

FLORIDA WEST COAST BROMELIAD SOCIETY

1954-2020

Celebrating over 67 Years in Bromeliads

fwcbs.org



March 2021 Newsletter

NEXT MEETING- ZOOM MEETING

Date: Wednesday, March 3, 2021, Zoom Meeting

Time: 7 pm

Location: Your computer, laptop, or iPhone

Our next meeting will be a Zoom meeting with Richard Poole serving as meeting facilitator. Details on how to join the meeting will be provided in an email to members.

The speaker will be Guillermo Rivera with a presentation titled *Diversity of Bromeliads in Central Brazil*. His talk will focus on the variety of habitats in Central Brazil, particularly in the states of Minas Gerais and Bahia, and the great diversity of bromeliad genera and species that grow there.

Born in Argentina, Guillermo now lives in Florida where he owns and operates Plant Expeditions (formerly South America Nature Tours), a company that runs organized botanical tours to South America, Mexico, South Africa, Madagascar, and Namibia, with emphasis on bromeliads, orchids, cacti, and other succulents. He is a former researcher at the University of Cordoba, Argentina, and has degrees in biology, botany, and marine biology.

HIGHLIGHTS

Our February meeting was conducted via Zoom on Wednesday, February 10, 2021, with speaker Dr. Sally Chambers, Research Biologist at Marie Selby Botanical Gardens. Her presentation topic was *Taxonomic Status and Conservation of Tillandsia utriculata*.

Dr. Chambers has a PhD in plant ecology and evolutionary biology and completed her undergraduate work in natural resource and conservation management. She recently held the position of postdoctoral botanical researcher at the University of Florida and had an internship in the Horticulture Department at Missouri Botanical Garden. While her research was primarily on ferns, she also studied species distribution patterns, why plants grow where they do and how populations interact with each other. She uses a combination of field, molecular, and computational modeling approaches to assess her data. Sally joined Selby gardens in 2017 where she will expand the gardens' study of the fern plant group and work with their bromeliad and orchid research team.



Dr. Sally Chambers

In her presentation, Dr. Chambers discussed the geographic distribution of *Tillandsia utriculata*, the threat to it posed by an invasive weevil, its relationship with other similar species (phylogenetics), efforts to conserve this endangered plant, and additional studies.

Tillandsia utriculata geographic distribution and characteristics

Tillandsia utriculata (common names: giant airplant, spreading airplant; picture on the right) is native to Florida and Georgia in the U.S., the Bahamas, the Caribbean, southern and eastern Mexico, and Central America where it grows in hammocks, cypress swamps and pinelands. It is the largest native *Tillandsia* species in the U.S. with leaves that can reach 2 feet in length and a flower stalk up to 6 feet in height. It can hold large quantity of water in its leaf axils, more than other native Florida bromeliads, which makes it a major host of aquatic invertebrate animals that reside in the water. It is among the few bromeliads that do not grow pups but reproduce only by seeds released from the bloom stalk. It can live up to 20 years and take many years to mature and produce seeds.



Tillandsia utriculata

Til. utriculata and the weevil

Florida has 16 native species of bromeliads, and 12 of those species, plus 2 natural hybrids, are threatened by the invasive Mexican bromeliad weevil *Metamasius callizona* (picture below, on the left). They are also threatened by illegal collecting and habitat destruction. The weevil was accidentally brought to Florida from Mexico in 1989, reportedly in a shipment of bromeliads to a Broward County nursery and has since become established in the southern and central portions of the state. Below on the right is a map that shows locations in Florida where the presence of the weevil has been documented.



Adult weevil, *Metamasius callizona*



Weevil distribution in Florida

While the weevil infests most of Florida's native bromeliads along with some bromeliads grown in cultivation, it disproportionately attacks *Til. utriculata*, whose populations in southern Florida have been devastated. It is among several Florida native bromeliads currently included on Florida's Endangered Plant List. Prior to the weevil invasion, large, dense populations of *Til. utriculata* were found throughout its habitat range but today its occurrences are rare and sparse. This is in large part because it reproduces only by seeds that can take decades to produce, and the weevil kills the plant before it can mature and set seeds. As a result, seed output will fall below a sustainable level and the plant could

eventually disappear. Other similar native bromeliads such as *Til. fasciculata* (common names: cardinal airplant, common wild-pine) survive the weevil assaults better because they reproduce by offsets in a shorter time span, which sustains their populations.

The life cycle of the weevil is typically 8 to 10 weeks long. The females feed on plant leaves and then cut slits into the center of the plant's stem where they lay eggs. Larvae hatch from the eggs, eat through the growing stem tissue at the base of the plant and use the shredded plant material to form a cocoon around themselves. Inside the cocoon the larvae develop into worm-like pupae, which become adults that will emerge from the cocoon. Larvae tunneling causes large holes at the base of the plant and is the primary mechanism for the plant's destruction.

Species relationships and phylogenetics

According to Dr. Chambers, there are potentially four different species of *Til. utriculata* that occur throughout its geographical range and possibility a fifth that occurs in the Greater Antilles. They are similar in appearance but with slight variations in morphology, i.e., physical forms and features. For example, the species in Florida has a green stalk and the species in Central America has a purple stalk. One of Dr. Chambers' goals is to identify a species with the appropriate genetic makeup that makes it resistant to weevil infestation. In this effort, she will study their relationships and evolutionary history (their phylogenetics) and genetic structure. Some have suggested importing a weevil-resistant species that could breed with the native species or replace the native species in the event the native is ultimately exterminated. However, this is a controversial topic and there are those who would resist introduction of a non-native species into Florida.

