of the work being done.

<https://www.youtube.com/watch?v=dN4sN6tlo3s>

Courtesy of Mrs. Green's World, Preserving the Desert: Sustaining the Planet through Partnerships,  
Published: August 11, 2019

# The CSSA Seed Depot: A Guided Tour

Roxie Esterle, CSSA Secretary

For generations, the CSSA Seed Bank <https://cssa.myshopify.com/collections/seed-depot> has been a reliable source of unusual seeds for growers and hobbyists around the world. Few people, however, realize that this enterprise has always been a one-woman operation.

In 1986, CSSA Board Member Peggy Spaete initiated the project as a volunteer and maintained an efficient, small industry from her home for 9 years, during which she received, organized, and shipped seeds to and from all over the world. In 1995, when she was no longer able to keep up with the work load, Sue Haffner stepped up to take on the assignment. Sue has dedicated herself to that work for over 25 years. As a librarian at California State University Fresno categorizing and managing vast amounts of data, she was ideally suited for the job.

When I learned recently that my husband and I would be traveling near to Sue's hometown of Clovis, adjacent to Fresno, CA, I asked her if we could pay her a visit. Although Sue is well-known throughout the succulent world from her work on the Board of Directors and her regular attendance at shows and CSSA conferences, we were surprisingly the first people who had explicitly visited her home to see her Seed Depot operation.

Sue welcomed us to her large kitchen/breakfast room area which was piled with seed envelopes, mailers, and assorted tools of the trade. From this global command center, which encroaches a bit into neighboring rooms, Sue sends out over 300 packages of seed each year, organizes 400–500 species of seeds in envelopes, and meticulously counts the outgoing seeds on a paper tray using a self-styled paper pusher.



Sue Haffner and her garden

Sue first became interested in cacti and succulents as a child growing up in Minnesota, where she was fascinated by the Johnson Cactus Gardens from Paramount, CA. She moved to Oregon to attend the University of Oregon, where she received her degrees in Library Sciences. After moving to her present day home in Clovis in the 1970s, she joined the Fresno Cactus and Succulent Society. At her first meeting, she volunteered to be the organization's secretary. That was the beginning of her long and productive association with that club. Today, she serves as Past President, Historian,

Parliamentarian, and Editor of their newsletter, Cactus Corner News. In 1995, Sue was appointed to the CSSA Board of Directors, and continued to serve as a Director for 21 years. In 2003, Sue was awarded the CSSA Special Service Award. All this, in addition to currently volunteering at her local hospital, at the university library, writing content for three garden club newsletters, and giving presentations at various clubs in her area.

Through these decades of service to her community and to the cactus and succulent world, Sue has witnessed many changes, including watching computers replace her beloved books in the library. More recently, she has seen dramatic changes in access to seeds throughout the world. Previously, Sue received diverse seeds from Africa and other continents, but with Covid's impact on the mail system and strict conservation laws, most of her seeds come from about 20 collectors in the United States. She regrets that the rigid regulations developed for commercial sellers also apply to hobbyists.

Sue works many hours each week, nearly reaching full time in Spring when new seed

offerings are made available. About 95% of orders come through the CSSA website. Orders are always filled in the order they were received and are sent in padded mailers via first class mail. She is still able to ship seed orders to Asia, Australia, and the Western Hemisphere, but due to strict phytosanitary requirements, Sue no longer sends seeds to the EU. Foreign buyers purchase at their own risk.

