

As Winter approaches and temperatures drop in St. Louis, the gargantuan task of hauling our plants from outside into empty greenhouses, basements and other rooms once again begins. Arranging and rearranging. Will they all fit? We doubt ourselves, but always seem to accomplish the task.

Photo: Don Lesmeister, St Louis, MO

Reprinted from the Henry Shaw Cactus and Succulent Society Digest, September 2020

## TOO MANY PLANTS?

At the greenhouse or a plant sale, I always tell myself, “Go ahead! You love it! Buy it! There’s always room for one more plant.”

It also seems, I can seldom bear to throw a pruned bit of plant into the compost bin. After all, propagation is fascinating.

My tune changes to something much more somber when Autumn comes and it’s time to squeeze all those plants back inside before the cold Midwest winds blow.

What about you? Are you in sunny California and all your plants grow outside? Or, are you in Chicago or New Mexico, lugging your plants in and out with the changing seasons? Do you rely on the sun or banks

of grow lights? What are you successful with in your growing conditions? Please take a moment to shoot me an email and maybe a photo or two! I REALLY want to know!

[Editor, TTP](#)

## A Reminder...

to all CSSA members that the ballot for CSSA directors for next year is in your Fall 2020 Journal. Please vote, your vote counts!

# CSSA News



Old Man Cactus sporting his new PPE. We must protect our most vulnerable.

Ron Parker, Fountain Hills, AZ

## CSSA Memberships and Renewals

### Membership Benefits:

- \* Receive The Cactus and Succulent Society Journal, published four times annually, the only printed C&S Journal in the U.S.A.
- \* Participate in the CSSA Biennial International Convention.
- \* The 2021 CSSA convention will be held in Colorado Springs, CO
- \* Participate in CSSA's members-only Field Trips to native habitats of cacti and other succulents.
- \* Cactus and Succulent seeds from the CSSA Seed Depot
- \* Support CSSA's mission to support the cactus and succulent community through education, conservation, scientific research, and research grants. [Click here to join TODAY.](#)

## CSSA Quarterly Calendar 2020

Full details and updates at

[CSSA Calendar](#)

### October 2020

No Events scheduled

### November 2020

No Events scheduled

### December 2020

No Events scheduled

Zoom Webinars are being scheduled every month with a variety of speakers and topics.

Stay informed  
on upcoming  
CSSA Webinars  
on the  
[CSSA Home Page](#)

### CSSA Officers

Jeff Pavlat, President  
Rod Haenni, Vice President  
Roxie Esterle, Secretary  
Clifford Meng, Treasurer  
Tim Harvey, Managing Editor  
Linda Tamblyn, To The Point Editor  
Gunnar Eisel, Executive Director





## Succulent Dream Garden - Down Under

For many years, Attila Kapitany was an owner in a premier Australian nursery and now he joins wife, Michele, as an author creating books about succulents. Recently, Gardening Australia featured the couple's garden filled with 10,000 plants. Describing the experience Attila said, "The TV crew came and spent over 8 hours filming lots of pieces - including some junk. Thankfully they distilled to less than 5 minutes and edited a piece we are very pleased with!"

You are invited to watch "Attila and Michele's Wonderland" here:

<https://www.abc.net.au/gardening/factsheets/attila-and-micheles-wonderland/12602974>

For more videos on the Gardening Australia YouTube channel, use this link:

<https://www.youtube.com/c/GardeningAustralia/featured>

Video courtesy of 'Gardening Australia, Australian Broadcasting Corporation'.



## De-stress with Huntington Gardens

In this time of pandemic, financial insecurity and social unrest, a few minutes to get away from it all does everyone good. Since most of us can't go in person, John Kawamoto invites you to sit back and enjoy the beautiful succulents at the Huntington Gardens via his video link below.

<https://youtube/DBsPSX3SKA4>

# AFFILIATE UPDATES

## Meet The Affiliates!

### WHERE ON EARTH?

CSSA has over 60 affiliated clubs throughout the United States and beyond, reaching all the way to Australia! Maybe when traveling you'd like to visit an affiliate meeting? Maybe an affiliate has a list of local nurseries posted its on website? Maybe you're just curious about how far and fast this crazy hobby is spreading, even in cold climates?

Check out this [map](#) and find affiliates all around the country, plus Australia, Canada, Mexico, and Europe. Maybe some new groups will want to become affiliates as well.

This [map](#) will be posted on the CSSA website <http://cactusandsucculentsociety.org/> and updated as more and more clubs send in their most current information. CSSA has Affiliates all around the country, plus Australia, Canada, Mexico, and Europe. Maybe some new groups will want to become Affiliates as well.

### HOW DOES YOUR CLUB COMPARE?

Thank you to the 22 Affiliates who returned the 2019/2020 survey form! Here's what we learned from the respondents:

**Dues:** Around the country, affiliate memberships range from \$10 to \$30 per year.

**Club sizes:** Cactus and succulent club sizes range from 7 to 300

**Bylaws:** 94% have bylaws

**Non-profit status:** 50% have 501c3 status

**Liability insurance:** Over 50% have liability insurance

**Directors and Officers Insurance:** Fewer than 20% have Directors and Officers insurance

**Priorities:** Nearly all clubs identified education as one of their highest

Roxie Esterle, CSSA Secretary priorities. Shows and sales were a close second. Another high-ranking choice was socialization and networking.

**Publicity:** Cactus and Succulent Societies are predominantly relying on social networking and the internet for recruiting new members and publicizing sales and shows. Maintaining a mailing list of attendees is much more vital than newspaper ads, flyers, or press releases.

### WHAT'S IN A NAME?

Cactus and succulent clubs have come up with some spine-tingling titles for their newsletters. Here are some hilarious and erudite favorites that will surely prickle your funny bone:

#### Succulent Morsels

Newsletter of the  
Chinle Cactus & Succulent Society

March 2019, Vol 11 No 3

##### March Regular Meeting

Our March program will feature a talk by Kathy Kimbrough that will focus on landscaping with native plants: "Why Choose Natives - the Differences and Benefits of Hybrids and Wild Natives."

Kathy has lived in Grand Junction, Colorado since 1998. She was active in the Master Gardener program with CSU Extension for 16 years. Her experience there lead her to create her own garden consulting and design



Junction. The meetings usually last about two hours. As usual, we will also have a short business meeting, a refreshments break and a plant drawing. Guests are welcome.



