

# CACTUS COURIER

Newsletter of the Palomar Cactus and Succulent Society  
The North San Diego County Cactus and Succulent Club

Volume 68, Number 5

May 2022

## May 2022 Meeting Information

**Fourth Saturday, May 28, 2022**

**11:00 am - 3:00 pm**

Park Ave. Community Center, Escondido (No access through the back gate.) Masks are encouraged but not required.

**Refreshments:** You are invited to bring a ready-to-serve snack or dish.

**The Plant of the Month is Copiapoa.**

**Brag Plant Table:** Plants must be labeled and on the table **no later than 11:45 am** to be judged. Please bring no more than 3 plants.

**Exchange, Benefit Drawing and Library Tables:** Yes

**Auction:** Yes

**Speaker:** This month's presentation is from 2-3 pm.

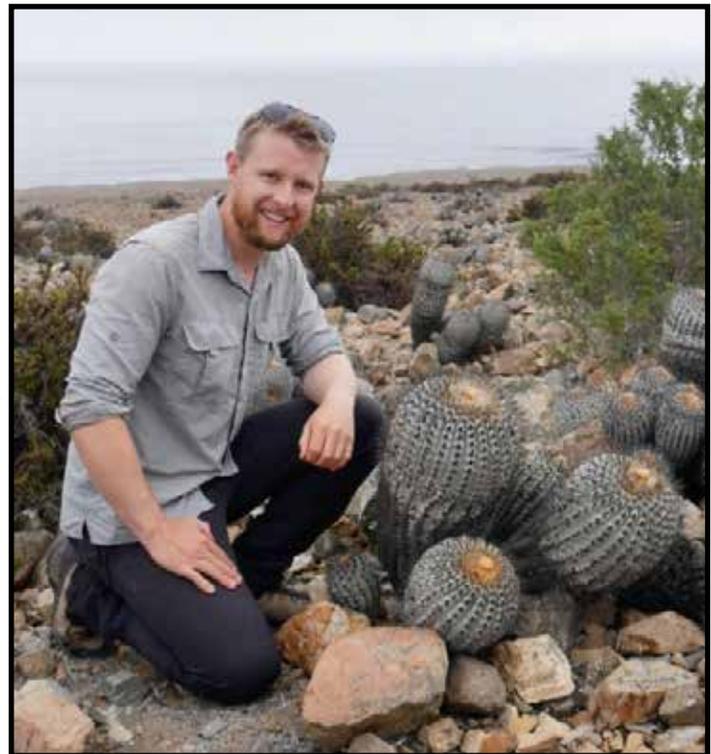
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## MAY SPEAKER - STEFAN BURGER

### *"The Underground Cacti of Chile"*

Stefan Burger is an Australian naturalist and environmental consultant living in Chile. He has an academic background in Applied Sciences and developed a fascination for cacti and other exotic plants from a young age. He now facilitates habitat tours in South America, works in conservation and independently researches cacti and desert ecology.



Website and Tour Details:

[www.cactusexplorer.com](http://www.cactusexplorer.com)

Email us directly for presentation and tour bookings: [cactusexplorertours@gmail.com](mailto:cactusexplorertours@gmail.com)



MAY 2022

# President's Corner

BY ROBERT KOPFSTEIN

*Kermit the Frog  
was spot on correct.  
It isn't easy being green.  
With exceptions most plants are  
-green that is.*