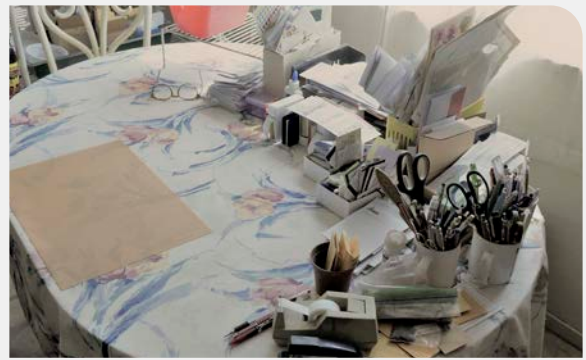
Sue welcomes new seed donors with open arms and her system is built on trust. She will accept the stated genus and species names when available, but would like the donor to declare when seeds are open-pollinated. When species names are not known, a photo is helpful. Seeds should be sent in paper envelopes, never in plastic bags where there is a chance of mold. The seeds don't need to be cleaned, but should be dry and bug-free. Storing mature seeds in the refrigerator prior to sending is not necessary, and frost-free refrigerators are likely to dry them out entirely. Most seeds are viable for at least a year, and some cactus (other than *Astrophytums*) and Mesembranthaceae seeds are known to be viable up to 20 years or more. The tiniest flecks of seeds come from the Crassulaceae. The largest are those of the *Pseudobombax*, which are sold in packages of five.

Sue is frequently asked if there are special tips for growing from seed, but in actuality, she is surprised by the variety of paths to success. For example, *Cyphostemma* seeds are reportedly difficult to germinate. Some say to soak them; other don't soak. One grower simply lets them fall around the base of the plant to germinate on their own. Another grower set up an elaborate rig and hung it in a toilet tank where it could get an occasional drenching. Whatever works! Sue encourages experimentation and having fun, which she is obviously doing.



## CSSA SEED DEPOT

<https://cssa.myshopify.com/collections/seed-depot>



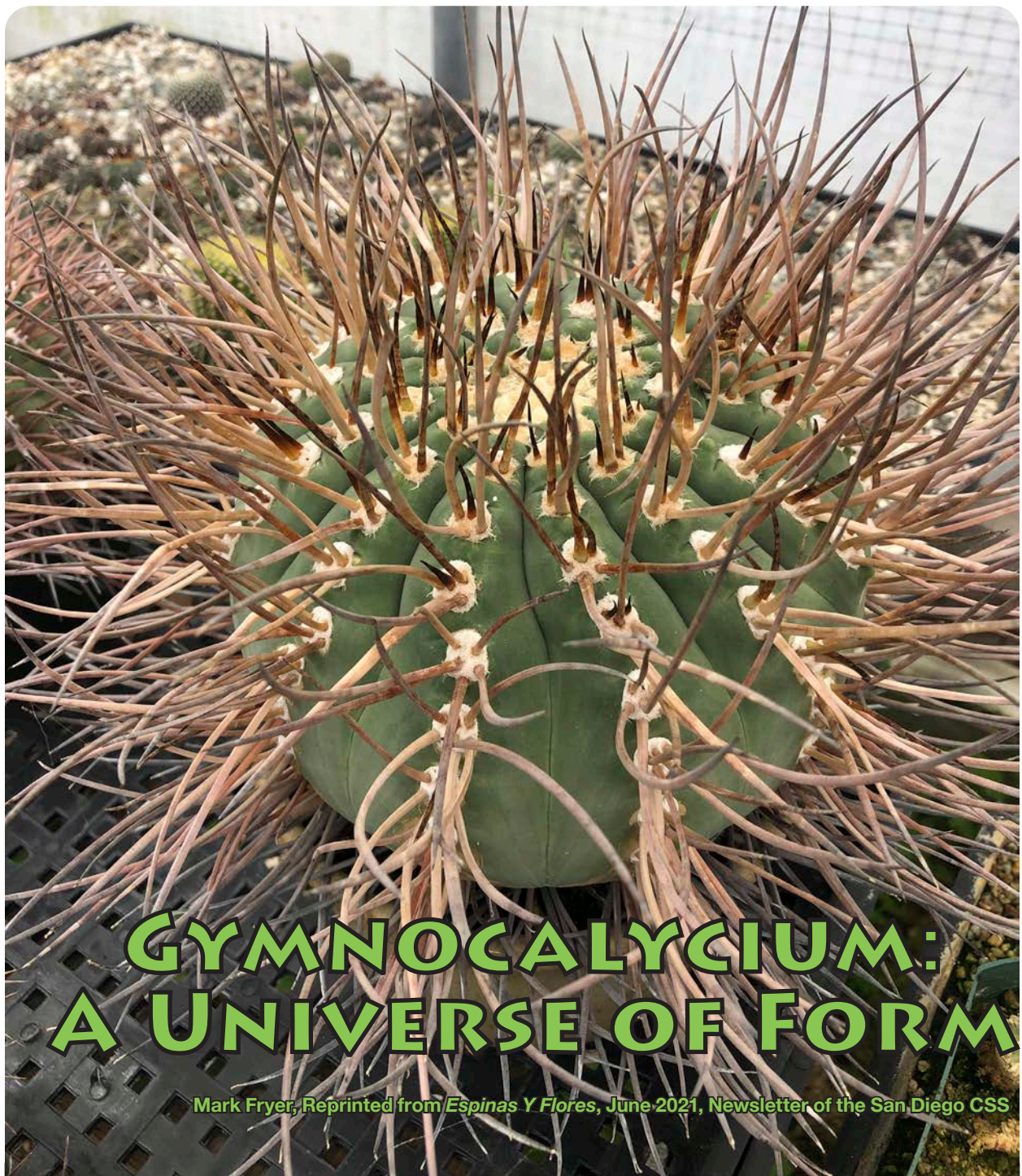
The Breakfast Room Office (top)

