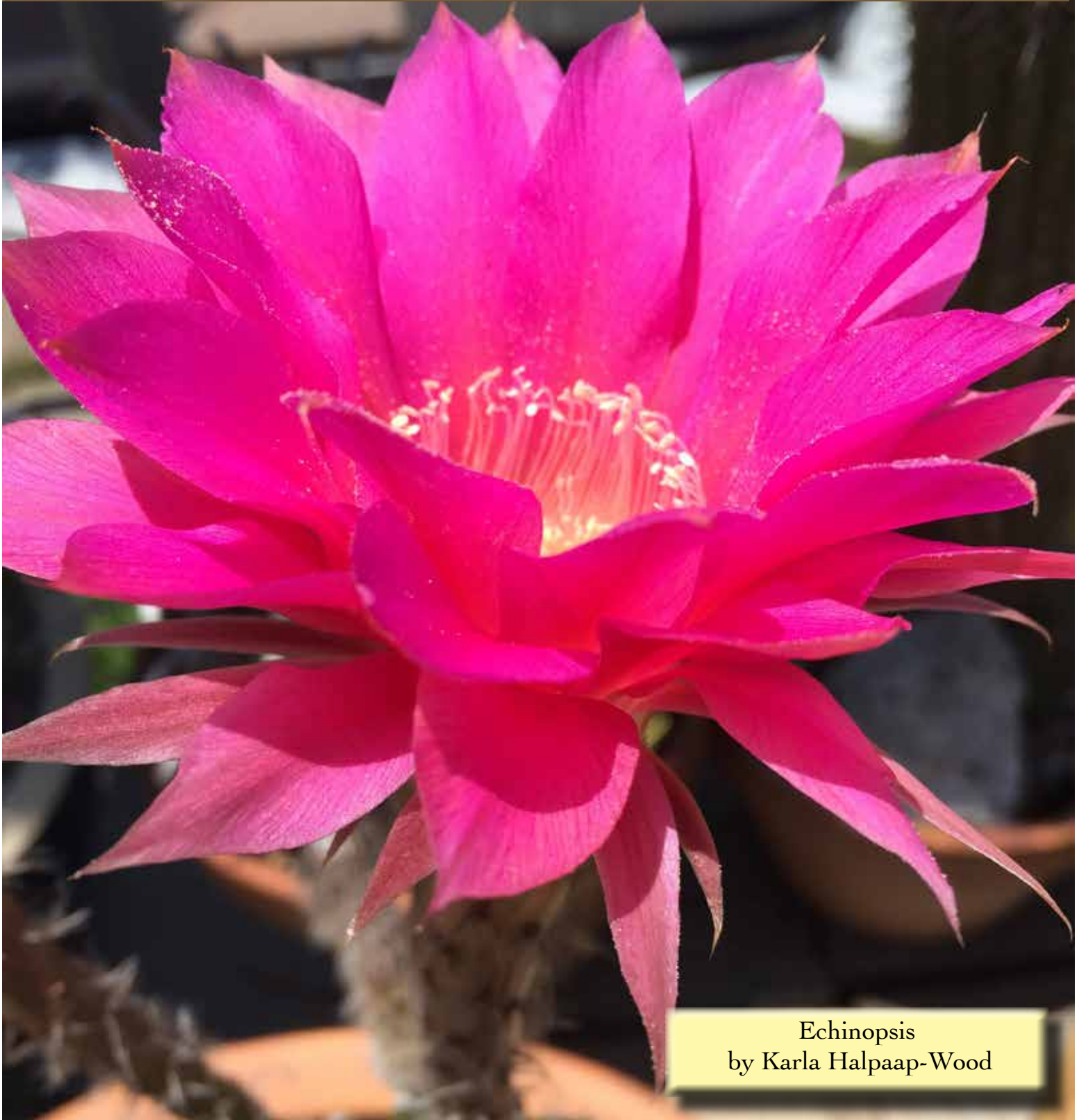


VOL. 57
No. 2

MARCH-APRIL 2020

Kaktos Komments

*a bimonthly publication of the Houston Cactus and Succulent Society
to promote the study of cacti and other succulents*



Echinopsis
by Karla Halpaap-Wood

From the editor

Karla Halpaap-Wood

Spring is in the air, which means moving plants out and cleaning out greenhouses or other winter protection. April and May will be busy for the club with potting party, field trip and then the Spring Sale.