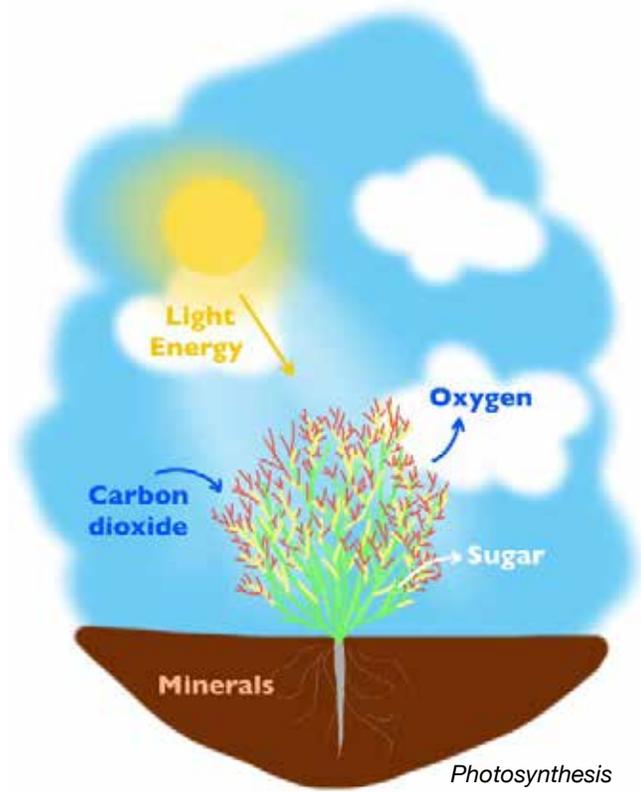
The cause of this greenness is chlorophyll, an essential ingredient in the process of photosynthesis. And most plants have abundant leaves which carry on this process with amazing efficiency. Lucky for us human beings the plants thrive on the carbon dioxide (CO<sub>2</sub>) that we exhale as waste. Conversely, their waste product is oxygen, which we need to survive.

Interesting enough, people in the plant world seem to regard greenness in the plants they so love as rather commonplace, so when a plant exhibits color characteristics other than green, this is cause for excitement: we tend to notice and value the unusual. Variegation (lack of chlorophyll on parts of the leaves) or leaf surfaces that mask the green (leaf surfaces covered with silvery hairs as a defense against sun scald) are considered not just out of the ordinary, but desirable. Often the price of the plant is higher if it is something other than solid green.

We humans tend either to take the plant world for granted, or we see it only in the light of how we can exploit or destroy it in our quest for riches. Witness what is happening globally with our natural lands. Recently I spoke with a veteran nursery owner who just returned from southern Mexico. She showed me photos of entire mountainsides completely denuded of the xerophytic trees, shrubs, and cacti in order to plant either blue agave (for mescal production) or avocado. Both of these crops bring in big dividends, so the drug cartels are heavily invested in creating these lucrative monocultures instead of allowing the biodiverse but financially "useless" habitat to continue to thrive and produce oxygen in the environment where it is adapted to fit into the ecosystem that has existed before the intrusion of humans.

Our understanding of how the plant community is instrumental in converting CO<sub>2</sub> to O<sub>2</sub> is relatively recent. The word photosynthesis was coined in an article by Charles Barnes (1858-1910) written in 1893. Before that time the scientific term used to describe how CO<sub>2</sub> is reduced to organic material was assimilation, but this term was used interchangeably for both plant and animal processes (as when animals assimilate nutrients in the gut). Barnes felt this was confusing so he proposed two terms: photosyntax and photosynthesis. After the usual back-and-forth quibbling, the scientific community eventually opted for the term photosynthesis, but even as late as 1905 the term "vegetable assimilation" was still in use.

As early as the 17th century a Belgian scientist, Jan Baptist Van Helmot (1580-1644), famous for coining the word "gas," measured the weight of a small willow sapling. He planted it in a container into which he put some soil that he carefully weighed.



Photosynthesis  
Monica Mosack

# President's Corner

(CONT. FROM PAGE 2)

He grew the tree for five years, weighing the amount of water he added, and then he weighed the tree and the soil. The plant gained 164 pounds while the soil lost only 57 grams in weight. Because he did not have the advantage of understanding how photosynthesis works to increase the volume and weight of the tissues of a plant over time. Van Helmot concluded that the weight gain was due to the water added.