Conservation efforts and related studies

Locating and mapping weevil distribution --Dr. Chambers stated that in response to the need to document Mexican weevil distribution throughout Florida, Selby Gardens started an iNaturalist project to track weevil spread and occurrences. iNaturalist is an online social network where people worldwide share biodiversity information and observations that are useful for specific local projects. Dr. Chambers encourages everyone to become an iNaturalist user to help document the weevil's distribution by either direct sightings of the insect, or evidence of damaged plants. Postings are most useful if they include images of the plant damage and insect larvae, pupae or pupal chambers, and/or adults to confirm insect presence. (To see examples of weevils and plant damage, go to this link--http://entnemdept.ufl.edu/creatures/orn/m_callizona.htm.) To access the iNaturalist web site visit: <https://www.inaturalist.org/projects/mexican-bromeliad-weevil-metamasius-callizona>. To post your information, use the ID 'Metamasius callizona'.

Tank water sampling and analysis--Dr. Chambers is writing a grant proposal to study tank communities in *Til. utriculata* and its close relatives (*Til. calcicola*, *Til. pringlei*, and *Til. elusiva*) by sequencing water samples for DNA to identify organisms who live or have lived there, including the Mexican weevil. Water held in the tanks of bromeliads is referred to as a 'phytotelma' (phyto= plant; telma = pond), which means a small water-filled cavity in a plant that can serve as a habitat for other organisms. This habitat is critically important for a variety of aquatic organisms, some of which are found only in bromeliad pools. Loss of *Til. utriculata* and other threatened bromeliads will negatively impact the biodiversity of the populations of organisms that live in the tanks. Examples of organisms found in the tanks include insects (mosquitoes), spiders, worms, mites, frogs, salamanders, and snakes.

SHOW AND TELL

Richard Poole *Aechmea* 'America', variegated sport of *Aechmea* 'Blue Tango'
Aechmea 'Coppertone' (photo below), cv. Of unknown parentage
Aechmea mexicana variegated (photo below)
Aechmea ramosa, two different forms
Neoregelia 'Inferno', with stacked and raised center leaves (photo below)

Linda Sheetz *Aechmea lepantha* (photo below)
Androlepis skinneri (photo below)
Guzmania 'Tutti Frutti', variegated (photo below)
Tillandsia copanensis (photo below)

SHOW AND TELL PLANTS



Aechmea 'Coppertone'



Aechmea mexicana,
variegated



Neoregelia 'Inferno'

Note: The center of the *Neoregelia* 'Inferno' pictured above has developed symmetrically stacked and layered leaves (pictures below). A bromeliad, most often a *Neoregelia*, will exhibit this odd growth instead of producing flowers. Its occurrence is unpredictable, and it happens unexpectedly, and such a plant is not expected to produce pups with the same feature.



Aechmea lepantha



Androlepis skinneri



Guzmania 'Tutti Frutti', variegated





Tillandsia copanensis

Note: For the bromeliad *Tillandsia copanensis* (picture on the left), the suffix *-ensis* on the species name means ‘habitat, country, or origin’. In this case, it indicates this species is from the area around Copán, a small village in western Honduras near the Guatemalan border. The town sits at an elevation of 2,400 feet above sea level in the foothills of a lush, green valley. This species grows within a limited area, only on the valley’s steep limestone cliffs.

Copán was occupied by the Mayans for more than 2,000 years before it went into decline in the ninth century AD. It served as the capital of the Mayan civilization for much of its existence and today is an archaeological site with a major complex of Mayan ruins. It is worth a visit.

Til. utriculata can grow to more than 2 feet wide with a bloom stalk that can grow to a height of 3 feet. It grows in strong, indirect light to partial direct light and is not commonly grown in most collections.

THIS AND THAT

Displaying Bromeliads

There is a small clump of paurotis palms near our front door on which we have hung a number of Tillandsias on the trunks of the palms (pictures below). There, they can receive a good combination of sun and shade and occasional watering from a nearby elevated water sprinkler head.



Tillandsia plants hanging from trunks of paurotis palms

The plants are hung two different ways--from the base of a frond stem (picture below on the left) and from a zip tie fastened around the trunk (picture below on the right). Using the base of a stem is fine for lighter weight plants while heavier plants tend to pull the stem down.

Also, eventually the stem will rot and give way and no longer support the plant. In that event, I just move the plant to the base of another stem.



Hooks hanging from stem base (left) and zip tie (right)

IN THE GARDEN THIS MONTH



Billbergia 'Mary Louise'; submitted by Barb Gardner



Aechmea bromeliifolia, submitted by Barb Gardner



Billbergia 'Hallelujah', submitted by Barb Gardner



Portea species or hybrid,
submitted by Richard Poole



Aechmea nudicaulis, submitted
by Monika Hale



Aechmea smithiorum,
submitted by Monika Hale

BROMELIAD AND OTHER PLANT EVENTS, 2021

March 13-14, Leu Gardens Plant Sale

1920 North Forest Ave, Orlando, FL, 9 am to 5 pm
(<https://www.leugardens.org/plant-sale-march-13-14-9-am-5-pm/>)

April 10-11, USF Botanical Gardens Spring Plant Sale—POSTPONED until FALL 2021

June 8-12, 2021, 24th World Bromeliad Conference, *The Big Show*

Celebrate BSI's 70th anniversary, Hyatt Regency Hotel, Sarasota
(<https://www.bsi.org/new/conference-corner>)

June 19-20, USF Botanical Gardens Summer Plant Sale

University of South Florida, Tampa, FL (<https://www.usf.edu/arts-sciences/botanical-gardens/>)

October 9-10, USF Botanical Gardens Fall Plant Sale

University of South Florida, Tampa, FL (<https://www.usf.edu/arts-sciences/botanical-gardens/>)

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