Thanks to the people who contributed to this edition of the KK.

MEMBERSHIP**KATHY FEWOX & JULY OLSON**

At the January meeting we had 17 members, and 2 guests. Our newest member at the meeting, Natalie Gibson, brought an amazing 3D printed pot for the door prize, Liliana Cracraft offered some mammillaria prolifera seeds, and Andrea Varesic brought a lovely succulent monthly planner. Our winners were Andrea Varesic, Milton Pierson, and Cherie Lee. Our guests were Euginia Legarda and Andrew Durham.

The February 26th meeting of HCSS was attended by 19 members. Eight guests also attended the February meeting. Visiting the club were Nathan Bingham, Salvador Salinas, Suzanne Siegel, Paulette McNeese, Susan Torney, and three special guests from Debrecen, Hungary: Tamas Nagy, and his parents Jozsef and Julia Nagy. Tamas has been working in Houston, but will be returning to Hungary after a stop in Austin. Jozsef has a greenhouse full of amazing cacti, and was justifiably proud of his beautiful cell phone photos.

Please send news of HCSS members or their families to kathyfewox@gmail.com or Saint.juniper@gmail.com



From left to right: Tamas Nagy, Jozsef Nagy, Josie Watts, and Julia Nagy

Calendar:

March 25, 2020	7:30 pm Membership Meeting at Metropolitan Multi-Service Center. Program: Jimmy Black: "Medical Xerophytes of Texas: Pharmacy vs. Folklore."
April 4, 2020	Potting Party at Andrea Varesic's house
April 22, 2020	7:30 pm Membership Meeting at Metropolitan Multi-Service Center. Program by Joy Columbus from the Houston Botanic Gardens
April 23 - 27, 2020	Big Bend Field Trip
May 2-3, 2020	Spring Sale at at Metropolitan Multi-Service Center

March Cactus of the Month

Liliana Cracraft

NAME: ***Cylindropuntia imbricata* var. *imbricata***

SYNONYMS: *Opuntia imbricata*

COMMON NAMES: Abrojo, Candelabra cactus, Cane cactus, Cane cholla, Tesajo, Walking stick cholla, tree cholla, devil's rope, coyote prickly pear, and many other Native American and Spanish names.

INTRODUCTION: *Cylindropuntia* is a sub-genus of the genus *Opuntia*, and includes several varieties; their number varies among several authors. They all grow as upright, bushy, or tree-like plants. Surprisingly, this plant has never been presented before as cactus of the month in the club.

DISTRIBUTION: Southern central United States (Colorado, New Mexico, Kansas, Texas, and parts of Oklahoma) and northern México. Usually grows in gravelly or sandy soils of hills, flats, valleys, and plains, mostly in grasslands at 4,000-6,000 ft. altitude. However, some plants have been found growing in the Rocky Mountain Montane Forest at altitudes of 7,900 ft.

DESCRIPTION: The plant is tree-like or shrubby, 3.3-9.8 feet high, often with short trunks. The **stem segments** are cylindrical to club shaped, gray-green, 3-9 in. long, and 0.6-1.6 in. in diameter, with very prominent, widely spaced tubercles. They have small leaves but they gradually disappear as the stem joint matures.

The **areoles** have tan or yellow wool and each may have 10-20 spines. **Glochids** are pale yellow. The **flowers** appear in the spring, and are dark pink to magenta, rarely rose-pink. . The **fruits** are tubercular like the stems, fleshy, yellowish and spineless, 0.9-1.8 in. long. They are shaped something like the frustum of a cone, with a hollow at the wide end where the flower fell off; they are often mistaken for flowers. The plant retains them all winter. They are dry and not tasty, though the Indians of Arizona and New Mexico are said to have eaten them.

The variety *argentea* is usually shrubby, with larger stem segments, and only found in the Big Bend area of Texas.

GROWTH: Grows well in full sun, and is hardy for a cactus (USDA Zone 5A). It propagates through seeds, or when stem joints fall to the ground and take root.

INTERESTING FACTS: This plant is cultivated by some Native American groups for blocking access to cliff dwellings, as a source of food for its fruits, buds, and young branches, and for ceremonial purposes. The Roman Catholic Penitents of New Mexico formerly tied fresh stems to their bare backs in Holy Week proces-



sions. The Zuni people use the *imbricata* variety ceremonially, by grinding the stems, and then placing the pain-induced mass under their armpits.