Sue meticulously counts seeds and places them in glycine envelopes (center)

Sue receives, alphabetizes, and stores hundreds of seeds packets annually (bottom)

*Pseudobombax grandiflorum*'s seed (left)

Bruno Arine - Own work, CC BY-SA 4.0, <https://commons.wikimedia.org/w/index.php?curid=63889491>



# GYMNOCALYCIUM: A UNIVERSE OF FORM

Mark Fryer, Reprinted from *Espinas Y Flores*, June 2021, Newsletter of the San Diego CSS

*Gymnocalycium cardenasianum* v. *armatum* ex Jüergen Menzel

The name "*Gymnocalycium*" is literally translated to mean "naked bud," one of the more distinguishing features of all plants of this interesting genus. It was named some 70 years before Britton and Rose's attempt at explaining the cactus family in their landmark, 4-volume tome *The Cactaceae*, published in 1922, by Karl Pfeiffer. Many species described as "*Echinocactus*" (meaning a globular cactus with sharp ribs) in the B&R book are actually *Gymnocalycium*, so there's a punt for cactus naming conventions. At the time of B&R's publishing, there were something like 20–25 species of *Gymnocalycium*.

The genus in the wild occupies a wide area of distribution, primarily in Argentina, but also in Paraguay, Uruguay, southern Bolivia, and southeastern Brazil. The type species is arguably *G. denudatum*, and its type locality is in southeastern Brazil.

Widely cultivated for well over 100 years, *Gymnocalycium* enthusiasts continue to have a plethora of new material to play around with, and for anyone interested in the globular cactus, *Gymnocalycium* has to be one of the favorite genera for people to acquire. The first real cactus flower I ever saw was a grafted "Hibotan" that I had

apparently neglected properly on my windowsill many years ago, but I can still recall the enthusiasm for cactus in general and curiosity about *Gymnocalycium* specifically stemming from that event. It was a long, long time ago!