#### Cactus Factus

Toronto Cactus and Succulent Club  
Toronto, ON, Canada

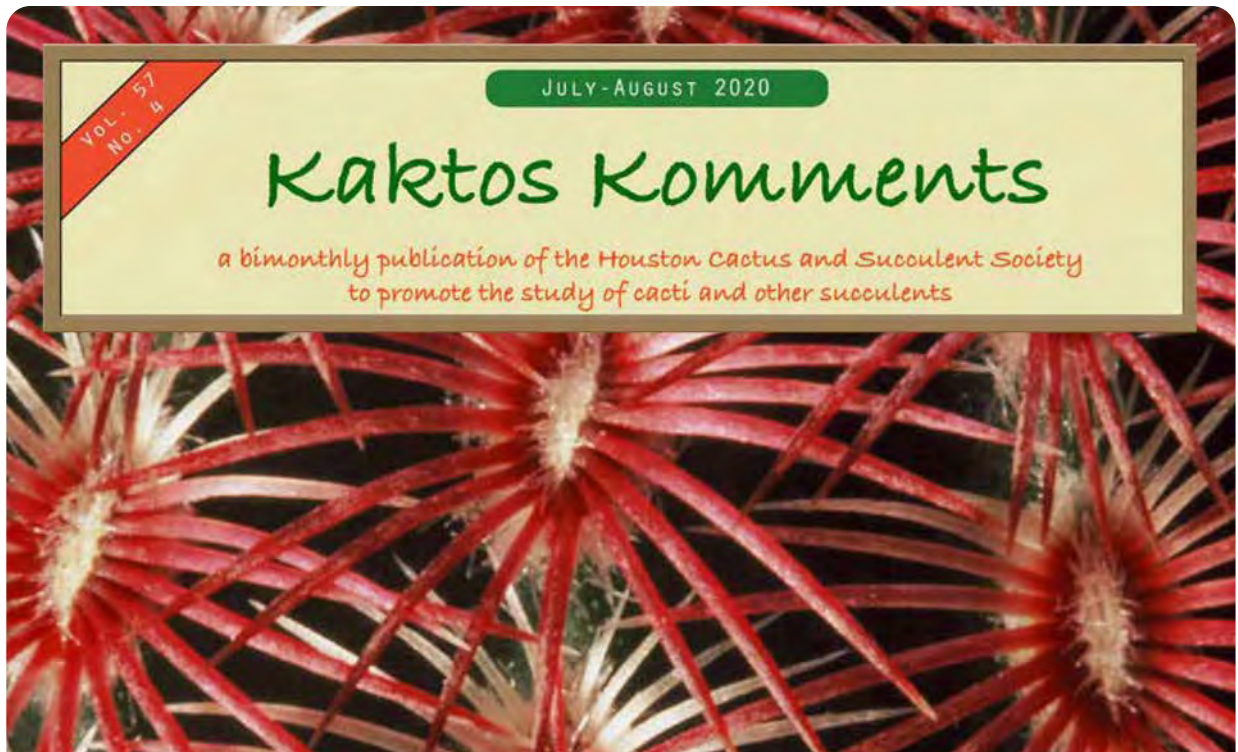
#### Central Spine

Central Arizona Cactus and  
Succulent Society  
Sun Lakes, AZ

#### Cereus Chatter

South Florida Cactus and  
Succulent Society  
Miami, FL





**Kaktos Komments**

Houston Cactus and Succulent Society  
Houston, TX

**Spinal Column**

Michigan Cactus and Succulent Society  
Oakland, MI

**Spine of the Times**

Santa Fe Cactus and Succulent Society  
Santa Fe, NM

**Succulent Morsels**

Chinle Cactus and Succulent Society  
Grand Junction, CO

**The Cacto-Files**

Austin Cactus and Succulent Society  
Austin, TX

**The Dry Times**

Sunset Succulent Society  
Santa Monica, CA

**The Eastern Spine**

National Capital Cactus and  
Succulent Society  
Washington, DC

**The Offset**

Central Oklahoma Cactus and  
Succulent Society  
Oklahoma City, OK

**The Prickly Press**

Kansas City Cactus and Succulent Society  
Kansas City, MO

**The Spine**

Midwest Cactus and Succulent Society  
Cleveland, OH

**Sticky Issue**

Stockton Cactus and Succulent Society  
Stockton, CA



**The Eastern Spine**  
 Newsletter of the National Capital  
 Cactus & Succulent Society  
 Volume XLV, No. 5 May 2019

**(NCCSS Home Page)**  
[www.washington-dc.cactus-society.org](http://www.washington-dc.cactus-society.org)

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Bob Stewart, Editor

# Desert Trivia



- A desert is defined as an area receiving less than 10 inches of rain per year.
- The word “desert” comes from the Latin word *dēserere* meaning “to part company”, “abandon” or “forsake.”
- Deserts can be hot and dry; cold; semi-arid; or coastal. Deserts can have more than one type within their boundaries.
- Approximately 1/3 of the earth qualifies as desert.
- The largest desert is Antarctic Polar Desert. It is a cold desert, with over 5,000,000 square miles. Next is another cold one, the Arctic Polar Desert. The third largest is the hot Saharan Desert.
- The Namib Desert endured arid or semi-arid conditions for about 70 million years, and may qualify as the oldest desert in the world. It boasts some of the world’s driest regions, with only South America’s Atacama Desert as a possible challenger. Because of its age, the Namib may be home to more native plants and animals than any other desert in the world.
- The Sahara Desert can reach upwards of 116°F making it one of the hottest places on earth.

All information was found in various Wikipedia and wikicommons articles



Camel Thorn Tree (*Acacia erioloba*) in Sossusvlei region, Namib-Naukluft National Park, Namib Desert, Namibia, Africa. (top of page)

By Luca Galuzzi (Lucag) - Photo taken by (Luca Galuzzi) \* <http://www.galuzzi.it>, CC BY-SA 2.5, <https://commons.wikimedia.org/w/index.php?curid=1810776>

Desert Fog in the Namib Desert (above)  
By Hp.Baumeler - Own work, CC BY-SA 4.0, [https://commons.wikimedia.org/wiki/File:Desert\\_Fog\\_in\\_Namib\\_Desert\\_\(2010\).jpg](https://commons.wikimedia.org/wiki/File:Desert_Fog_in_Namib_Desert_(2010).jpg)





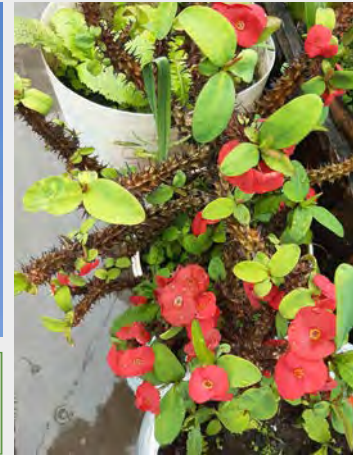
Moonrise over Death Valley north of Furnace Creek, Death Valley National Park, California, USA (left)  
Acroterion / CC BY-SA (<https://creativecommons.org/licenses/by-sa/3.0>) [https://commons.wikimedia.org/wiki/File:Death\\_Valley\\_moonrise\\_2005.jpg](https://commons.wikimedia.org/wiki/File:Death_Valley_moonrise_2005.jpg)