The fruits are also eaten by various wild birds and mammals, including desert bighorn sheep, and deer. The thorny plants provide escape for cover for many small animals.

The leafcutter bee *Lithurgus apicalis* has been observed to pollinate the flowers.

MY EXPERIENCE: We bought this plant in south Texas many years ago, when it was very small. It has been on the ground in the front of the house for about 10 years and measures about 9 feet. It has survived freezes and two hurricanes; Ike and Harvey, which knock it over to the ground due to its shallow roots. It blooms every year

REFERENCES:

Anderson, E. *The Cactus Family*. 2001. Timber Press, Portland, Oregon.

Benson, L. *The Cacti of the United States and Canada*, 1969. Stanford University Press, Stanford, California.

Weniger, D. *Cacti of the Southwest*, 1972. University of Texas Press, Austin, Texas.



March Succulent of the Month

Mike Cracraft

NAME: *Euphorbia arbuscula* Balf. fil. Common name: “Emta Tree”

HABITAT: Coastal lowland areas of the island of Soqotra, Gulf of Arabia.

DESCRIPTION: *E. arbuscula* is a succulent tree attaining a height of 15-20 feet in habitat. It has a shape and overall growth form called “Dracoid” since it resembles other endemic trees of Soqotra such as *Draecena cinnabari* and *Dracena draco*. These trees have a stout woody trunk with succulent green, oblong branches which divide upward with growth resulting in a form that resembles a candelabra. The shoots have a bluish green appearance when new and turn a darker green as they mature. As the plant grows upward the main stem of the trunk thickens and becomes a hard wood while the thin stems of the crown continue to branch. Due to the predominantly dry climate of its island habitat this *Euphorbia* is a true succulent with no leaves.

CULTIVATION: This plant likes full sun and heat and will grow well with weekly waterings in a porous potting mix, e.g. 50 % potting soil +50 % aggregate. With the coming of fall growth will begin to slow down and watering should be cut back. The plant will go essentially dormant in winter and should be kept dry most of the time, perhaps a light watering once a month. Cuttings root easily by the usual methods. This plant, like all succulents from the dry subtropics, must be protected from freeze and frost in the winter.

AVAILABILITY: *E. arbuscula* is available in rooted cuttings from several nurseries on the web, e.g. Aridlands Greenhouses in Tucson. I have not seen this plant offered as a seedling since I suspect that a mature tree has to be grown to produce flowers and seed. Since few people can visit the remote island of Soqotra there is probably little collected seed available in the U.S.

MY EXPERIENCE: I have two plants which I acquired about 20 years ago from Arid Lands. This is a deciduous tree and occasionally some branches die and drop off.

REFERENCE:

Proceedings of the First International Symposium on Soqotra Island, volume 1. United Nations Publications, New York, 1998.



April Cactus of the Month**Chaden Yafi****Mammillaria Gracilis Fragilis Monstrose**Scientific name: *Mammillaria Vetula* ssp *Gracilis*

Family: Cactaceae

Synonymous:

*Mammillaria Vetula Gracilis**Mammillaria gracilis* "Buenavista"*Mammillaria gracilis**Mammillaria* «regina»

Etymology:

Mammillaria: from the Latin *mammilla* meaning breast, referring to the tubercles of the plant*Vetula*: from Latin *Vetula* meaning, old or "Vieux, Vieille" in French*Gracilis*: from Latin *Gracilis* meaning, slender, graceful, elegant.*Fragilis*: from Latin *Fragilis* meaning Fragile

Common name: Arizona Snowcap ("Snowcap" refers to the white spines covering the cactus, I could not find the reason behind the naming "Arizona." There are similar cacti such as the Arizona organ pipe cactus and the Arizona rainbow hedgehog cactus that both grow in Arizona.)

Habitat: Central Mexico in the states of Hidalgo, and Querétaro. It is also cultivated in nurseries and gardens throughout the U.S and Europe.

The *Mammillaria Gracilis Fragilis Monstrose* (MGFM) is a cactus that is a cultivar of the subspecies *Mammillaria Vetula Gracilis* (known as thimble cactus), with a larger body (from which comes the name *Monstrose*) and thicker, shorter, and vertical spines that give it a more attractive and distinguished look.

