CACTUS COURIER

Newsletter of the Palomar Cactus and Succulent Society

The North San Diego County Cactus and Succulent Club

Volume 68, Number 11 **November 2022**

NOTICES

Meeting
Third Saturday, November 19, 2022
11:00 am – 3:00 pm
210 Park Ave. Community Center, Escondido

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

Exchange and Benefit drawing tables, Auction: All three will be held at the November meeting!

Library: No Library Table this month. Return books that are due to Richard at the Membership table.

LAST CHANCE
TO EARN BRAG POINTS FOR 2022 GIFT PLANTS

Bring in your beautiful variegated plants and other Brag Plants to earn more points for the 2022 Brag Plant Contest. The updated point chart will be in the December newsletter.

Program

The Search for Ancient Agave Cultivars Across the Desert Southwest

Discover the depth and duration of human and *Agave* co-evolution across the Desert Southwest and learn about the unusual agaves apparently associated with archaeological sites that were abandoned long ago. These agaves appear to be anthropogenic cultivars — living archaeological relics developed and planted by indigenous Native Americans — and many are still growing exactly where they were planted hundreds of years ago.

A ruin with an Agave in the foreground.

The Safford Grid Fields, where ancients were cultivating Agaves.

Close-up of domesticated *Agave delamateri*.

Short Bio: Ron Parker

Ron Parker is an outdoorsman, xeric plant enthusiast, and amateur botanist who spends half his time gardening and the other half exploring natural habitat across Arizona and neighboring states, primarily chasing agaves and archaeological sites. He has been studying agave populations in Arizona for many years and has been out in the field with renowned botanists and regional archaeologists. When not under the open sky, Ron maintains the well-known xeric plant discussion forum, Agaveville.org, an impressive online repository for information on agaves and other succulent plants.

Plant of the Month

Tephrocactus

The next time you see a large tephrocactus in a show, take time to appreciate the patience and risk of the grower who brought it. Transporting a tephrocactus is tricky without breaking off segments, hence the risk. The patience refers to the slow growth. The name is derived from the Greek "tephra," ashes, referring to the dull, ash-colored stems of some species. (Above picture: *Tephrocactus geometricus* belonging to Woody Minnich.)

This small genus of cacti in the subfamily *Opuntioideae* formerly was in the large genus *Opuntia*. Tephrocactus are endemic to Argentina and have glochids which are distinctly sunken into the areoles. Spines range in length from short to very long, and can be needlelike, daggerlike, papery or absent. Unlike the flat pads of most opuntias, Tephrocactus segments are round – resembling cylinders, egg-shaped, or spherical. Many species grow their segments in a slightly zigzag stack, although some species grow in vertical rows.

They grow on stony hillslopes; in plains; on sandy, rocky, sometimes schistose soils; in the puna grassland ecoregions found in the central Andes; usually in full sun, from 800-12,000 feet in altitude. Tephrocactus is extremely widespread and variable in habitat. You could represent the entire genus with half a dozen plants. On the other hand, you could fill entire benches with plants without having two that look identical –just like in habitat.

All species share a unique stem structure that is characterized best by *Tephrocactus articulatus*. The cladodes are globe shaped and often sit one atop the other. The cladodes are "fragile" and can easily fall off the plant. *T. articulatus* is reasonably easy to grow in culture as it's tolerant of too much water and mild frosts. However, if overwatered, the cladodes resemble long pine cones rather than the

globe-shaped cladodes seen in the desert. *T. articulatus var. papyracanthus* (picture above, Russel Ray) has long, papery spines and also is easy to grow.

Tephrocactus geometricus is an extra-ordinary species that shows a strong adaptation to extreme desert habitat, with dwarf growth and geophytic habit. It is one of the showiest species sought-after by impassioned cactus collectors, a strange "geometric" plant with fabulous flowers (picture above, Russel Ray) that last only a day.