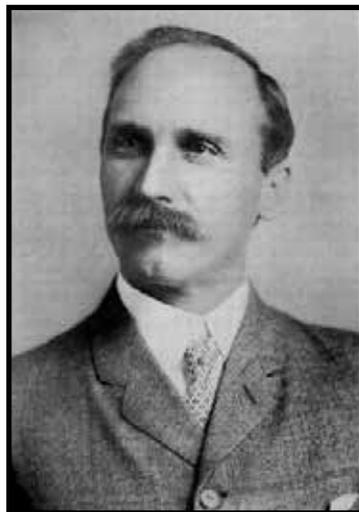
Most plants do the CO<sub>2</sub>/O<sub>2</sub> gas exchange through their pores or stomata during daylight hours when photosynthesis is actively taking place. But desert conditions would doom any plant that would open up its stomata in the heat of the day when the very low humidity would desiccate and likely kill it. So cacti and succulents utilize CAM (Crassulean Acid Metabolism): during the night they release oxygen and store CO<sub>2</sub>. In the heat of the day CO<sub>2</sub> is transformed to glucose and O<sub>2</sub> using chlorophyll and sunlight: photosynthesis.

Because cacti have no leaves this green transformation takes place on the stem itself. This is true of some of the succulents as well, euphorbia, for example. On many succulents either the leavers are minuscule or non-existent. I have had an *Alluaudia dumosa* growing in the ground in my garden for several years, and for the life of me I cannot see when or how it grows. If it does have leaves I have yet to observe any. Yet the plant gets larger every year, and appears to me to be happy and healthy—even though my wife says it looks like a bunch of dead sticks.

The key ingredients for plant life are water, CO<sub>2</sub>, and sunlight—either direct or indirect. The process of photosynthesis is an amazingly elegant combination of physics and chemistry that is a clear demonstration of the intricacies of nature. We all would do well to appreciate more fully the mechanisms of life on this wondrous planet, and how it all interacts to make our survival possible.



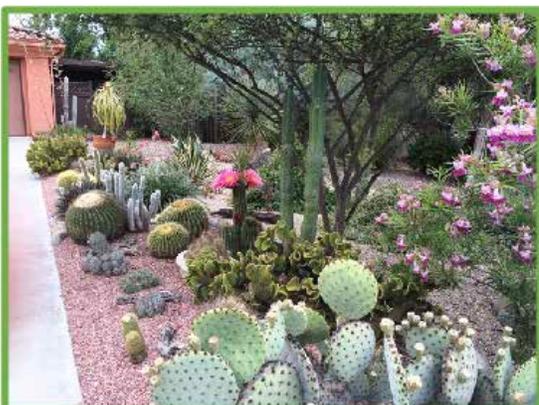
Jan Baptist van Helmot  
peoplepill.com



Charles Barnes  
en.wikisource.com



*Alluaudia dumosa*  
commons.wikimedia.org



## Coffee in the Garden

Wanda and Gary will be opening their garden to the Palomar and San Diego clubs on Saturday, June 18. Details to follow!

SAVE THE DATE!