Shipwrecks in the Aralkum Desert (right)  
Adam Harangozó - Own work, CC BY-SA 4.0, <https://commons.wikimedia.org/w/index.php?curid=93116962>

- Death Valley, CA rivals the Sahara Desert for hottest with temperatures known to pop the thermometer at over 120°F on a regular basis! Recently, on August 16, 2020 at Furnace Creek in Death Valley, a reading of 129.9°F may be the hottest temperature ever recorded. (A reading in 1913 of 134°F. in Death Valley has been questioned.) Furnace Creek also holds the record for the highest recorded natural ground surface temperature at 201°F (93.9°C) documented on July 15, 1972).
- The Thar Desert, located between India and Pakistan, is the most populated desert in the world, with about 83 people per sq. km.
- The Aralkum desert is the newest desert on earth. Around 1960, the area in Uzbekistan and Kazakhstan known as the Aral Sea, began to dry up when water from the rivers that once fed it were diverted for an irrigation project. This desert is littered with rusted ships from a once thriving fishing and tourism industry.
- The driest desert may be Chile's Atacama Desert, which receives less than 0.06 inches of rain during some years. Some parts have no recorded instance of precipitation.
- Every year, roughly 45,000 square miles of arable land change to desert due to climate change, forest clear-cutting, rapid development, or poor management. Known as desertification, this change threatens the employment of more than a billion people in 110 countries, according to the United Nations.
- During a 1923 American Museum of Natural History expedition, Roy Chapman Andrews discovered the first known dinosaur eggs in the Gobi Desert.
- Mars is the only other planet in the Solar System, besides Earth, on which deserts have been identified.
- The Atacama Desert is home to some of the biggest and best observatories in the world. The draw for astronomers is the high altitude, clear skies, dry air, and lack of light pollution and radio interference from nearby cities and towns.
- Deserts often contain many mineral resources, like manganese, iron, and copper, giving them their characteristic colors.
- *The Martian*, starring Matt Damon, was filmed in the Middle Eastern desert of Wadi Rum, Jordan. The orangey-red desert is a Hollywood favorite for shooting scenes "on Mars."

Send in your question - or your answer  
- [here](#) TODAY. Send your Q or A to  
[TTP.Editor@gmail.com](mailto:TTP.Editor@gmail.com)

# ASK IT



Q: Why is Euphorbia so diverse in appearance?  
John Kawamoto, Honolulu, Hawaii

*Euphorbia cylindrifolia* (left)

By Oceancetaceen Alice Chodura - <https://commons.wikimedia.org/w/index.php?curid=9487678>

*Euphorbia ingens* (center)

Zeynel Cebeci / CC BY-SA (<https://creativecommons.org/licenses/by-sa/4.0>)

*Euphorbia milii* (right)

[https://commons.wikimedia.org/wiki/File:Euphorbia\\_Milii-crown\\_of\\_Thorns.jpg](https://commons.wikimedia.org/wiki/File:Euphorbia_Milii-crown_of_Thorns.jpg)

## Answers from Summer TTP

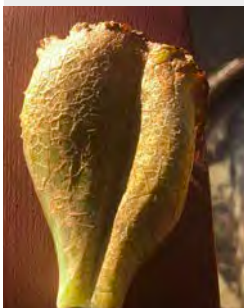
### Response to how to care for *Stephania erecta*.

**A:** Since any species has to grow under a range of conditions in order to survive, it is likely that there will be a similar range of care that growers are successful with. With the ease of publishing one's opinion online what works for some growers looks like "the only" way to grow. Combine that with the variability of culture provided by growers—my watering habits and facilities are different from yours—and you will have many successful ways to grow the *Stephania*.

Start with the natural growing conditions, less than full sun and moderate water, then modify those depending on how the plant responds: partial sun in Thailand is not equal to partial sun in Wisconsin, for instance; soil taking too long to dry out, then water infrequently; vines stretching, more sun; etc.



### Response for explanation of leaf corkiness.



**A:** I would have to ask for a better photo or, better yet, a sample. The corkiness of the cuticle could be an environmental issue such as spray damage, heat, or desiccation. I would also want to check for foliar thrips or other potential pest problems.

Answers from: Timothy J Malinich, Horticulture Specialist  
Assistant Professor, retired  
Ohio State University Extension



## In The News

# Cactus moth now in Texas, eating prickly pear cactus, a vital weed needed by livestock during drought

Michael Merchant, Ph.D., Texas A&M AgriLife Extension Service urban entomologist

<https://agrifetoday.tamu.edu/2020/03/06/a-prickly-situation/amp/>



Prickly pear cactus has its detractors. Long hated for its clusters of barbed spines, or glochids, that are difficult to remove, it has been cursed, hacked, burned and sprayed.

But prickly pear is also used by a variety of wildlife and cattle and is prized as a part of the Mexican-American diet. There is even a small industry devoted to rearing insects, called cochineal scale, that feed exclusively on prickly pear. These scales produce a vivid red dye, called cochineal or carmine, sometimes used as a natural coloring agent in cosmetics and beverages.

### Prickly pear invaders

Unfortunately, a small moth called *Cactoblastis cactorum*, or cactus moth, poses a new threat to the ecological stability of prickly pear in Texas. The cactus moth is a predator of prickly pear in its native home of Argentina. It was distributed by humans into the Caribbean in 1959. Since then, it has expanded its territory slowly through Cuba and Florida, and most recently Louisiana and Texas.

### The reliable weed

There are over 100 species of prickly pear native to the Americas, and most are not considered pests. Though ranchers may curse prickly pears as “weeds,” they also rely on them to provide emergency food for cattle during times of drought. In addition, many insect and vertebrate species rely on different kinds of prickly pears for food and shelter. Despite our sometimes love-hate relationship, many Texans view the various prickly pear species as valuable native plants.

### Cactus moth now found in Texas

The bad news is that cactus moth has now become established and is spreading in Texas. According to reports, the moth appears to have leapfrogged over the Houston area into Brazoria County and is now established as far south as Mad Island, east of Victoria. According to Robert Vines’ book, *Trees, Shrubs and Woody Vines of the Southwest*, over 50 native species of prickly pear can be found in Texas and surrounding states. It is not certain how many of these species might ultimately be affected by the new insect invader.

The problem with invasive species is that natural control agents are often left behind in their country of origin. When this occurs, the invading species is free of ecological restraints to reproduction. This seems to be the case with the cactus moth. Its impact on prickly pear is much worse here than in its native home.