The mature plant can reach up to 5 inches in heights (while the Thimble cactus remains under 3 inches.) The MGFM grows in clusters and easily produces many offsets. It is easy to propagate, in fact, most of the time when handling this cactus the stems can fall off (that is where the adjective *Fragilis* comes from.) However, they can re-root quickly wherever they land!

The stem is green and entirely covered with spines. This cactus blooms white creamy flowers in spring. Opinions vary on how to encourage flowering. Some argue that it is better to keep it cool during the winter. Others mention the importance of warm environment during the cold seasons. This cactus does well in zone 9 but should not be subjected to frost. Like most cacti the MGFM requires a very well-drained soil and minimum watering especially in the winter.

The MGFM likes to grow in full sun or near a bright window. However, since it cultivated mostly in nurseries it is better to expose it to the sunny outdoors area little by little, protecting it from the sudden transfer to direct sunlight.

References:

Calhoun, Scott. *The Gardener's Guide to Cactus*. London: Timber Press 2012

<https://www.cactuspro.com/>

<http://www.llifle.com/>

<https://worldofsucculents.com/>



April Succulent of the Month**Wally Ward**

EUPHORBIA HEDYOTOIDES Nicholas Edward Brown 1911

SYNONYMS: *E. decaryana* Croizal 1934; *E. specksii* W. Raul 2000

HABITAT/DISTRIBUTION: Southern to SW Madagascar in Alluadia forests

DESCRIPTION: *E. hedyotoides* is a cauduciform shrub with a gourd-like caudex up to 6 inches thick. It is spineless, densely-branched with thin branches, and up to 5 feet tall in habitat. Branches are covered with gray-brown bark. This species is deciduous. Leaves are very long and very narrow. Flowers are yellow to reddish and, like other Euphorbias, are reduced in size and aggregated into a cluster called a cyanthium. Flowering occurs in late winter and spring. Like other Euphorbias, this species produces a toxic sap called latex.

CULTIVATION/GROWTH: This species can be cultivated from seed or cuttings. Some sources claim the plant produces a thick, single caudex only from seed-grown specimens and generates thick, branched roots from cuttings. This is a warm-weather grower that should be cultivated in a very well-drained mix in full or partial sun. It is easily cared for. The caudex should not be exposed for one or more years after the plant is started from seed or rooted as a cutting to allow the subsurface caudex or roots to attain large size. *E. hedyotoides* is an excellent candidate for bonsai. There is scholarship to the effect that caudiform Euphorbias in Madagascar use the caudex to store not only water but also carbon resources (i.e., food).

AVAILABILITY: *E. hedyotoides* is not available for shipment into the United States under C.I.T.E.S. (Congress on International Trade in Endangered Species of Wild Fauna and Flora). This species is listed as endangered on the IUCN (International Union for the Conservation of Nature) Red List. It sometimes can be purchased domestically from dealers or individuals.

REMARKS: I received my two specimens of *E. hedyotoides* from Mercer Arboretum's collection. Mercer had received donations of several of these plants from a succulent collector. Mercer requested I help identify the species of this Euphorbia, and I was able to do so by showing one of the plants to members of the HCSS at the February 2020 meeting. I double-checked the ID online and confirmed the plant is indeed *E. hedyotoides*, so I reported the species identification to Mercer. These plants have been in my possession only since February 26, 2020, so I do not have much personal experience to report re this species and rely on other sources for information on germination and cultivation of *E. hedyotoides*. I plan to root some cuttings and shall share some with HCSS members.

REFERENCES:

Haevermans, T. 2004. *Euphorbia hedyotoides*. The IUCN Red List of Threatened Species 2004: e. T44358A10895752. <http://dx.doi.org/10.2305/IUCN.UK.2004.RLTS.T44358A10895752.en>

The National Gardening Association Plants Database (Euphorbias Database), <https://garden.org/plants/view/123970/Euphorbia-Euphorbia-hedyotoides/>

Insights on the Evolution of Plant Succulence from a Remarkable Radiation in Madagascar (Euphorbia). Evans, Margaret, et al., *Systematic Biology*. Vol. 63, Issue 5, Sept. 2014, pp. 69-71 [entire article can be called up by searching the title of the article on Google Scholar]

