



March 2021

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<http://www.tgcfernsoc.org>

Due to COVID-19 restrictions our meeting this month will be another “virtual” one. See below.

A message from our President:

Hi Everyone,

Now that the freeze is over and we have had some time to check our fern and see who has done well and who we are still waiting on. I know for me it has been fun checking one day and nothing, but the next day fronds have popped up. So far, the Korean Rock fern and the East Indian Holly surprised me the most. I did not think they would go down at 10F but they browned out on the tops, but stated pushing all new growth within three weeks. The Autumn fern surprised me that it did not go down at all with this temperature. Some of the maidenhair ferns are back and others have not done anything yet, so we will see. The clear winner for me was the sellaginella gold tip; it road this out like this happens every day.

Yes, I know this note is very late. My hard drive was on its last leg so I took my computer in and had a new one built and it took much longer than they said it would. The good news I'm back up and running and only need to figure out how to move all my photos and documents over to the new one. And yes, he said he would do this, but I'm not seeing it even in the file he marked old stuff. So going forward we should be able to send out the newsletter on time again.

Don't let the title of this month's meeting scare you off. If you have ever wondered how plants got from one point to another point around the world, this will help explain how as well as lot of other things that are very interesting in the way of ferns and where the live. I have heard part of this talk before, it was a condensed 15 minute talk, but was enough that I thought we would all love to hear the 45 minute one. I'm excited.

Well this is short so poor Paul can try to email you before the meeting is over. The meeting will begin at 2:00 pm CDT, A formal notice will be attached to Paul's e-mail forwarding this *Newsletter*.

Take care and see you Sunday,

Darla



Sunday's Topic:

Unfurling up the mountain: disentangling global patterns of fern biodiversity

By Jacob Suissa

Jacob is a botanist interested in the natural world and understanding how it works.

As a PhD candidate in the Friedman lab at Harvard University, he uses ferns and lycophytes as a study system to understand both micro- and macro-evolutionary processes. He works on and integrates topics ranging from morphology, anatomy, and physiology to character evolution, biogeography, and diversification.



Jacob Suissa



The American Fern Society (AFS)

The American Fern Society is over 120 years old. With over 900 members worldwide, it is one of the largest international fern clubs in the world. It was established in 1893 with the objective of fostering interest in ferns and fern allies. It exchanges information and specimens between members via their publications and spore exchange.

AFS non-professional membership (\$20) includes access to the Spore Exchange and subscription to the Fiddlehead Forum.

Professional membership (\$40) includes the benefits above plus access to the American Fern Journal.

Please note that donations to the AFS are not tax deductible.

To find out more about the Society and/or join, visit <https://www.amerfernsoc.org/>



2021 Officers and Committees:

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Minutes of Virtual Meeting via “GoToMeeting”

February 21, 2021

Texas Gulf Coast Fern Society

A virtual meeting was held due to COVID-19.

There were approximately 39 members in attendance.

Presentation: “Ferntastic!”

By Robin Moran

Robbin Moran is the Curator Emeritus at the New York Botanical Garden. He currently works in an honorary position at the Missouri Botanic Gardens in St. Louis, Missouri, continuing his research on the *Dryopteris* genus and the way they hybridize.

Fern leaves come in a large diversity of shapes such as large divided fronds from gently arching stems. Elaphoglossom genus are characterized by having a large single blade leaf. There are shoe string ferns, four leaf clover types and rosette types. Their life cycle is distinctive.

New sporophytes develop into mature sporophytes which produce fiddleheads. Sori are clusters of sporangia

(structures producing and containing mature spores) in ferns. Types of sori are based on their shape & position. Anastomosing sori are produced along heavy branching spores. Linear sori produce spores along the mid rib. Round sori produce spores that are usually brown or green. Acrostichoid sori produce spores that are smeared along the back surface of the leaf.

Annulus is an arc or a ring of specialized cells on the sporangium. These cells are arranged in a single row, and are associated with the release or dispersal of spores. Annulus cells are filled with water. As these dry out, the ring of cells bend backward. Eventually these dry out and snap back to the original position catapulting spores outward. Spores then get mixed in with the wind and travel away from parent plant. These fern spores are single cell and slightly bigger than a human hair. Sometimes the fern spore will land in fertile soil and germinate which grow into a tiny plant.

Ferns are over represented on Oceanic Islands. Oceanic islands are islands that rise from the ocean floor due to seismic or volcanic activity, as opposed to islands which form as part of a continental shelf where the water is shallow. Oceanic islands form far away from continents and are not linked with any large land masses. Fern spores arrive there by oceanic wind currents. On these islands, 20 – 40% of total species are ferns. On continents, only 7-10% of its entire flora are ferns. Galapagos Islands are 38% ferns.

Propagating ferns from spores using the Peat Pellet Method:

Need: boiling water, gin/tonic tumbler or cup, peat pellet, dissecting needle.