Entomologists hope that a tiny Argentine wasp, *Apanteles opuntiarum*, might be enlisted in the struggle to preserve native prickly pear. The wasp parasitizes its host by inserting eggs into the body of the caterpillar with its long ovipositor. The wasp eggs then hatch and begin devouring the caterpillar from the inside. Research is being conducted to learn how to rear this tiny parasitic wasp and learn whether it might be safe to release into Texas.

Ultimately, if the cactus moth continues to spread, it could have an effect on ornamental cacti grown by Texas gardeners. Of course, for gardeners there are a variety of insecticides that can be sprayed on cacti, but who wants to have to do that? Let’s hope that the Argentine wasp can come to the rescue and tip the scales in the favor of the cactus.



*Mammillaria hahniana*  
Photo: Thomas Glavich

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## Beginners Guide to Straight Spined Mammillaria

Thomas Glavich, Altadena, CA

Straight Spined *Mammillaria* are wonderful plants for the beginning cactus grower. They are readily available appearing in garden centers, home centers and most nurseries, are inexpensive and many grow quickly, given modest care. Many of the species clump readily and can be easily propagated from offsets allowing the beginning grower to hide the mistakes of early care while preserving the plant in a collection. Best of all as the grower becomes more confident many of these will grow into impressive garden and show plants. As with other *Mammillaria* they are generous with flowers and seeds; the seeds germinate readily and many once rare species end up in unlikely places like home centers, supermarkets, and hardware stores. It's worth keeping an eye out for unusual specimens but beware of names found on discount store plants.

The most important feature of the straight spined *Mammillaria* is the dense colorful

spination. Preserving and encouraging the quality of the spination is the focus of all of the cultivation practice. Almost all of the straight spined *Mammillaria* come from areas of intense light. To keep the spines looking as they should you want the plants to grow only when the light is very bright. *Mammillaria* naturally will go dormant as the day length and night temperatures begin to drop in October. They will normally come out of dormancy when the day light is stronger and the night temperatures start to warm in March. A good rule of thumb is that if the night temperatures are consistently under 50°F then *Mammillaria* should be dormant.

Dormancy doesn't mean dark. Even in winter and even while dormant these plants need as much light as they can get, particularly if you live in areas where the winter light is weak or there are a lot of overcast days. Dormancy does mean withholding



water. *Mammillaria* above seedling stage can easily go from November to March with no additional water. A light watering in early December and the end of February does no harm as long as the conditions are warm and bright. If the plants are brought out of dormancy before the growing conditions are right, they will start to grow into conical instead of spherical shape. This is called etioliation.

*Mammillaria* will grow out of slight etioliation but if you get to May and a plant still has a conical shape it's best to whack off the top of the body. The remaining body will quickly form pups and these will hide the damage within a year. Cutting off the top of a cactus is easier than it appears. All you need is a very sharp knife (sharp enough to cut a tomato without using the point of the knife). Hold the top of the plant, using tongs or a newspaper, and simply slice straight across the plant about half an inch above the soil line. Put the plant in the shade for a few hours, to let the surface dry and then move the plant back into good growing light. Good light and dry moving air will almost guarantee success. The cut area will be ugly for a while but pups will soon hide the cut area. Keep the cut area dry. The cut top can be left to dry for a week or so and re-rooted or discarded.

Many cacti are sensitive to the rate at which water is given in the early days of spring. *Mammillaria* in general are not, and as long as the amount of water is not extreme no problems will be encountered. Once dormancy is broken the secrets to good growth are a continued and uniform supply of fertilizer and water during the growing season, bright light, and maintenance of a clean and insect free growing environment.

The appearance of white mealy bug egg cases (*Mammillaria's* worst enemy) on the tips of the spines or the appearance of ants means that mealy bugs are sucking the sap and life of the plant. Immediate treatment is required, with a thorough washing, and spraying



*Mammillaria longimamma*  
Photo: Thomas Glavich

with an insecticide. A less toxic solution is to soak the entire plant in soapy (dish detergent is great) water overnight. Insect pests should be removed even if the plant is completely dormant. Mealy bugs never go dormant and will happily eat your plant all winter. The danger to the plant from the insects far outweighs the danger to disturbing roots and watering a dormant plant. If nothing is done, the insects will quickly spread throughout your collection.

It is also important to keep the plants weed free. This is less appealing task with a sharply spined *Mammillaria* than it is with a collection of *Haworthia*, but it really isn't hard. Weeds are easy to remove when small. Long tweezers and long needle nose pliers are available in any hardware department. They can easily take care of small weeds. If a plant is badly overgrown with weeds it's easier to take it out of its pot, pull the old soil and weeds out and start again. It's also safer for both you and the plant.

Propagation of *Mammillaria* is easy. Cuttings can be taken at any time during the growing season (April to early November), left to dry for a few days and replanted in a clean potting mix. Rooting is rapid with short



*Mammillaria discolor*  
Photo: Thomas Glavich

white roots generally appearing after a couple of weeks. Rooting will continue slowly even while the plant looks dormant.

*Mammillaria* are one of the easiest species to grow from seed. The seeds are simply placed on top of a damp potting mix, covered with a light coating of gravel, placed in a plastic bag in bright light, but out of direct sun and allowed to germinate. Germination usually occurs in a week or two. Warm weather is needed, with May and June providing the best germination and the most rapid growth. The seedlings can stay in the plastic bag for several weeks until they get large enough to survive unprotected and should then be removed to a still shaded, but brighter and drier environment. Most will survive and grow quickly.

Three very different *Mammillaria* are shown

with this article, but they just begin to show the variation that exists in the Straight Spined *Mammillaria*. *Mammillaria longimama* (pg 11) is from Hidalgo, Mexico. This is easily grown, not often seen in collections, and makes great clumps in a fairly short time (4 or 5 years). *Mammillaria hahniana* (pg 10) comes from central Mexico. The spines on this species are so soft it could easily be used as a pillow. It is the most petable of all cacti. It takes a couple of years to offset, but once it starts it can fill a 10-inch pot in just a few years. For best appearance, keep water off of the spines. There are single headed clones of this species in cultivation as well. *Mammillaria discolor* (above) is native to Hidalgo, Oaxaca, and Puebla Mexico. It is a great species to grow from seed. It is a single headed species that will grow to 8 inches or more in height and about 4 to 5 inches in diameter.





## Cactus Flats, Maryland

Bob Stewart, St Mary's County, MD

Prior to moving to St. Mary's County, I called my property Cactus Hill, as my first winter hardy cactus bed was built on a low hill on the property. Our new property in St. Mary's County is completely flat, hence Cactus Flats.