MAY

# Plant of the Month

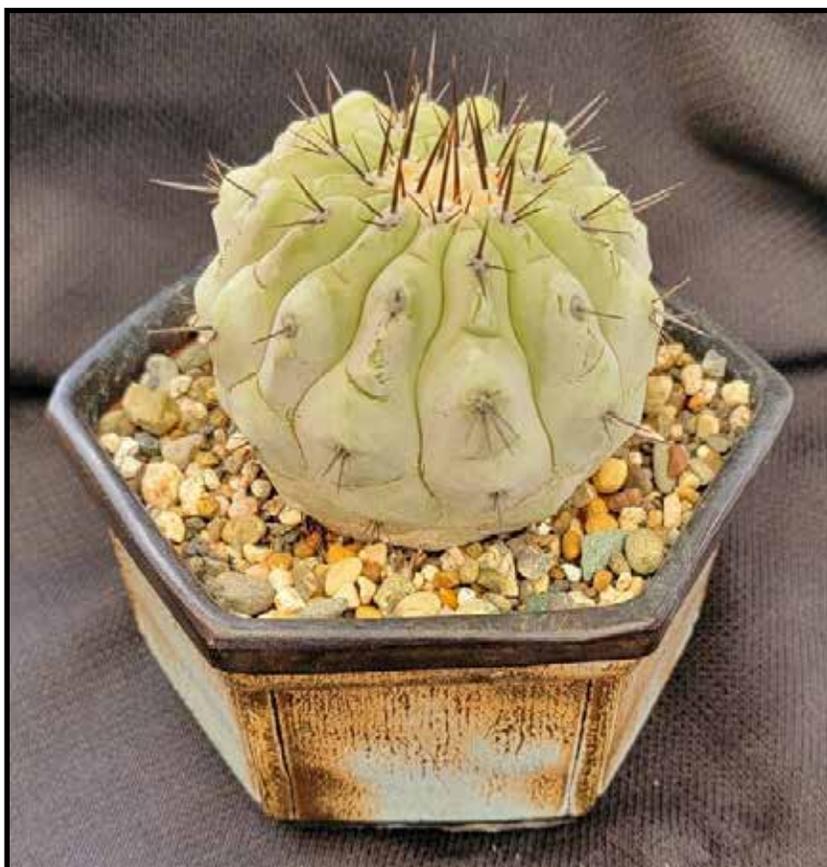
BY LORIE JOHANSEN

## Copiapoa: Patriarchs of the Andes

Copiapoa, a genus of cacti found in dry coastal deserts—most notably, the Atacama Desert of Northern Chile, is home to 22+ endemic Copiapoa. The Atacama Desert is the driest nonpolar desert in the world, as well as the only true desert to receive less precipitation than polar deserts and is the largest fog desert in the world. It is important to note that there does exist an even more arid desert on the planet: the dry valleys of Antarctica. Which is why it's more precise to say that the Atacama Desert is the driest non-polar place in the world. Both regions have been used as experimentation sites for Mars expedition simulations. The average rainfall in the Atacama Desert is less than one millimeter (.04 inches) per year, making it fifty times drier than Death Valley in California. To experience the environs of Copiapoa in the Atacama Desert, grab a coffee or cocktail and enjoy this eagle's eye sensory experience from the comfort of your home: [https://www.youtube.com/watch?v=hTRUBs5CwRs&ab\\_channel=mattdunaj](https://www.youtube.com/watch?v=hTRUBs5CwRs&ab_channel=mattdunaj) You may want to provide your own music to enjoy the 15-minute flight...

In 2020, this genus was the subject of an important outreach event in Italy that targeted thousands of succulent enthusiasts from all over Europe. The photographic exhibition "Copiapoa: Patriarchs of the Andes" at La Festa del Cactus (a major commercial event) raised awareness of how their behavior can fuel illegal poaching and smuggling markets which are driving many species to extinction. The photos were chosen to demonstrate the importance of the cacti to their desert ecosystem—their home.

During the same year, officials confiscated 1,035 of the illegally traded cacti in Italy during two raids — the largest such seizure in Italy to date. These raids were the culmination of a yearlong effort called



*Copiapoa cinerea*  
Photo by Lorie Johansen

"Operation Atacama," in which Italian and Chilean authorities collaborated with the IUCN (International Union for Conservation of Nature) to recover stolen plants. Copiapoa and Eriosyce cacti, which are among the rarest in the world, can fetch as much as \$1,500 per plant on the black market in Europe and Asia. Trading of illegally collected cacti frequently takes place in plain sight, with poached succulents displayed in plant shops, advertised on social media, and hawked in online marketplaces. Poachers sometimes livestream videos from the field, asking customers which plants they want!

The collection recovered by Operation Atacama was worth an estimated \$1.2 million. Not all the recovered cacti survived the rescue mission; 107 died before they could be returned to Chile; an additional 84 remained in Italy at the Città Studi Botanical Garden in Milan, for researchers to study.

The remaining 844 Chilean plants went back to their country of origin and were relocated in the wild after a period in quarantine,

## COPIAPOA

# Plant of the Month

(CONT. FROM PAGE 4)

to make sure they were not carrying invasive pests or diseases that could spread to other Chilean desert plants, according to the IUCN.

The genus *Copiapoa* grows endemically in small and sometimes large colonies, in the Atacama Desert along the Pacific coast, only in Chile, from sea level up to approximately 4,921 feet, in extremely arid zones, but which benefit from the condensation provided by the characteristic coastal fog of Chile (camanchaca). The varied species are found in full sun, on plains, on alluvial soils rich in coarse sand, on rocky hills among rocks and in crevices.