Cultural Requirements: Tephrocactus are relatively problem free if they are not overwatered. Water thoroughly and let dry out completely before watering again. They are dormant in the winter and need even less water. Like in habitat, they like full sun and heat but can withstand temperatures as low as 25 degrees.

Propagation is easily done with the segments that fall off the fragile plants. Seed propagation is possible but takes much longer.

Tephrocactus articulatus var. diadematus f. inermis (Russel Ray)

Tephrocactus alexanderi (Peter Walkowiak)

Tephrocactus aoracanthus (Russel Ray)

President's Corner

Robert Kopfstein

Last month the President's Corner addressed the topic of the origins of the cactus family and relationships of cacti to humans. Usually people characterize the cactus family as being a plant group that is exclusively found in the Americas; however, the world being a complex place, and straightforward rules of thumb usually having an exception, the outlier in this case is *Rhipsalis baccifera*.

This epiphytic cactus is also known as the "Mistletoe Cactus" because the fruits are white berries, half the size of a garden pea, similar to the parasitic mistletoe (*Viscum album*). The pencil thin stems cascade from the plant's attachment to a branch, and can extend up to 30 feet. For this reason *Rhypsalis baccifera* is also commonly known as the "Spaghetti Cactus."

Currently it can be found growing in the wild from central Argentina to Florida as well as in the Old World.

There is debate on the origins of this epiphytic member of the cactaceae, but it is found naturally in the tropics of Africa, Madagascar, and Sri Lanka. The question among botanists is how it got there if cactus evolved after the continents of Africa and Asia separated from North, Central, and South America.

Some theorists believe that *Rhipsalis baccifera* was, indeed, around before Africa and South America separated, so the plant simply "drifted with the land masses." The catch is that most researchers think this cactus family evolved around five to ten million years ago. This is long after the continents separated. And even if this rhipsalis did migrate with the continents, why is it apparently the only cactus that did?

Another theory is that *Rhipsalis baccifera* fruit was eaten by a bird who then flew across the Atlantic and deposited the seeds in its droppings. The shortest distance between the east coast of South America and the west coast of Africa is 1600 miles, and it is highly unlikely that any fructivorous bird could fly such a distance without resting en route. Even if the bird could rest, the amount of time it would take to travel such a long distance would mitigate against it keeping the rhipsalis berry and seeds in its digestive tract until it arrived in Africa.

Another possibility could be that sailors in the 1500's on merchant ships transported the plants; and because they are epiphytic cacti, the plants could survive the voyage without soil or water. Once they reached a port in Africa they might have left specimens there. This theory has more holes in it than a hundred-pound block of Swiss cheese. Merchant sailors make unlikely horticulturists. If rhipsalis had some commercial value, then it would be plausible that they might consider transporting it on their really small ships that had, at best, very cramped quarters. To get the plant in the first place, the sailors would have to either traipse through the forest or have a connection with someone who grew it in their garden. Sixteenth century sailors are not known for having esthetic values rooted in the world of plants.

Remember what happened in the nineteenth century on the HMS Bounty: Captain Bligh was transporting a cargo of breadfruit trees from the South Pacific to the Caribbean. The fruit of the trees was supposed to be a cheap source of food for the slaves on the plantations there. Once Mr. Christian and the mutineers seized the ship and set Bligh and a few loyal sailors adrift, they pitched all the breadfruit trees into the Pacific, and then set sail for Pitcairn Island.

So the original locale for *Rhipsalis baccifera* remains a mystery. It really is a collector's plant; you will not likely find it for sale in the garden section of Lowes or even at your local nursery.

And *Rhipsalis baccifera* is not the only plant whose origins are unknown. The common and widely distributed *Aloe vera* also likely comes from the Middle East, but where exactly? Its use can be traced back to 6000 BCE in ancient Egypt. By the fourth

century BCE, it was commonly traded in the known world as a skin care product, digestive aid, and a laxative, and today it can be found in yogurt and dish soap. *Aloe vera* has become a business of $13 billion per year.