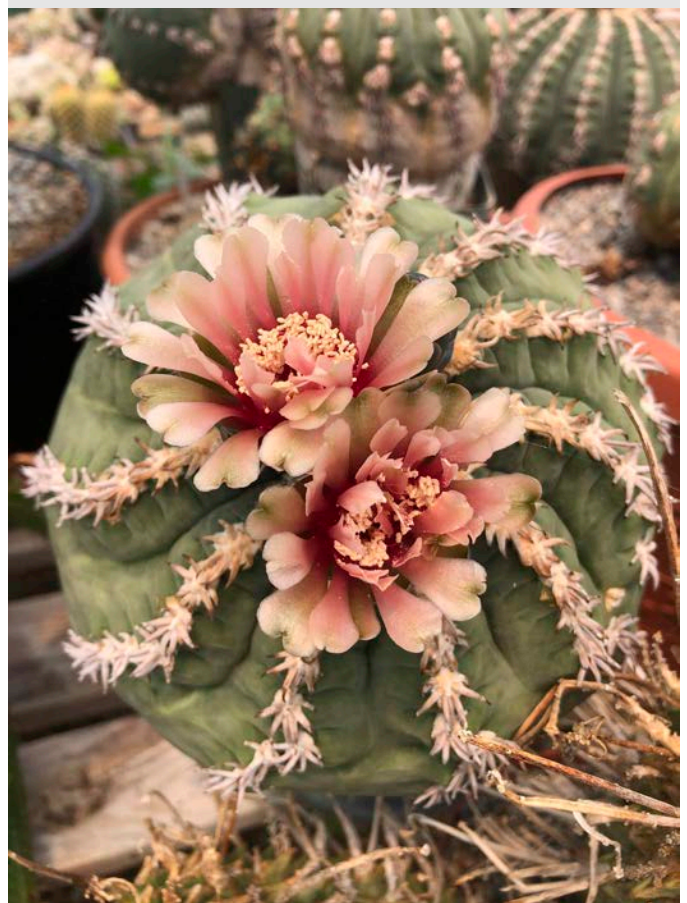
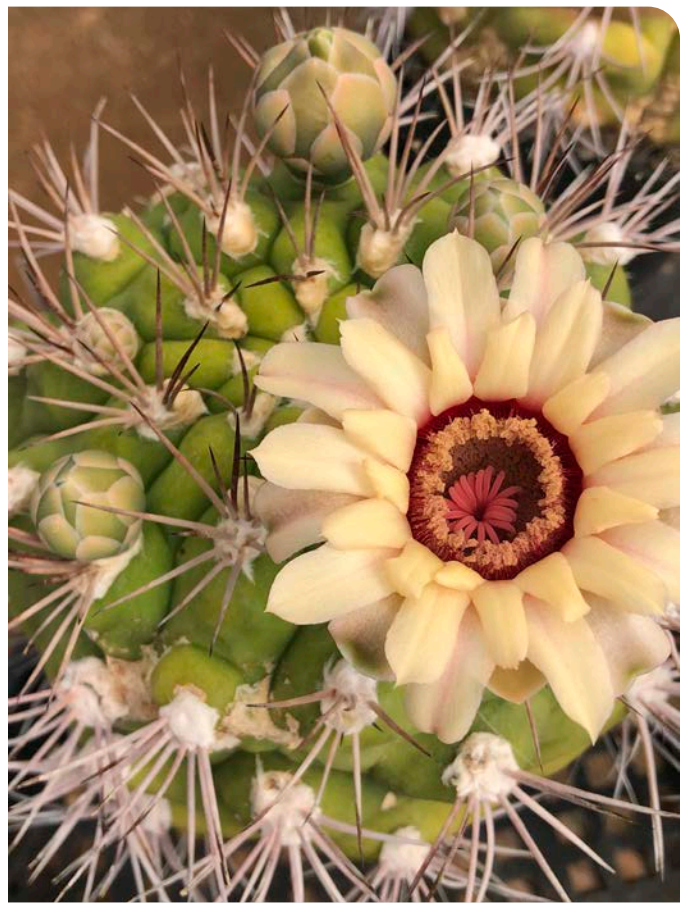
Many years later while botanizing with one of my mentors in Oregon's high desert, we visited a population of very large *Pediocactus simpsonii* that my friend liked to refer to as "those *Gymno saglione*-sized plants." To this day I have yet to lay my eyes on any *Gymnocalyciums* in the field, but I do grow around 40-odd species with a number of varietals mixed in and am constantly observing various traits and experiment with hybridizing and selections.

So, what's in a name? When it comes to *Gymnocalycium*, there's a ton of confusion. I remember meeting Graham Charles about 12 years ago at the nursery, shortly before he published his monograph on the genus, *Gymnocalycium in Habitat and Culture*. He arrived in the greenhouse and said something along the lines (in a thick English accent) of, "Now show me all these made-up forms that don't occur in nature!" Ha! What a great sense of humor!