Pour boiling water over peat pellet. Put pellet in gin/tonic tumbler. The peat pellet will swell to 1 ½”. Use dissecting needle. Roll needle around spores. Put needle into peat pellet. Hundreds of spores will have transferred. Put it in a plastic bag. Place bag in a north facing window. Eventually it will produce green gametophytes. Use the dissecting needle to separate gametophytes. Pot up gametophytes in separate pots and place each in a Ziploc plastic bag until it gets a good size. There is a problem when acclimating the potted fern from the plastic bag to the drier outside air. The bag must be slowly opened to the outside air. Try an inch at a time over several days and even weeks. This will help to acclimate the plant slowly. Note: Growing from spore is time consuming. Try something challenging or try something that you need a lot of. Holly fern is easy to propagate this way.

Edible Ferns:

Ostrich Fern - *Matteuccia struthiopteris* is widest at the middle and narrows at the tip and base which gives it an ostrich plume appearance. It has a clumping habit. In the middle of the crown, it has specialized spore bearing leaves. They are strongly fertile leaves that eventually turn brown

and in late April will release its spores even when blanketed by snow. Fertile leaves are spore bearing leaves. Fiddle heads of ostrich ferns are eaten by humans. The price ranges from \$7.00 to \$8.00 per pint. Usually seen in June in the NE United States. To eat, wash off white scales and sauté in butter. Tastes like asparagus. Can find them in cans too. Also available pickled. It is the largest export of New Brunswick, Canada.

Sensitive Fern - *Onoclea sensibilis*, Veins are netted or meshed. Widely sold in horticulture. Fiddleheads are used as a vegetable or eaten raw. Remove the brown scales and then steam the leaves in very little water. The young shoots have been sold as delicacies in Asian markets.

Bracken Fern - *Pteridium aquilinum* is a weedy fern with large triangular leaves held upright and creeping rhizome. Underside of leaflets are recurved. When producing spore, the recurved margins help to protect the spores. Eating too much of this has been related to stomach cancer. It is eaten all over the world because it is very tasty. Bracken Ferns are the Lucretia Borgia of the fern world because when cattle eat bracken fern, the poison is passed to children who drink the cow milk.

Decorative Ferns:

Lady Fern Cultivars – Crested forms, red stemmed varieties

Tattling Fern cv. Victoria - Leaves are 3 dimensional. Pinnae are forked at base and along the midstem.

Japanese Painted Fern - purple red inner leaves extend to a lighter green outer leaves.

Ghost Fern – American Lady Fern X Painted Fern displays hybrid vigor. Has a ghostly grey color foliage.

Maidenhair Fern - *Adiantum pedatum*, Fiddleheads are reddish and when mature it forks.

Christmas Fern – *Polystichum acrostichoides*, Basal lobe faces upward. Toothed leaf margins. Fertile part of leaf changes color. Stays green throughout the winter so used in Christmas decorations.

Autumn Fern - *Dryopteris erythrosora* is native to Japan and Eastern Asia. Produces leaves throughout its growing season. Leaves emerge copper and turns green with age. Sori are red.

Two Aquatic Ferns:

Mosquito Fern – *Azolla* is the world's smallest fern. It is a branched, free floating aquatic fern that grows rapidly and turns bright red in the fall. It takes atmospheric nitrogen and fixes it inside its leaf structure. *Azolla* is used in rice cultivation to increase rice production by more than to 50%. Nitrogen is the single most limiting factor in rice cultivation, strongly affecting the crop yield. Less than 5% of the nitrogen sequestered by *azolla* is available immediately to the growing rice plants. The remaining 95% remains in the *azolla*'s biomass until the plant dies. As the plant decomposes, its organic nitrogen is rapidly mineralized and released as ammonia, which then becomes available as a

biofertilizer for the growing rice plants. Some South American growers mix *Azolla* with feed for Guinea Pigs and other livestock for its high nutrient value.

Giant *Salvinia* – *Salvinia molesta* is a terrible weed in East Texas. Two of its leaves are floating while another leaf dangles in the water. Sori actually float in the dangling leaf which is really a highly modified leaf. “Egg beater” hairs prevent water from saturating the leaf. Water is repelled by the “egg beater” hairs. Giant *Salvinia* forms an extensive mat that prevents boats from going through the water and also strangles other plants. Introduced the *Salvinia* weevil to control it but it was not very successful in the Gulf States.

Question & Answer:

His favorite adaptation is iridescence. Beautiful electric blueish color to green. It is an adaptation from the forest floor which causes the leaf to absorb more red light.

His favorite fern is the Potato Fern. A tropical, South American epiphytic fern of the genus *Solanopteris*. It has short lateral “potatoes” where ants live inside. Ants protect the plant from being eaten. The small golf ball “potato” is really a hollow, modified stem. Ants fill these with organic material and water. This organic material & water is absorbed the plant.

Green spores are viable for a shorter amount of time than brown or black spores. Non-green spores can last for several months.

He recommends the “Natural History of Ferns” book.

The meeting concluded at 3:45pm.

Respectfully submitted,

Cecil Dow



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