I have been playing around with outdoor plantings here in Maryland since the early 1980's. I started with a bed at my sister's, I lived in an apartment. I had one at my office for a few years. My wife and I had our first house built in 1993 on three acres of sandy loam soil in southern Maryland. I had a large winter-hardy planting (top) there until 2016 when we moved to a smaller, one-acre property. I am planning to put in a relatively small hardy planting here next year. I am working on the layout and soil now. I don't have a greenhouse. I actually don't have a tremendous number of plants. Yes, maybe more than an average grower, but I am limited by over-wintering space. All my plants are outside during the frost free period of the year. I overwinter many of my plants in two 5x8 ft. heated cold frames (bottom).





A commemorative bench on the Epi Trail, surrounded by epi cultivars, bromeliads and orchids

## EPIPHYLLUM TRAIL AT THE SAN DIEGO ZOO SAFARI PARK

Jerry Moreau, SDES Safari Park Coordinator and Newsletter Editor

While the San Diego Zoo Safari Park is best known for the wildlife in its care, it is also a botanical garden and what a garden it is! Located near Escondido, CA, the Safari Park includes a variety of garden habitats and plant collections that are important elements of the park's integration of animals and plants.

Thousands of hybrid *Epiphyllums* and epicacti species are included in the park's cactus and succulent collection. For more than 45 years, the San Diego *Epiphyllum* Society has partnered with the park's horticulture staff to display and provide cultural care for the *Epiphyllum* collection.

In 1976 shortly after the Park first

opened as the Wild Animal Park, SDES members collaborated with park horticulture to establish an *Epiphyllum* collection and build display houses. The founders of SDES wished to encourage the study and growing of epiphyllum cultivars and related epiphytic cactus species and partnering with the park provided a unique opportunity. The mission of the collection is to preserve the past, protect the future and educate about epiphytic cacti and cultivars. Through this display we continue to develop public support and enable an exchange of ideas on growing, displaying, and collecting epiphyllum cultivars and their related species.





*Epiphyllum 'Roseus Superbus'* (above), an epi cultivar hybridized in 1846.  
A beautiful specimen of *Rhipsalis grandiflora* (bottom).

Over the years SDES volunteers have been the primary force in providing cultural care, maintaining inventories, creating displays and problem-solving the unique challenges of caring for

thousands of plants. In addition to donating their time, experience and knowledge of the plants, the majority of the plants in the collection have been donations by members of the Society.





Epiphyllum cultivars on display (left). Yellow flowers on *Epiphyllum* 'French Gold'.  
*Epiphyllum* cultivars and *Tillandsia* (right).

The display area has taken on different forms over the years – from a glass house and a variety of shade houses to today’s more natural outdoor display in the *Epiphyllum* Trail. This display opened in May of 2018 and is filled with epi cultivars and epiphytic cacti as well as companion plants such as ferns, begonias, orchids, bromeliads, and of course trees. This is an attempt to mimic a more natural environment where these plants can be found. The display is open year-round and has thousands of visitors each year.

As the Trail is outdoors it has been an experiment to see what plants will do well in this new location outside of a shade house. The environment has a wide temperature range: winter nights can be

freezing and summer days can be in the mid to upper 90s and even higher as well as very dry. This makes it challenging to get some species to bloom; for example, *Epiphyllum chrysocardium* doesn’t like temperatures below 65 degrees.

While the *Epiphyllum* Trail displays about 500 plants from the collection, the rest are grown behind the scenes in two work houses. The collection consists of a large number of cultivars, a small collection of dragon fruit hybrids, and epiphytic cacti species such as *Aporocactus*, *Disocactus*, *Epiphyllum*, *Lepismium*, *Pfeiffera*, *Rhipsalis*, *Selenicereus*, and *Weberocereus*.

Much of the collection was lost to frost in the 1980s. Since then a temperature sensitive irrigation system has been installed in





*Epiphyllum* 'Amaranthinus', an epi cultivar hybridized in 1861.

the work houses and along the *Epiphyllum* Trail. The irrigation system automatically turns on when the temperature hits 28°F and remains on until the temperature rises. This doesn't happen every winter but when it does the system has saved the collection. Now only the more sensitive plants suffer very minor damage.

The collection has an incredibly diverse group of cultivars spanning almost 200 years. From the first European collectors and hybridizers in the 1800s to today's contemporary hybridizers in California, Australia, New Zealand, Germany, Sweden and Japan, the park's collection is an internationally unique group of plants.

We are fortunate to be able to work with other organizations to maintain this collection – primarily with the *Epiphyllum*

Society of America based in Los Angeles. Through this relationship we coordinate with ESA's curator of the Pentico Collection which is housed at the Los Angeles Arboretum and Botanic Gardens in Arcadia. To ensure preservation of rare plants we trade and share plants with them as well as cultural notes on best growing practices for the continued success of species and cultivars

To learn more about the *Epiphyllum* Trail and to read a ZOONOOZ article about the Trail, please visit <https://animals.sandiego-zoo.org/plants/epiphyllum>. For more about the San Diego Epiphyllum Society, please join us at <https://sdepis.org/>.

Zoo information, hours, admission prices can be found at: <https://www.sdzsafaripark.org/%0D>

All photos by author





The only Saguaro cactus that are hardy here in Zone 5 are cypress topiaries. This one, shaped from *Thuja occidentalis* 'Smaragd' or 'Emerald Green', was spotted at a nursery in Overland Park, Kansas.



# TIPS, TRICKS AND ANECDOTES

## Cinnamon on the Potting Bench

Linda Tamblyn, [KC Cactus and Succulent Society](#)

Not only does it smell great and taste delightful in the kitchen, cinnamon is also useful in a potting area. After a rotted portion of caudex has been pared down to healthy tissue, dust cinnamon on liberally to mitigate further damage. When making cuttings, cinnamon is a quick and efficient styptic for the wound on a cutting and seems to help with the rooting process, also. If a plant or seedlings should show signs of mold, sprinkle it where, and as needed. I've been told it does a number on gnats, too, though I haven't tried it for that.



↑ After major surgery for soft rot on this *Dorstenia lancifolia*, I poured some cinnamon on the cut and I'm hoping for the best. The rot has stopped and the remaining stem is hard. This photo was taken about 3 weeks after the procedure.

Help us out. What have you found that improves your growing? Send it today to: [TTP.Editor@gmail.com](mailto:TTP.Editor@gmail.com)

## CSSA's Investment in the Santa Barbara Foundation

Annual gifts are the lifeblood of every non-profit. Your generous donations provide operational and capital support necessary for the long-term financial health of CSSA.

The Cactus & Succulent Society of America's Endowment Fund is currently held by the Santa Barbara Foundation, a nonprofit community foundation. The Endowment Fund is held intact and invested for long-term growth, the earnings of which may be used to advance the CSSA's mission objectives.