We were all chewing on the newly described *G. kieslingii*, a close relative to *G. bodenbenderianum*. We were growing things that apparently didn't occur in nature (*G. odoratum*, *G. mihanovicii*, as examples), or that possibly did occur in nature but whoever originally collected them didn't do a very complete job of notating where the heck they found them.

We had an additional issue with names due to the proliferation of *Gymnocalycium* species offered by Jorg Piltz, who collected several hundred distinct forms and made them available annually through his seed offerings; 40 years of seed-raising continues to raise eyebrows to this very day. Of course, any commercial interest in these species left the nursery open to ascertaining various seed collections from European cactus seed dealers, and while some distinct forms clarified certain aspects of the genus, others simply obfuscated it.

As an example of "nomenclutter," confusing names/associations between distinct forms, take the name "armatum." That epithet is associated with both *G. spegazzinii* and *G. cardenasianum*. To further muddle this name is the concept that *G. cardenasianum* is simply a form of *G. spegazzinii*, yet we have a very dark-bodied, black-spined plant in *G. spegazzinii* var. *armatum* versus the very green-bodied, horn-colored spines found



*Gymnocalycium pflanzii marquezii* (above)

*Gymnocalycium cardenasianum*  
cv. 'Cat Claw' (below)

in *G. cardenasianum* var. *armatum*. Consider this when trying to distinguish between *G. friedrichii*, *G. anisitsii*, *G. damsii*, and *G. mihanovichii*! Add to the confusion by supplying copious varieties and what you're left with will undoubtedly leave you scratching your head!

Well-intentioned authors have sought to clarify various sections of the genus to distill a palatable and concise definition of the genus, only to have it turned on its ear with new discoveries and anomalies found both in the wild and in cultivation. So, relax, do the best you can to maintain the records that come with your plants and don't worry too much about whether it's "right" or not, it will likely get sorted out at some point, and if not, maintain a certain level of mystery into the future!

Cultivating *Gymnocalycium* is probably what a lot of us experienced growers would define as standard cactus culture - the vast majority of species are happy being underpotted in a healthy mix of leaf mold and pumice or perlite and coir. When mature, most appreciate regular balanced feeding during the growing season (March–December here in southern California). Gymnos love heat! They tend to sulk at temperatures below 70°F and won't need much water if any (depending on the mix they're planted in) during the winter. Spring and summer in the greenhouse, where temperatures can exceed 100°F daily, they tend to want lots of water and appreciate free root roam. Many will only flower well in fresh mix at high temperatures.

Producing seed is a straight-forward affair, most species produce perfect flowers (having both viable male and female flower parts on the same plant), but there are a few exceptions, most notably *G. bruchii* and her kin, which are all dioecious (separate plants being either male or female), some of the forms of *G. monvillei* (multiform, etc.) are dioecious as well, and I suspect there are occasional dioecious mutants among otherwise normal species, so don't get too upset if you have a plant that simply refuses to set fruit, HE might not be able to!

Growing *Gymnocalycium* from seed is rewarding but sometimes frustrating as numerous species have notoriously small seeds and yield incredibly tiny seedlings for the first year or two; so be sure to check your sowings before you throw them out thinking nothing's germinated, they may just be so tiny you can't really see them! A jeweler's loop or magnifying lens can really come in handy in these cases. Look before you toss! Oh, and just because



*Gymnocalycium variegata* from overseas that lost its roots last winter, grafted it and- viola! (top)

*Gymnocalycium denudatum*- a new seed collection now flowering and producing seed (bottom)



