

FLORIDA WEST COAST BROMELIAD SOCIETY

1954-2022

Celebrating over 68 Years in Bromeliads

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October 2022 Newsletter

NEXT MEETING

Date & Time: October 4, 2022; 7:30 pm
Location: Good Samaritan Church
6085 Park Boulevard
Pinellas Park, Florida 33781

PROGRAM

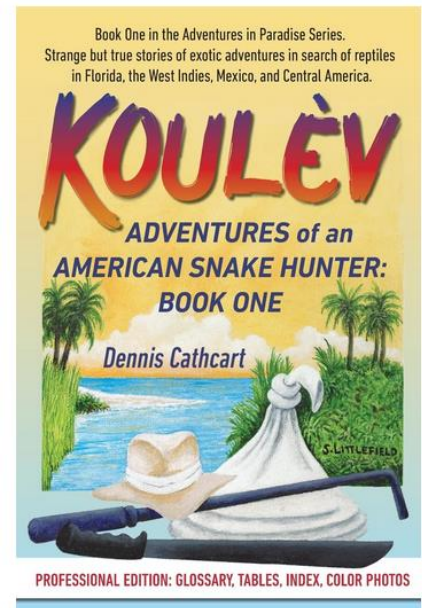
The speaker at next month's meeting will be **Dennis Cathcart** with a presentation titled *A Naturalist Visits Cuba*, a collection of images from the three trips he made to Cuba this year. He will show the bromeliads he found there along with the reptiles, mammals and birds and their habitats in four major areas. He will expand his talk to include the Cuban scenery and lifestyle he encountered.

Dennis will bring with him copies of his new book *Koulèv: Adventures of an American Snake Hunter, Book One* (pictured on the right) for purchase. Before Dennis found his future in bromeliads, in his early years he became a self-taught herpetologist. This book begins in the 1960s and is the first of what promises to be many more chapters about his life experiences and travels to track down and find specimens in their native habitats in the New World.

The book is available in three versions—

- Collector Edition, hardcover (472 pages and color photos, \$47.99)
- Professional Edition, paperback (472 pages and color photos, \$34.99)
- Black and White Edition, paperback (442 pages, \$17.99)

You can order the book in advance, and Dennis will bring it to the meeting where you can pay for it. Contact Tropiflora Nursery at 800-613-7520.