The genus is named after the Chilean city of Copiapó. The plants are globose to elongated, very variable in size, dwarf to huge, solitary to densely branched, consisting of hundreds of stems, sometimes with a waxy epidermis, the apex often covered with wool. Spines are variable. Flowers are diurnal, self-sterile, short, funnel-shaped to bell-shaped, usually light yellow, sometimes tinged with red. The fruits are globose to turbinate, apically dehiscent. Dehiscence is the splitting of a mature plant structure along a built-in line of weakness to release its contents/seeds. The seeds are shiny, reddish brown to black, scattered by ants.

The best known species is *Copiapoa cinerea*. This species produces a white cuticular wax layer on the stem which helps the surface to be waterproof and to be more protected from sunburn. The color of the cacti is ash grey (hence the name). The thorns are usually black or deep brown.

### CULTURAL REQUIREMENTS:

*Copiapoa* prefer lots of sun, at least five hours of direct sun daily. They can tolerate a little shade, but the more sun the better. They also like it hot; above 70 °F in the summer is preferred. In their native Atacama Desert, *Copiapoa* receive little to no rainwater. Instead, they pull moisture from the air when coastal fog rolls through. To mimic this at home, cease watering during the summer months and mist the plant in the morning before temperatures rise. Mist enough so that water gathers in heavy droplets on the fuzz and spikes of the plant. During the winter it's safe to cut back on watering entirely.

*Copiapoa* are easily propagated by separating pups and offsets from the mother plant. When repotting, remove the roots and separate the pups with some roots attached. Allow the pups to callous before planting. *Copiapoa* are native to rocky, desolate nutrient climates with little organic nutrients.



*Copiapoa hypogaea*  
Photo by Monica Mosack

## COPIAPOA

# Plant of the Month

(CONT. FROM PAGE 5)

They prefer a gritty, well-draining soil mix. Plant primarily in a mineral substrate (granite pebbles, for example) and amend with about 25% cactus mix. The nutrients in cactus soil will suffice; hence, no fertilization necessary.

They are not especially susceptible to pests or diseases. Root rot can be a common issue due to overwatering.

They are incredibly low maintenance and prefer to be pot bound. Repot them once every three to four years in early spring when they are just waking from dormancy. Reproduction by seed is possible, but difficult and slow: the plants typically produce few seeds that must be planted very quickly upon harvesting, and they are slow to germinate.

### RESOURCES:

<https://tula.house/blogs/tulas-plant-library/copiapoa-humilis>

<https://janemming.com/2018/10/06/evolutionary-dynamics-in-the-fascinating-cactus-genus-copiapoa/>

<https://www.iucnredlist.org/about/background-history>

<https://altmanplants.com/chile-copiapoa-cactus-travel/>

<https://cactusclassification.science/copiapoa/>

<https://www.livescience.com/endangered-stolen-cacti-returned-to-chile.html>

<https://knightcenter.jrn.msu.edu/2019/01/04/modern-smugglers-use-social-media-to-sell-chiles-ancient-botanical-riches/>

## Thanks to Dean Karras of Gnosis Nursery

Our first field trip to Gnosis Nursery was a small but enthusiastic gathering of eager plant people ready to purchase. Many thanks to Dean Karras for a tour of the propagation areas and greenhouse. Here are a few photos:



Photos by Lorie Johansen

If you missed it, please put Gnosis on your nursery bucket list. It's located at 663 Highway 78, Ramona, CA 92065. Make sure you call ahead for an appointment if you are planning a trip during the week: 480-363-4460. <https://gnosisnursery.com>

# APRIL Brag Plants

## INTERMEDIATE SUCCULENT

- |                              |  |
|------------------------------|--|
| 1 <sup>ST</sup> JIM ANDERSON | HAWORTHIA PUMILA #1                          |
| 2 <sup>ND</sup> KEVIN SMITH  | DYCKIA #2                                    |
| 3 <sup>RD</sup> PAULINE WONG | AEONIUM DECORUM<br>'SUNBURST' #3             |
| 3 <sup>RD</sup> PAULINE WONG | GRAPTOPETALUM PENTANDRUM<br>SSP. SUPERBUM #4 |