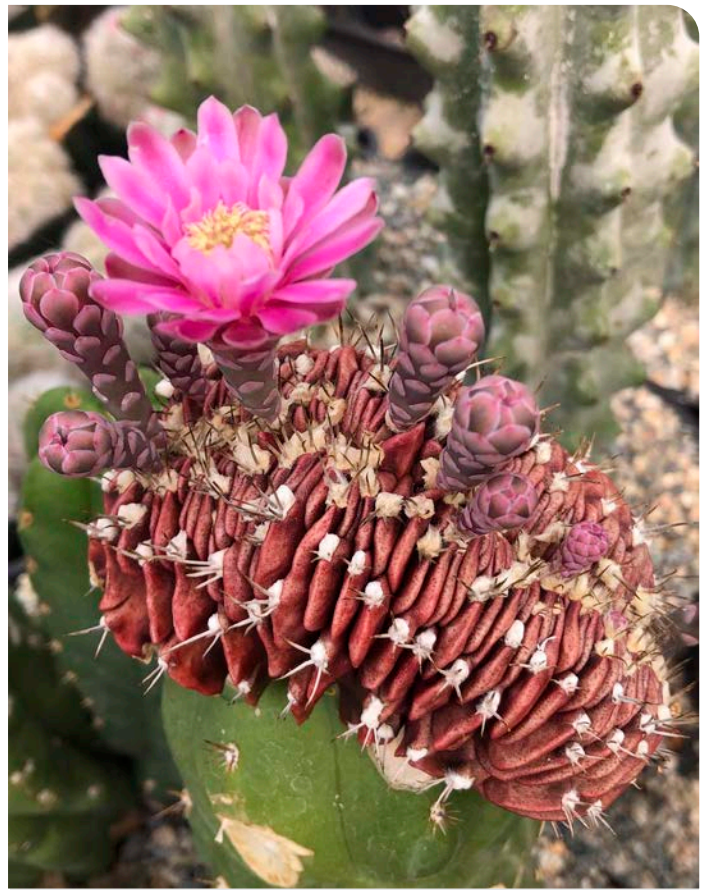
the mother plant is large and enormous doesn't necessarily mean her offspring are going to start off like plump little *Astrophytum* seedlings or anything, species like *G. pflanzii* and *G. saglione* have very small seeds and produce very small seedlings, and they stay that way for the first year or so of their lives. Once they reach a certain point in their development, they really get up and go, and the only thing that will limit their size is the container they're being grown in!

A number of species will only flower well when overpotted, and many of these also have a carrot-like taproot and tend to be somewhat challenging for the novice grower to cultivate. Other species just form typical stringy, rope-like roots and these are the species that are happy being underpotted, in terms of flowering.

There are some interesting fragrances to be found sniffing through a *Gymnocalycium* collection, *G. marsoneri* has a very fruity, rose-like fragrance, *G. odoratum* has a scent like lilac, others are fragrant, but the fragrance isn't particularly welcoming, more like chemical in its nature and not pleasant.

The vast majority of *Gymnocalycium* enthusiasts grow the plants for the body and spine details, which aren't quite as temporary as flowers anyway!

All photos: Mark Fryer



*Gymnocalycium odoratum* with a monstrous flower (multiple stigmas) (left)  
*Gymnocalycium mihanovichii* crest (above, top)  
*Gymnocalycium neuhuberii* (above, bottom)

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- Send submissions as a Word or Google document. Items can also be sent as text pasted into an email body. No PDFs.
- Please limit formatting. Avoid excessive bolding or tabs. Avoid words in all CAPS. Please proofread and spellcheck, esp. names. Preferred word count for articles is 100–200 words.
- Send photos as JPEGs at least 3" wide and 250 dpi. Individually attach photos to emails and submit to Editor. Use of photos is at Editor's discretion. All photos need caption and photographer's name and photographer's permission.
- Send videos as MP4 or as a YouTube link. Videos must have the permission of the videographer.
- Materials and submissions need contributor's name and either city or local C&S branch.
- Reprints are allowed with proper credit to author or photographer, any branch or affiliation credit and credit to *To The Point*.
- 2022 Submission due dates are as follows:
  - Spring - February 1
  - Summer - May 1
  - Fall - August 1
  - Winter - November 1



*Portulacaria afra*

in full bloom in the garden of Moni Waiblinger

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## Mission Statement

CSSA is a community of individuals who are passionate about promoting the appreciation, knowledge, and conservation of cacti and succulents in cultivation and in wild populations.

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