The latest research indicates that it likely originated in the northern Arabian Peninsula where the climate is very hot and dry. It happened that ancient trade routes passed through this area; as a result, this useful plant was widely distributed throughout the world. In driving the back roads of Mexico, I have seen it growing wild along the shoulder of the highway.

It even has religious connections: the New Testament mentions it as being used in the ceremony of the burial of Jesus of Nazareth.

A completely unrelated plant shares the distinction of being of mysterious origins: *Cycas thouarsii*, an attractive cycad that supposedly comes from Madagascar, but it is also found on nearby islands and on the continent of Africa—on the coast of Tanzania, Mozambique, and Kenya. It is named after Fench botanist Louis-Marie Aubert du Petit-Thouars (1758-1831), and, luckily, the taxonomist who named this species shortened his name.

The key question is whether this cycad originated in Madagascar, the islands off the coast, or in Africa. One suggestion is that Arab traders spread the plant; however, there are specimens in habitat that are much older than the era when Arab traders plied the ocean between Madagascar and the African mainland. One feature of *Cycas thouarsii* could be an answer: the seeds can float (unlike other cycad seeds that sink when they are fertile). So it is possible that the seeds may have crossed the ocean on their own.

In sum, it is remarkable how little we know about the distribution of plant life on planet Earth. We who flatter ourselves with the scientific name of *Homo sapiens* (wise man) are really only one life form among many on this earth, but we are fortunate to be able to appreciate the mysteries and complexities of this our mother: Earth.

Palomar Cactus & Succulent Society

The North San Diego County C & S Club!

MEMBERSHIP FORM

Click here for a printable form:

PCSS-Membership-Form-Rev-10-1-22.pdf

2022 MEETING SCHEDULE

Date	Speaker and Topic	Plant of the Month
November 19	Ron Parker Chasing Centuries: Ancient Anthropogenic Agave Cultivars of Arizona	*Tephrocactus*
Holiday Party - Moni's Clubhouse		

Palomar Cactus & Succulent Society
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Sandy Wetzel-Smith, Bruce Barry – Refreshments
Barbara Raab - Librarian
Kevin Smith - Brag Table & room setup/takedown, Library book transportation
Francis Granger - Guest & New Member Ambassador
Brian Magone - Exchange Table
Russel Ray - Photographer, Website, AV
Julie Kort - Name Tag Drawing Plants

You Don't Get Something for Nothing
Stan Yalof

God was taking an inspection of his handiwork. "Gabriel, this desert air is bracing, and that oxygen is exhilarating! A fine creation, if I do say so."

Fluttering off to the side, Gabriel, answering (in Aramaic), "Austere, but oh so lonely."

"It is that, and a lot better than brambles. But I see some action over there. Give a look."

Returning, "A lot of sheep and camels herded by some nomads."

"Ah, nomads, those must be the Hebrews. They send up plenty of offerings."

"And you gave them Chosen Persons status."

"We worked out a covenant."

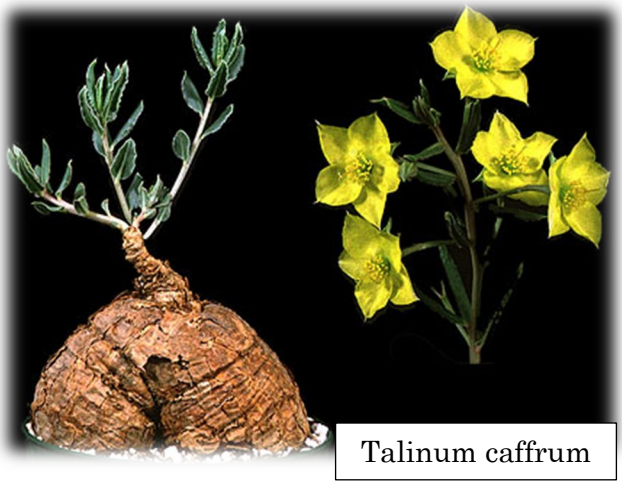
"They seem to be wandering aimlessly."