## ADVANCED SUCCULENT

- |                                 |  |
|---------------------------------|--|
| 1 <sup>ST</sup> MONI WAIBLINGER | PACHYPODIUM SUCCULENTUM #5               |
| 2 <sup>ND</sup> LORIE JOHANSEN  | ALOE DELTOIDEODONTA<br>'DELTA LIGHTS' #6 |
| 3 <sup>RD</sup> CANDY GARNER    | ECHEVERIA PURPUSORUM #7                  |

## INTERMEDIATE CACTUS

- |                              |                        |
|------------------------------|------------------------|
| 1 <sup>ST</sup> KEVIN SMITH  | REBUTIA PERPLEXA #8    |
| 2 <sup>ND</sup> JIM ANDERSON | LEPISMIUM CRUCIFORM #9 |
| 3 <sup>RD</sup> KEVIN SMITH  | GYMNOCALYCIUM SP. #10  |

## ADVANCED CACTUS

- |                                 |                      |
|---------------------------------|----------------------|
| 1 <sup>ST</sup> RUSSEL RAY      | MAMMILLARIA SP. #11  |
| 2 <sup>ND</sup> RUSSEL RAY      | MAMMILLARIA SP. #12  |
| 3 <sup>RD</sup> MONI WAIBLINGER | ECHINOCEREUS SP. #13 |

## PLANT OF THE MONTH – INTERMEDIATE

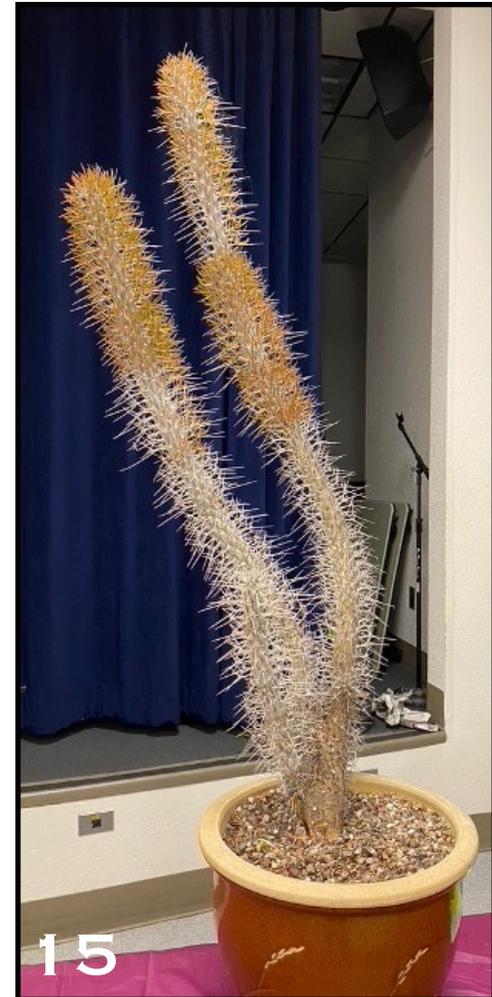
- |                              |                      |
|------------------------------|----------------------|
| 1 <sup>ST</sup> ANNIE MORGAN | DIDIERIA TROLLII #14 |
|------------------------------|----------------------|

## PLANT OF THE MONTH – ADVANCED

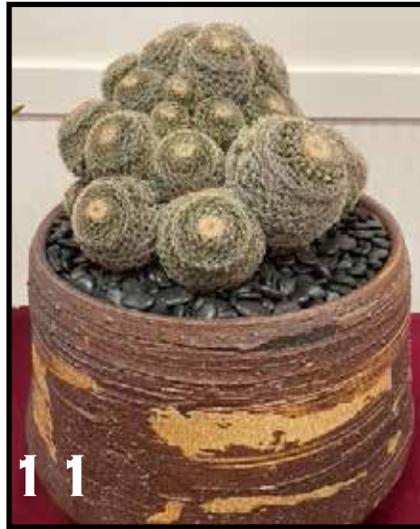
- |                                  |                               |
|----------------------------------|-------------------------------|
| 1 <sup>ST</sup> ROBERT KOPFSTEIN | DIDIERIA MADAGASCARIENSIS #15 |
|----------------------------------|-------------------------------|