Reprint from

The Desert NewsFlash *February 2020*

The Mighty Yucca and Its Unlikely Ally

By Seth Hamby, CDRI Head Gardener

Anyone who has spent time observing the flowers of a blooming yucca plant during the evening hours may have noticed that they are frequently visited by some rather unimposing white moths. These moths, while unimpressive by traditional standards of beauty, are critical to the survival of members of the genus *Yucca*, and in turn, the moths rely solely on the yucca for their own survival. The yucca plants require adult moths for the successful pollination of their flowers, while the larvae of the moth are dependent on the seeds of the yucca for food. This relationship, known as obligate mutualism, has evolved over millions of years, making the life histories of these two organisms uniquely intertwined.



Photo: M.J. Hatfield / BugGuide.net

The first recorded observation of this phenomena occurred in 1872 by botanist George Engelmann, most well-known for his work describing and cataloging the flora of the western United States, especially the southern Rocky Mountains and northern Mexico. Familiar species like Engelmann's oak, Engelmann's daisy, and Engelmann's prickly pear, among many others, were named for the botanist. Engelmann was critical to the foundation of the Missouri Botanical Gardens which today is one of the foremost research botanical gardens in the world. Seminal to the understanding of the relationship between yucca and yucca moths was the notable entomologist Charles Riley. Many accounts and papers written by Riley on the subject are still used today. Charles Darwin, in a letter to Riley, exclaimed that the yucca/yucca moth relationship was "the most remarkable example of fertilization ever published."

In the subsequent 150 years, our understanding of this relationship has grown by leaps and bounds. Three genera of yucca moths; *Prodoxus*, *Parategeticula*, and *Tegeticula* are now known to science. *Prodoxus*, or the "bogus yucca moths," feed on tissues other than the seeds and are not active pollinators. The other two genera, *Parategeticula* and *Tegeticula*, the "true yucca moths," actively pollinate plants, and their young feed solely on yucca seeds. There is considerable variation in the ecological interactions of yuccas and moths, so I will be describing common characteristics shared in most groups.

The female moths of both genera of "true yucca moths" are equipped with unique tentacle-like mouthparts used for handling pollen. The pollen is compacted with the tentacles and stored in a large batch underneath her head. The pollen load on a single moth can be as many as 10,000 grains and constitute 10% of the animal's body weight. Pollen collection can occur multiple times during the moth's life, so she can have pollen from many different plants within her batch. After she has gathered up enough pollen, she will seek out a member of her specific yucca host species and begin laying her eggs within the ovary, petals, or pedicels of the flower.

This is called ovipositing, and is done slightly differently by each species of yucca moth.

During oviposition, a pheromone is introduced which tells other moths that the flower has already been utilized, keeping other moths from laying their eggs in the same flower. Once a number of ovaries in each flower has been used by the moths, they will leave remaining ovaries untouched to develop into seeds for the next generation of yucca. After she has laid her eggs, the moth will gather pollen from her body and begin packing it into the stigma of the flower. A female will continue this practice multiple times, therefore ensuring successful pollination and subsequent seed production to feed her larvae.

After the larvae have consumed the seeds within the locules (compartments) of the ovary, they will chew an exit hole, and wait for optimal conditions to leave their nursery. Because the larvae burrow into the ground, they typically wait until it rains so that the soil is much easier to dig. Once in the soil, the larva spins a silk-lined cocoon around itself, enters a state of diapause (suspended animation), and pupates, until outside conditions are right for it to emerge as an adult moth. In lab conditions moths have remained in a state of diapause for up to four years before emergence. It is likely that in natural conditions, moths can remain in a state of diapause for many years until the conditions to create mass flowering events of yucca occur.



Photos from the Botanical Garden. Yucca (above, left), 3/28/2018. Soaptree Yucca (above right), 5/24/2018.

In the Big Bend region, four yucca species coexist with almost no overlap in flowering time. Now hold on, this is where it gets complicated. Since the discovery of this yucca/moth obligate mutualism, scientists have believed that coevolution was solely responsible for new species of both yucca and yucca moths (speciation).

All of the evidence seemed to point in this direction; moths developed mouthparts for yucca pollen collection and deposition, moth larvae only eat yucca seeds, yucca are only pollinated by yucca moths, and yucca have lost the ability to produce nectar to reward other pollinators.