CSSA has been offered a generous

Clifford Meng, CSSA Treasurer

matching pledge up to \$50,000 from one of our loyal members. During 2018 and 2019, we were able to meet this goal. So far, in 2020, we have raised \$35,600. To reach our goal, we will need another \$14,400 by December 31, 2020. This is a wonderful opportunity for you to double your gift to CSSA. The names of the donors are published in the CSSA Journal as part of a list thanking all our generous supporters.

Donation link: <https://cssa.myshopify.com/collections/donation>

**MAKE A DONATION TO CSSA**

**SUPPORT THE MISSION**

**AND PROGRAMS OF CSSA**



Careful consideration of top dressing and container choice reflect and enhance the naturalistic habitat of this *Sansevieria eilensis*, grown by Joe Webb.

Photo Irwin Lightstone

## Finishing Touches

Bob Smoley, Prickly Pages, Greater Pittsburgh C&S July 2000

It is surprising and at times amazing how much beauty and value ten cents worth of top-dressing can add to a plant. Believe it or not, this ten cents could even be the tie-breaker in a show plant (even though it shouldn't be).

Top-dressing a plant with a color-coordinated stone that picks up or contrasts the color of the show plant tells the viewer, who could be the judge, that the grower of this plant is putting forth an added effort in showing and displaying his or her prized specimen. As a grower, I find that an attractive top-dressing also increases the value of the plant. If two identical plants were side by side, I could easily receive an extra dollar for the plant that is attractively top-dressed. But where does one get all of these rocks and pebbles? I will try to point everyone in the right direction, and as you will see, a strange direction at times it will be.

Two of the most unlikely places to find top-dressings are your local feed store and sandblasting supply houses. Others that are more recognizable would be pet and tropical fish stores, and of course, your local garden centers and nurseries. At the feed store, you can find what is called chicken grit. This is a crushed granite that is fed to chickens to harden their egg shells. It comes in two or three sizes, the smallest size working just fine to dress 2-3 inch pots for lithops. It also works well to top-dress freshly sown seed, but be sure to use only a thin layer up to an eighth inch. The larger size of grit is OK for pots up to six inches or so. Since it is granite, the rock is a grayish silver color with a bit of a sparkle to it.

Moving on to the sandblasting supply yard, we found a number of choice toppings available. Q rock, which comes in four grades, or sizes, is great for smaller pots and is inexpensive at



seven to eight dollars for a hundred pound bag. Number 2 Q-rock is also great for covering newly sown seeds. Another sandblasting rock, black beauty, is a byproduct of the steel industry and is a shiny, jet black glass. Black beauty is really sharp looking when used to top-dress small pots of lithops and mimic plants, and provides a striking contrast color for echeverias and other succulents. Finally, some sandblasting supply yards sell a small graded river gravel that is about an eighth inch in diameter with nice earth-tone colors that look great on any pot.

Let's travel next to a good, nice-sized pet supply or tropical fish store. Here you can find some really fantastic looking aquarium gravels in almost any size or color. Some that are especially nice looking are the epoxy stones that have a nice, clean shine to them. You can also find crushed quartz that is very natural and clean looking. Also available is volcanic rock, which usually comes in only a few sizes and in black, brown, and shades of dark red. The heavier grades are very good for pot sizes of six inches and larger.

Well, what's left for the garden center or nursery to sell? Well-stocked garden centers should stock many of the tropical fish gravels and small pea gravel. They might also have pumice, which can be used as a great soil additive for cactus and succulents and a top-dressing as well. A more recent product that is good for large pots is expanded clay, which are small pieces of clay that have been heated and popped, much like popcorn. Also available for larger pots are various grades of crushed marble.

If you want to get really exotic and a bit expensive, travel now to your local gem and mineral store. Here you might find crushed chips of amethyst, quartz, rose quartz, citrine, agate, and many others for those extra special plants on which you need to spend that dollar in the back of your wallet. Larger pieces of gems and minerals also make really nice accent pieces in mixed plantings. Try an all succulent planting of echeverias, crassulas, kalanchoes, or any other succulents in a low, natural clay bowl top-dressed with a clean, white aquarium gravel and accented with a few pieces of amethyst crystals and iron pyrite



An attractively potted and topdressed collection.

Photo Courtney Martinez

(fools gold) and you have an exquisite planting.

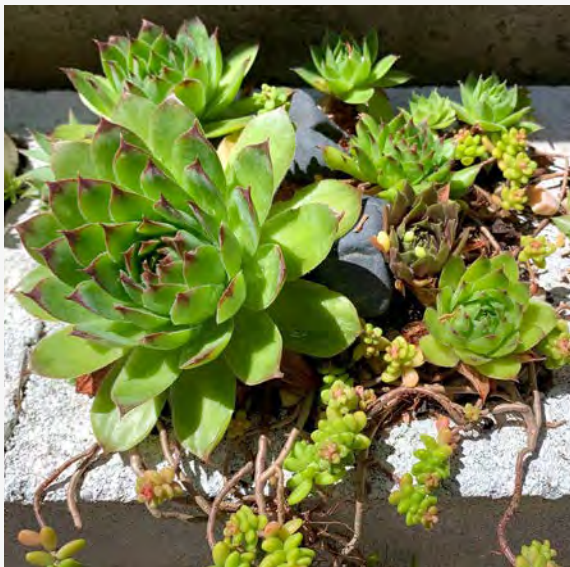
There are some practical reasons for top-dressing your plants. First, as a fine topping over newly-sown seed. Since seedlings should be kept moist at all times (in most cases), the top-dressing helps keep moisture in so you don't need to water as much. Best of all, the pots that have been top-dressed will show a lighter color as they dry out on the surface compared to the darker color of ones still moist, making it easy to tell when to water. In larger pots, the top-dressing helps hold down the germination of weed seed, which makes for a lot less work later.

One final comment, wash the top-dressing material and let dry before use. This removes any impurities and finer dust particles that may be present. And please don't add any of that glue, cement, or whatever it is that the mass producers use to hold the top-dressing in place for shipment - it's not good for the plants and is really tacky. Happy Growing!!



# Weekend Projects

The Point August 2020 Cascade Cactus and Succulent Society of Washington State



## Cinder Block Planters

↑ These are perfect for narrow pathways to add a bit of life to an otherwise “blah” area; such as Cindi Hibert did for her back doorway. They’re great for small space living as they’re modular and can be stacked in many different ways. You can choose to leave them unpainted, or in this case she ended up painting them with a white, matte spray paint. Most importantly, she recommends adding a generous amount of rocks to the bottom to ensure good drainage.