APRIL  
*Brag Plants*  
(CONT. FROM PAGE 7)



APRIL  
*Brag Plants*  
(CONT. FROM PAGE 8)



**MAY SPEAKER - STEFAN BURGER**

*"The Underground Cacti of Chile"*  
(CONT. FROM PAGE 1)

Learn about a world of geophytic cacti that have evolved and adapted to one of the most extreme habitats on the planet - the Atacama Fog Desert. This talk discusses members of the genera Copiapoa and Eriosyce that can be classified as geophytes, that is, they have evolved substantial underground storage organs in the form of retractile taproots where they accumulate water and nutrients to help them survive multi-annual droughts. These cacti are often very small in habitat and difficult to find - they are highly cryptic in nature and most plants live at or below ground level and can be almost impossible to see unless they are in flower. Join us on a journey from the city of La Serena to Antofagasta in search of these fascinating cacti.

\*Bonus segment on Chilean Dioscorea and Euphorbia.





# 7<sup>TH</sup> ANNUAL Spring Festival

**SATURDAY, JUNE 25, 2022**

**We're delighted to be able to resume our spring festival! It's a time when we get to socialize with old friends and make some new ones. Plus, it's a great event for those just starting out with succulents, and for the more experienced collectors who have been collecting for a while.**

**Next month we will include all the details.**

**PLANT SHOW** - We will once again have a non-judged show for *all* levels: novice, intermediate, and advanced. Now is the time to get your plants transplanted, cleaned and ready to show-off. If you have never shown a plant before, this is a perfect opportunity to begin in a non-judged show. You will earn 2 Brag Plant points for every plant shown! Members are limited to no more than 10 plants. As it was so popular in the past, we will again have the People's Choice Award for each level!

**MEMBER PLANT SALE** - This is for those of you who have some plants, pots and/or garden-related items you would like to sell. Now is the time to get them ready, and we do the selling for you. You will receive 80% of the sales price and the Club receives 20%.

**WORKSHOPS** - We will hold interactive workshops on staging your plants for show, picking the right pot, etc. These presentations will help you learn some of the basic tricks on growing your plants that are seldom found in one book, and our experts will be able to answer your questions.

**TIME TO SOCIALIZE** - Our members really like to have extra time to socialize with old friends and make new ones. So even if you don't have plants to show or sell, come and join in the fun! We will have a potluck lunch as usual with tables to sit at with your friends.

**WOULD YOU LIKE TO VOLUNTEER?** - We can't do it without you. For those who helped the last few years - remember how much fun we had? For new members - this is a great way to get to know other members and to learn more about the club. Some volunteer positions are:

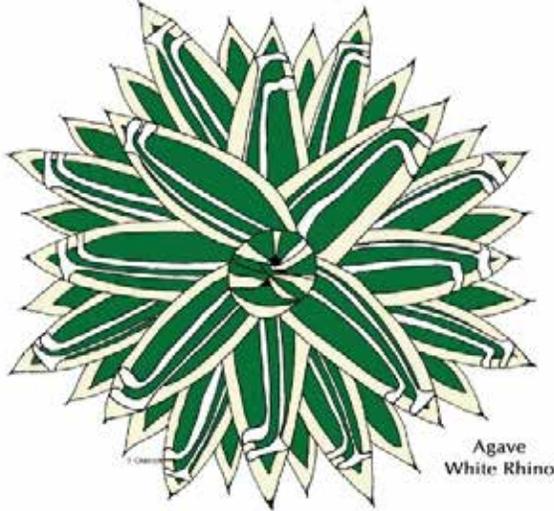
- ~ Setup and take down ~ Assist in show area ~ assist in sales area
- ~ Assist in workshop area ~ Kitchen ~ Other

**Bring in your lunch-worthy goodies for our potluck.**

Please let Charlyne know ASAP if you think you'd like to volunteer, show, or sell - even if you're not sure yet.