However, using the mutation rates of DNA and other biomolecules (molecular clock), scientists have found that the speciation of yucca and the speciation of yucca moths are not synchronous. In other words, when a new species of yucca evolved it did not coincide with the evolution of new moth species, and vice versa. They have also determined that closely related yucca species typically do not co-occur, and here's the important part, neither do closely related yucca moths. When closely related species of yucca do happen to occur in the same area, closely related moth species do not. This is strong evidence that geographic isolation rather than reproductive isolation (not being able to produce viable offspring) through coevolution is the main driver of speciation in both yucca and yucca moths. Further analysis of the genus *Yucca* and the genus *Tegeticula* show that yuccas diversified 2-3 million years before the moths did, meaning the mutualistic relationship between the two did not evolve until well after yuccas were already established in their current ranges. So what IS driving the speciation of yuccas and yucca moths?

Just like with all scientific endeavor, when one question is answered, a whole slew of new questions often arise. This is why it is critical to continue to respect, appreciate, and fund science in this country. So much of the creature comforts we enjoy, our understanding of natural history and the cosmos, advances in medicine and technology, and many of our triumphs as a human race were made possible through science.

Here at the CDRI Botanical Gardens we have seven of the nine species of *Yucca* known to occur in the Trans-Pecos ecoregion. We should be seeing our first flowers by mid-March, so please come visit us and witness this spectacle of nature, now with a greater appreciation for its complexity and interconnectedness.

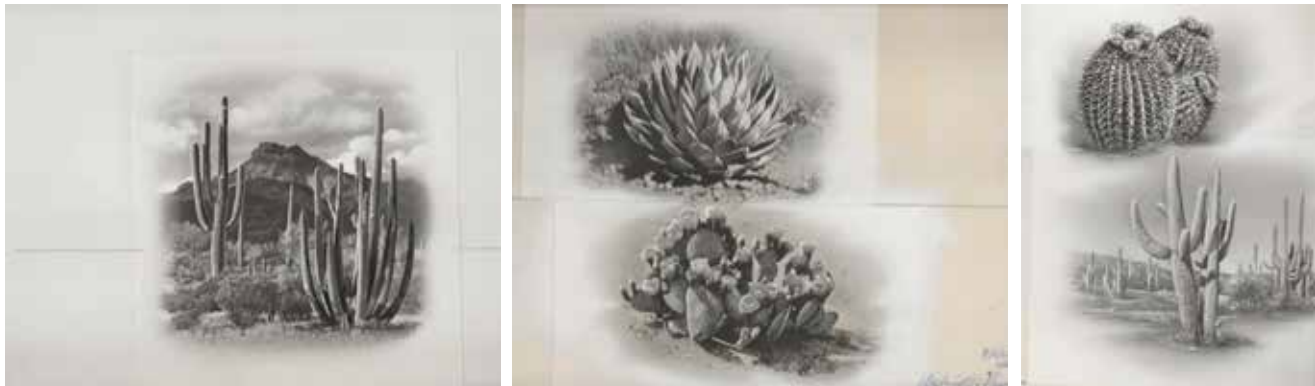


Photo of Faxon yucca in the Botanical Garden, 4/22/2019.

US DESERT PLANTS POSTAGE STAMPS

Tom Cardinal

I have recently acquired from Washington Press the original production art engraving plates used to make the 1981 US Desert Plants Artcraft Cachets first day covers and the America The Beautiful 1989 Artcraft Postcard.



HCSS Leadership and Contact Info

President
 Josie Watts
 josiewatts@mindspring.com

Treasurer
 Bruce Moffett
 bmoffett@mindspring.com

Education
 David Van Langen
 dvl@pdq.net

First Vice President
 Wally Ward
 wtw3arb@aol.com

KK editor and Webmaster
 Karla Halpaap-Wood
 khalpaap@me.com

Ways and Means
 Rolando Ontiveros
 rolandoontiveros@outlook.com

Second Vice President
 Cindy Gray
 grayco60@hotmail.com

KK publisher
 Imtiaz Bangee
 imbangee@yahoo.com

Publicity and CSSA affiliate
 Liliana Cracraft and July Olson
 opuntia77@yahoo.com

Recording Secretary
 Kathleen Canty
 kathleencanty@sbcglobal.net

Membership
 July Olson
 Saint.juniper@gmail.com