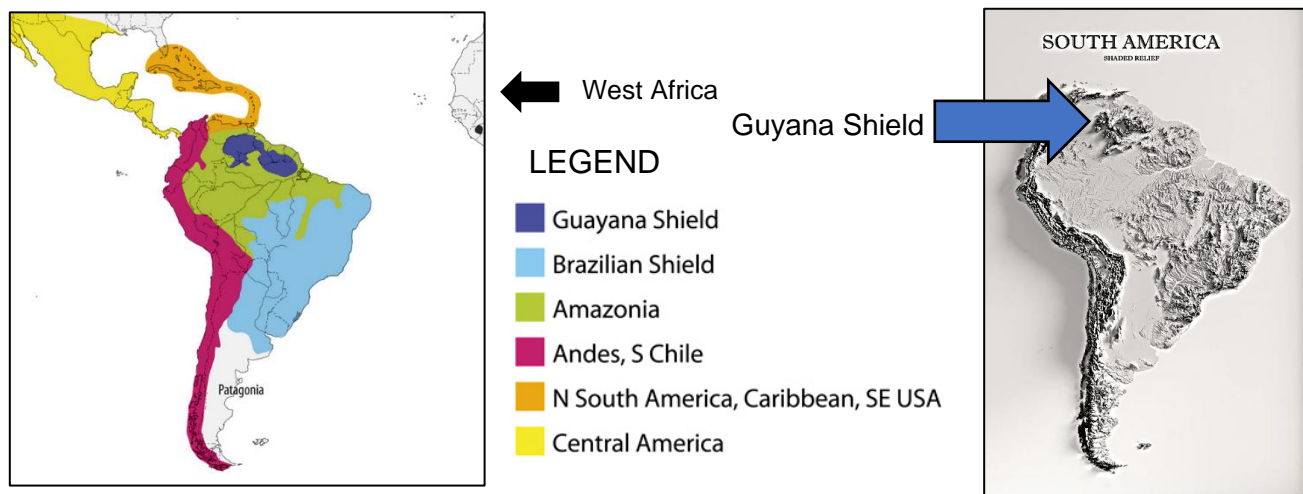


LAST MEETING HIGHLIGHTS

Bruce Holst of Marie Selby Botanical Gardens presented a program titled *Origin of the Bromeliads* in which he tied together the evolution, geographic distribution, and characteristics of the eight currently recognized sub-families of bromeliads. He highlighted the Guyana Shield of northeastern South America with its fascinating geological and botanical sites that were important in the evolution of bromeliads. Bruce has studied plants of the American tropics for over 30 years, 20 years of which he was intimately involved in the project that resulted in the publication *Flora of the Venezuelan Guyana*. Completed in 2005, it was published in nine volumes and treated the 10,000 plant species in Venezuela's 'Lost World' region, also known as the Guyana Shield.

Guyana Shield

The Guyana Shield is a geological formation in northeast South America that forms a portion of the northern coast in the countries of Guyana, Suriname, French Guiana and portions of Venezuela, eastern Colombia, and northern Brazil. (See the two figures below.)



Source: *American Journal of Botany*, May 2011, TJ Givnish et al

The lowlands on the shield are covered with a large expanse of tropical forests with meandering rivers. The higher elevations are called the Guyana Highlands, the north-central portion of which is dominated by high flat-topped mountains called tepuis. The highlands are also the source of some of the world's famous waterfalls such as Angel Falls, the world's tallest uninterrupted waterfall.

There are more than 100 tepuis in the highlands, some over 10,000 feet high above the lowland forests. The flat tops of the tepuis range from 250 acres to 230 square miles in area and some are rocky and barren while others are forested. They are made up of sandstone with a hard cap that prevents the tops from eroding while the sides are etched away, leading to the steep, sharp cliffs along the sides. If the sides are not too steep, when the weather is dry, the tops can be accessed on foot, which usually takes several days. When the weather

is wet, the slopes are slippery and progress on foot is impossible. Bruce's preferred method to access the tepui tops is by helicopter, when available.

The Guyana Shield is one of the regions of highest biodiversity in the world and has many endemic plant and animal species that are restricted to the types of habitats found there. According to Bruce, the area is relatively untouched, and the biology poorly known in part due to the remoteness of the rain forest and great flat-topped tepuis on the shield. Bruce is continuing to make trips there to identify specimens and retrieve new species and so far, he has documented dozens of new species. According to Bruce, threats to the habitats on the shield include mining for gold and diamonds and ecotourism groups that have begun trekking through the area.

Bromeliad Evolution

Precursors to bromeliads first appeared on the Guyana Shield about 500 million years ago (MYA) and began to evolve into the eight subfamilies recognized today about 20 MYA. They first appeared in the Andes about 14.2 MYA and in the Brazilian Shield about 9.1 MYA. Some of the early bromeliads are not recognizable as we know them today while some appear the same and unchanged today as they were when they first evolved. Bruce showed a picture of a dried specimen of one of the earliest known bromeliads that was thought to be a lily until it was correctly identified in the 1930s.

The recent use of bromeliad DNA sequencing has allowed scientists to develop a history of bromeliad evolution by analyzing relationships within the bromeliad family. This resulted in a new, eight-subfamily classification that is used to deduce the order of bromeliad evolution and how and when they spread into different regions. There were originally three bromeliad subfamilies, divided up based on morphology, structures, and flower anatomy: *Bromelioideae*, *Tillandsioideae*, and *Pitcairnioideae*. Based on DNA, *Pitcairnioideae* was split up to make five additional subfamilies, most of which are not commonly grown in cultivation.

The order of bromeliad subfamily evolution, from oldest (first) to youngest is as follows.