**[info@palomarcactus.org](mailto:info@palomarcactus.org)**

**Cactus and Succulent Society of America**  
**55<sup>th</sup> Annual Cactus and Succulent**  
**Show and Sale**



Agave  
White Rhino

July 1 - 3, 2022  
 The Huntington

**Huntington Hours 10 AM to 5 PM**  
**1151 OXFORD ROAD, SAN MARINO, CA**  
**INFORMATION 626-405-3504**

Open to the public with paid admission or Huntington membership  
 Advance online timed entry reservations are now required  
 ONLY on weekends for both visitors & Members. NO WALK-INS.  
 Limited daily capacity.  
 Friday sale reservations strongly recommended.  
 Go to the [huntington.org](http://huntington.org) website for tickets  
 See [www.cssashow.com](http://www.cssashow.com) for further details.

**PALOMAR CACTUS & SUCCULENT SOCIETY**

**BOARD OF DIRECTORS**

- Robert Kopfstein - President, Show Chair - [president@palomarcactus.org](mailto:president@palomarcactus.org)
- Don Nelson - Vice-President
- Brita Miller - Past President, Meeting Set-Up
- Teri Shusterman - Treasurer
- Moni Waiblinger - Secretary
- Charlyne Barad - Member at Large
- Lorie Johansen - Member at Large, Guest & New Member Ambassador, Plant of the Month Articles
- David Buffington - Member at Large, Brag Points

**OTHER VOLUNTEERS**

- Monica Mosack - Newsletter Editor  
[monicaatpcss@gmail.com](mailto:monicaatpcss@gmail.com) or text 619-379-4303
- Richard Miller - Membership - [membership@palomarcactus.org](mailto:membership@palomarcactus.org)
- Annie Morgan - Website and Facebook  
[info@palomarcactus.org](mailto:info@palomarcactus.org)
- Dean Karras - Program, Plant Expert, Instagram  
[gnoisnurseries@gmail.com](mailto:gnoisnurseries@gmail.com)
- Dennis Miller - Cash Register at Monthly Meetings
- Sandy Wetzel-Smith, Bruce Barry - Refreshments
- Barbara Raab - Librarian
- Kevin Smith - Brag Table
- Francis Granger - Guest & New Member Ambassador
- Brian Magone - Exchange Table
- Russel Ray - Photographer, Website, AV
- Julie Kort - Name Tag Drawing Plants
- Libbi Salvo - Monthly Meeting Set-up

**Palomar Cactus & Succulent Society**

The North San Diego County C & S Club!

**MEMBERSHIP FORM**

Click here for a printable form:

<https://www.palomarcactus.org/wp-content/uploads/2021/10/PCSS-Membership-Form-Rev-10-23-21.pdf>

*Social Media*

Website: [www.palomarcactus.org](http://www.palomarcactus.org)  
 Instagram: [Palomar.cactus.succulent.org](https://www.instagram.com/palomarcactusandsucculentsociety)  
 Email: [info@PalomarCactus.org](mailto:info@PalomarCactus.org)

Facebook for admin notices:  
[@Palomarcactusandsucculentsociety](https://www.facebook.com/palomarcactusandsucculentsociety)

Facebook group for members to post:  
[Palomar Cactus and Succulent Society Group](https://www.facebook.com/palomarcactusandsucculentsocietygroup)

**2022 MEETING SCHEDULE**

**Date - Speaker and Topic - Plant of the Month**

June 25th	Member Festival	
July 23rd	Julian Duval	TBA
	Bonsai Succulents	
August 27th	Picnic	
September 24th	Crystal	TBA
	Melocactus species, Propagation and Culture	
October 22nd	TBA	TBA
November 19th	Ron Parker	TBA
	Chasing Centuries: Ancient Anthropogenic Agave Cultivars of AZ	
December 17th	Holiday Party	