## Free Plant “Libraries” →

Pam, from the Tacoma Houseplant Club, modeled this idea (to the right) on the Little Free Libraries found throughout Seattle and Tacoma. “I’m constantly giving away cuttings and I even receive porch drop offs from folks with notes “please help”. So I figured this was a good way to share with others!”

She calls her library, Takehomea Plant. “In the few weeks it has been up, I would estimate 300+ plants have gone through it! I constantly see people stopping to drop off or pickup and I’ve never once seen anyone take everything in it. People have even dropped off veggie starts and flowers in front of the box for folks to take home!”



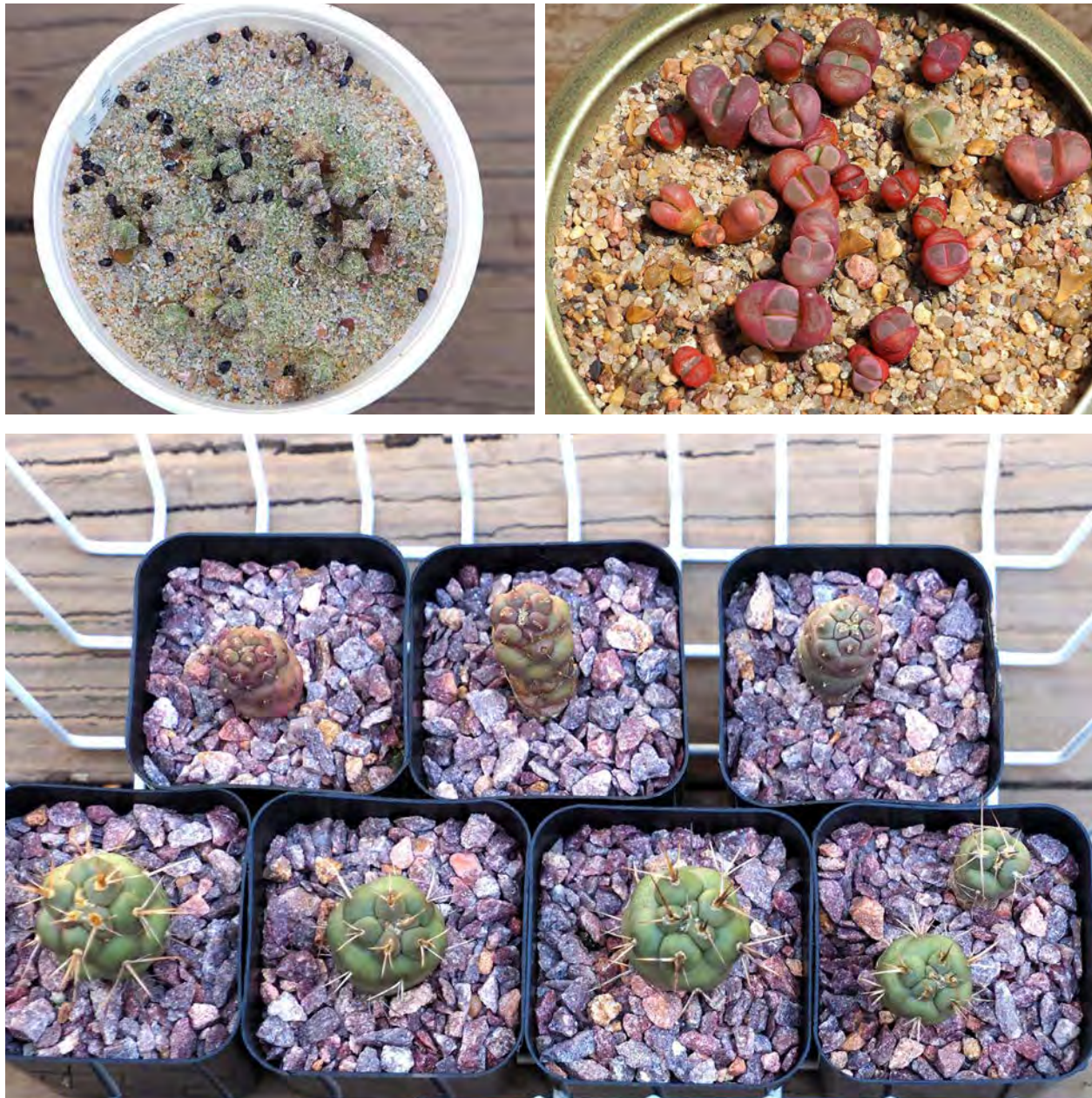


# SUCCESS WITH SEEDS

Judy Pigue, Raytown, MO

I didn't sow my seeds until the end of March this year. They are all still small; just now starting to grow with the warmth and sun. I've grown all in the Styrofoam cups of builders' sand. After poking holes about a half an inch under the top of the sand, I flood the cup with water, plant the seeds and cover with plastic wrap. The cups then go about 3 inches from the bottom of florescent grow lights. This has been a successful method for me.

Several pictures show seedlings that have been repotted from the seed pan to my own mix. The one *Astrophytum* hybrid was a special lucky seedling out of a mix from a friend in India several years ago.



Seed from my own *Astrophytum myriostigma* plant. Sown in Mar 2020. (top, left)  
*Lithops optica rubra* seed from a friend in Phoenix. (top, right)  
*Tephrocactus* seed from a California friend. *Tephrocactus alexanderi* and *T. vistita* (bottom)





*Euphorbia meloformis* (left)  
*Astrophytum* — a jewel from some  
 mixed *Astrophytum* seed. (right)  
 Photos: Judy Pigue

## Seed Depot Addendum 2020-2

The Seed Depot is a service for CSSA members. Price: \$1.25 apiece. Generally 20–25 seeds are included per packet, unless the list specifies otherwise. A number of items on this Addendum are available in small quantities, as indicated by the number in brackets. Please list substitutes, or they will be made at the director's discretion. Recent donors to the Seed Depot include Doug Anderson, Russell Wagner, Leo Martin, Brian Kemble, Matt Opel, Dan Gale, Frank Breckenridge, Robert Savage and Liliana Cracraft. Many thanks to them. If you would like to donate seeds, don't hesitate to get in touch with me: [sueh@mail.fresnostate.edu](mailto:sueh@mail.fresnostate.edu).

Postage: U.S., \$5.00 per order; Canada and other countries, \$15.00. Payment must be made in U.S. currency—cash or money order—or check drawn on a U.S. bank (payable to CSSA Seed Depot.) California customers should add 7.25% sales tax on the seeds + postage total. Orders should be sent to: CSSA Seed Depot, 3015 Timmy Ave, Clovis CA 93612. You may also order by credit card from the secure CSSA site: <http://cactusandsucculentsociety.org>.