*Brocchinioideae, 2 genera-Ayensua, Brocchina

*Lindmanioideae, 2 genera-Connellia, Lindmania

Tillandsioideae, 18 genera

*Hechtioideae, 1 genus, Hechtia

*Navioideae, 5 genera-Brewcaria, Cottendorfia, Navia, Sequencia, Steyerbromelia

Pitcairnioideae, 5 genera-Deuterocohnia, Dyckia, Encholirium, Fosterella, Pitcairnia

*Puyoideae, 1 genus, Puya

Bromelioideae, 42 genera

*One of the five new subfamilies derived from subfamily Pitcairnioideae.

The first three in this list (the oldest) are spineless while the subsequent younger ones have spines.

SHOW AND TELL

Barb Gardner

Nidularium procerum (picture below)

Aechmea nudicaulis var *aequalis* (picture below)

Franne Matwijczyk

Wallisia cyanea (formerly *Tillandsia cyanea*)

Karen Mills

Tillandsia utriculata in ceramic hanging basket (picture below)

SHOW AND TELL PLANTS



Nidularium procerum



Aechmea nudicaulis var. *aequalis*



Tillandsia utriculata

THIS AND THAT

New Member

The April newsletter mentioned new member Jean Homan who joined in March with a promise of her picture. And here it is at last (on the right).

Welcome, Jean.



Jean Homan

Bromeliads and their Ecosystem Niche

Below is a picture of a large (about 18 inches across) *Neoregelia* on a screened-in patio showing its abundant water-filled tank in which there are dozens of tadpoles. In the days after the picture was taken, the number of tadpoles in the tank decreased quickly. It is speculated that lizards also living on the patio were eating them.



Neoregelia inhabited by dozens of tadpoles in the water-filled tank (close up on right).
(Source: Diana Bond, Naples, FL.)

This is one more example of the micro-ecosystem that exists in tank bromeliads, those that hold water in their center leaves and serve as a habitat for a number of species. It shows the interaction of animal life within the tank. In this case a frog lives in and around the bromeliads eating insects attracted to it, then lays eggs from which tadpoles emerge. The tadpoles then eat mosquito larvae if present, and lizards in turn eat the tadpoles.

Several hundred species of aquatic organisms can be found in these habitats, and some are found nowhere else except in bromeliad pools. Common inhabitants include fungi, algae, protozoa, and small invertebrates such as insects, spiders, scorpions, mites, worms, and even crabs. Vertebrate inhabitants of bromeliad tanks include frogs, salamanders, and snakes. Birds have been observed drinking water from a bromeliad tank.

This biological community also benefits the bromeliads who derive nutrients from plant debris and decomposing animals and insects. This allows them to survive in areas that are otherwise nutrient poor.

IN THE GARDEN

Submitted by Barb Gardner



Aechmea dichlamydea trinitensis hybrid



xNiduregelia 'Fraudulenta'

Submitted by Gary Lund



Tillandsia vernicosa

BROMELIAD AND OTHER PLANT EVENTS, 2022

October 1-2, Edison Ford Estates Orchid Sale and Symposium

Edison and Ford Winter Estates, Ft. Myers

(<https://www.edisonfordwinterestates.org/events/orchid-sale-symposium/>)

October 9-10, USF Botanical Gardens Fall Garden Festival

USF Botanical Gardens, Tampa, FL 10 am to 3 pm

(<https://www.usf.edu/arts-sciences/botanical-gardens/>)

November 4-5, Mead Botanical Garden Plant Sale and Fall Fest

Mead Botanical Garden, 1300 South Denning Drive, Winter Park

(<https://www.bromeliadorslando.com/activities>)

November 19-20, Annual Edison Ford Fall Plant Festival

Edison and Ford Winter Estates, Ft. Myers

(<https://www.edisonfordwinterestates.org/events/garden-festival/>)

December 3-4, Caloosahatchee Bromeliad Society Annual Sale

Edison and Ford Winter Estates, Ft. Myers

(<https://www.edisonfordwinterestates.org/events/bromeliad-sale/>)

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