"People who wander aimlessly are not necessarily lost."

A voice wafted up from below, "Chosen people! Why not chosen plants? All that oxygen is our doings!"

"Eh, Wot?"

"Sir it is coming from some small plants, impudent small plants if I say so."



Talinum caffrum

"I'll hear them out." "What tribe be you plants?"

One of the plants answered, "We call our tribe *Talinum...*"

Another spoke, "… and we're seeking a covenant as chosen plants!"

"Hmm, another covenant, this is unprecedented, we just don't give these things out. One has to pay a price..."

"…a price, what kind of price?"

"Well it depends. My chosen people had to follow the code and … give up a portion of their male member…"

"…not only don't we have a male member, but we are hermaphrodites."

"Well what can you offer?"

Gabriel whispered, "They've got roots."

God nodded, "How about your roots?"

"Can't do that, they feed us."

"Well, how about that green stuff, leaves…?"

Gabriel nodded, "A brilliant riposte, Sir!"

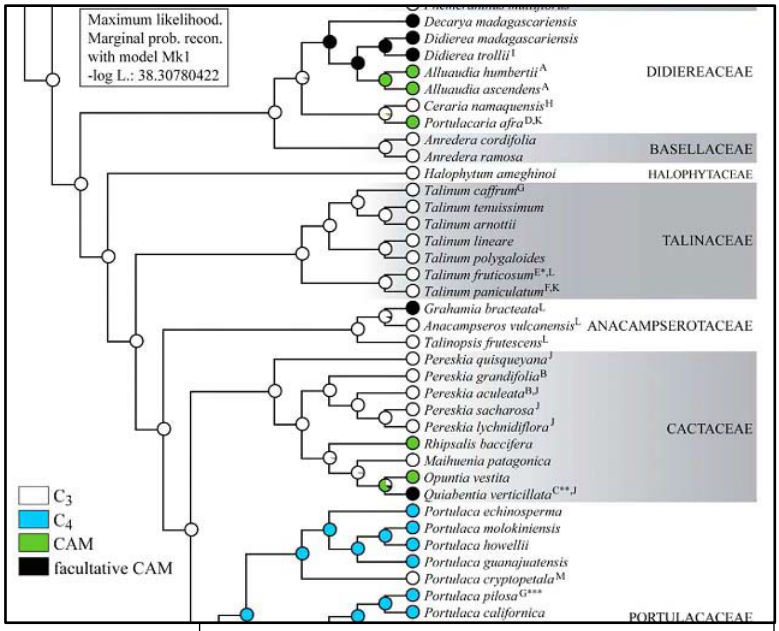
One of the *Talinums* protested, "But we need those. They make oxygen and sugars…."

"Take it or leave it. You don't get something for nothing." Gabriel smiled approvingly.

"Just the leaves?"

"Drop the leaves, and also those leaf props!"

"Branches, Sire."



DNA derived *Cactaceae* family tree.

"Give us a moment to talk this over." The *Talinums* conferred and a few minutes later they hailed the deity, "This is tough, But we agree, drop leaves, drop branches."

"Ha! Good luck, Chosen Plants."

Among themselves, one of the *Talinums* asked, "How will we survive without our leaves and branches?"

"Did any of us hear that we couldn't have green stems? I surely didn't. And if we shrink the branches and call them spines…?"

"That should pass. But some types of *Talinums* won't truck with this covenant bizz."

"Well, if that's their mojo they can stay *Talinum*.
We are new. We are the Spinys!"

Notes: 1. Spinys translates in Greek to cacti.

2. Talinum caffrum has been identified in two studies as ancestral to *Cactaceae*. The latest study by Ocamp @ Columbus, Figure 2, below, shows this relationship. Also, molecular clock estimates of *Cactaceae* origin places it around 30 to 40 MYA. There is also a South American relative, *Talinum brasiliensis*. It is my contention that the rise of the Andes cordillera brought about the origins and speciation of cacti.