- 293 *Agave marmorata*
- 294 *Agave nickelsiae*
- 295 *Aloe somaliensis*
- 296 *Aylostera pseudodeminuta*
- 297 *Bolivicactus tuberculatus*
- 298 *Bulbine fallax*
- 299 *Conophytum angelicae* MRO 137  
Rooiberg
- 300 *Conophytum angelicae* Pofadder
- 301 *Conophytum minimum*
- 302 *Dioscorea sylvatica* [10]
- 303 *Echinopsis* cv 'Glorious'
- 304 *Eriospermum paradoxum*
- 305 *Frailea columbiana*
- 306 *Frailea gracillima* subsp. *horstii*

- 307 *Hesperocallis undulata* Riverside Co.,  
Calif.
- 308 *Larryleachia cactiformis* [5]
- 309 *Lithops coleorum* SH 1500 Transvaal
- 310 *Lobivia aurea* subsp. *leucomalla*
- 311 *Manfreda brunnea* Santa Teresa,  
Durango
- 312 *Neohenricia sibbettii* RW 86  
Pampoenport
- 313 *Notocactus concinnus*
- 314 *Ornithogallum concordianum* [10]
- 315 *Parodia comparapana*
- 316 *Pelargonium carnosum* [10]
- 317 *Pelargonium crithmifolium*
- 318 *Pelargonium incrassatum*





## Show and Tell

From The Point July 2020, Cascade Cactus and Succulent Society of Washington State

*Tephrocactus geometricus*  
Chelsea Seydlitz (top)  
*Gymnocalycium*  
George Krasle (bottom, left)  
*Chamacereus silvestrii*  
George Krasle (bottom, right)



# WHEN CACTUS INSPIRED A HIGH-TECH SKYSCRAPER!

## A CASE OF BIOMIMICRY

Chaden Yafi, Houston, TX

Reprinted from Kaktos Comments, [Houston Cactus & Succulent Society](#), July/August 2020

In his famous poem, *Tables Turned*, the British poet William Wordsworth (1770-1850) advised people to relinquish their books and learn from nature, not from science or art, for only in nature can one find true wisdom and knowledge: “Come forth into the light of things, Let Nature be your teacher.” Throughout the history of humanity people were inspired by nature, borrowed ideas from it, and at times tried to imitate it. Later in the twentieth century the term “biomimicry” appeared, referring to designed systems that imitate nature and biological entities to try to solve human problems. Perhaps one of the first examples of biomimicry in history occurred when the Andalusian scientist Abbas ibn Firnas (809–887 A.D.) tried to imitate the flying of birds after observing them for a while. At age 70, he was inspired to attempt to fly himself. He manufactured two large wings made of feathers and silk among other materials, glued them to his body and jumped off a cliff. His attempt didn’t end his life but left many fractures in his bones.

A much more recent, and cactus related, example of biomimicry happened in 2009. A group of architects based in Bangkok and calling themselves Aesthetics Architecture GO Group were hired by the Qatar government to design a tall new building for the Ministry of Municipal and Agriculture Affairs in Doha, Qatar. The hot and dry climate always poses a high demand for energy consumption in the tall buildings there. Doha is a desert city where the annual rainfall reaches 3 inches at most. The well reputed architects found no more reliable recourse to consult and learn from than that patient, long surviving, desert dweller: the cactus! In fact, they called their project *The Cactus Project*.

The ability of cactus to live in the most arid environments have always fascinated



The Minister of Municipal Affairs and Agriculture Building. Image courtesy of Aesthetics Architects Go Group

scientists. All plants live by the process of photosynthesis. For regular plants photosynthesis occurs when plants open their stomata to let in carbon dioxide and release oxygen. The carbon dioxide is turned into sugar, and this happens always during the day. However, the opening of the plants’ stomata causes the evaporation of the water the plant has. This stress is greatest in hot and dry climates especially during the day when the heat is usually highest. Cacti have altered the photosynthetic process to minimize this water loss. They do that by opening their stomata at night when less stored water would evaporate and be lost, but the carbon dioxide is stored. The next day they turn the carbon dioxide into sugar. Cacti have developed this maneuver to insure losing the least amount of water possible while living in arid and dry environments. The cactus-inspired skyscraper building tried to mimic the energy efficient construction of a cactus. This was accomplished by utilizing sunshade panels on windows, and controlling them to open



or close in accordance with the intensity of the sun and the prevailing temperature during the day and night. Also, the building itself borrows its shape from the columnar shape of cactus which minimizes surface water loss and heat intake while maximizing water storage. At the base of the cactus skyscraper, a dome was created to host a botanical garden that would be the source of further research studies on waste-water management techniques and water conservation, with the hope of reducing water purchases and costs of water treatment.

We could link the idea behind the Cactus Project to a new branch of science that emerged in the last 15 years or so and is now developing fast: Plant Neurobiology. This field of science focuses on plants' behavior, reactions to environments, ability to store information (memory), plants' intelligence, etc. One might immediately question the term "Neurobiology". Plants do not have a nervous system or a brain. However, in recent decades researchers found that every cell in plants can carry and transmit electrical signs just like neurons in animals and humans! Also plants make proteins that are similar to the ones found in neuron systems of many

mammals such as the Glutamate Receptors and GABA receptors. Perhaps this all will inspire us to look at plants, cacti and succulents in our case, in a different manner, with curiosity and thirst to learn from them, and not just admire their beauty or think about their usefulness. Plants have been on earth before us, and most likely will remain after us. It is likely that they possess higher forms of organization, network systems, and adaptation capabilities which have enabled their survival. These structures and systems developed throughout centuries might provide us with answers to many human-related issues in a world that is getting more complex every day.

References:

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Torre, Dan. Cactus. Chicago: University of Chicago Press, 2017.

E-sources:

<https://inhabitat.com/qatar-cactus-office-building/>

Interview with Stefano Mancuso on France Culture Radio, April, 20, 2019. Stefano Mancuso: "Les plantes sont les vrais moteurs de la vie sur terre" <https://www.franceculture.fr/emissions/linvite-culture/stefano-mancuso>

## DID YOU KNOW?

CCSS Newsletter, Connecticut Cactus & Succulent Society, March 2020, [www.ctcactusociety.org](http://www.ctcactusociety.org)

The flowers of *Euphorbia pugniformis* have a very strong, sweet fragrance, but half of the world's population are unable to smell this fragrance because they weren't endowed with the necessary gene.

—Common Names of South African Plants, by C.A. Smith, Botanical Survey Memoir No.35, R.S.A.



*Euphorbia pugniformis*

Photo: Salicyna / CC BY-SA (<https://creativecommons.org/licenses/by-sa/4.0>)

## 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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  - Articles and photos for 2021
    - To Be Announced



Mobile planter at Mulhall's Nursery in Omaha, NE

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