



The Sabal

March 2012

Volume 29, number 3

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March Meeting of the Native Plant Project:

Tuesday, Mar. 27th, 2012, 7:30pm

Ken King:

“LRG Wildflowers”

Valley Nature Center, 301 S. Border,
(in Gibson Park), Weslaco.

The Native Plant Project’s annual wildflower program will be presented by Ken King this year. Ken is coauthor of **Plants of Deep South Texas, A Field Guide to the Woody and Flowering Species** which

has become the must-have reference book/field guide for RGV native plants since its release a year ago. Ken is an educator, Board member of NPP, and one of the foremost naturalists in the Valley. The wildflowers are blooming abundantly this year due to all the rain we had in early February. Come see their beauty up close.



Argemone sanguinea,
TX Prickly
Poppy

The Sabal is the newsletter of the Native Plant Project.

It conveys information on native plants, habitats and environment of the Lower Rio Grande Valley, Texas.

Previous **Sabal** issues are posted on our website [www.NativePlantProject.org].

Electronic versions of our **Handbooks** on recommended natives for landscaping are also posted there.

Change of address, missing issue, or membership: <bwessling@rgv.rr.com>

President - Chris Hathcock - (956)-369-1744; <chris_hathcock@fws.gov>

“Primitive Plants Amongst Us”

— by *Mike Heep (and Christina Mild)*

Algae, Liverworts, Mosses and Ferns were once all lumped together in classification schemes as "Cryptogams."

Cryptogram means, more or less, "hidden marriage." Botanists in the 17th and 18th centuries could not see the reproductive organs of these plants.

TOP RIGHT: Dr. Al Richardson's photo of a **Liverwort**, circled, growing below a seedling, surrounded by darkened, dying moss, in cracked clay soil. This small colony of Liverworts was growing across from Ramsey Park in Harlingen.



LEFT: Moss growing in a Harlingen yard following rain. Magnified image of the same moss BELOW:



Fungi were also included in the Cryptogram scheme, but they are no longer considered to be plants.

All of the seed plants (Gymnosperms and Flowering plants) were called Phanerogams. They have easily visible reproductive structures (cones and flowers). These are the plants we most often notice and study, usually classifying them by the structure of their flowers.



Marsilea macropoda, LEFT, is probably our most common fern. It shows up as large colonies where water stands after rainy weather and disappears in the dry season. The spore-forming structure is hidden beneath the leaves and is shown magnified on the FAR LEFT.

Because *Marsilea* has four leaflets, it is often confused with clover.

There are several ferns and some mosses native to the RGV. They do not produce seeds but instead reproduce by producing tiny spores. They also have relatively primitive roots.



Several flowering plants are often confused with the small fern, *Marsilea macropoda*, when no blooms are visible.
 Plants are not classified so much by leaves, as by the methods they use to reproduce.
 LEFT is *Oxalis Drummondii*, which appears in moist places.
 Photo on RIGHT, by Dr. Al Richardson, is *Oxalis corniculata*, growing in Willacy County, but common elsewhere in the RGV.



For most of human history any living creature was identified as either being an animal or a plant. The invention of the microscope led to that idea being overturned as folks got a closer look at things.

In the 20th century, a five-Kingdom scheme became widely accepted. According to that scheme, any organism is either a Plant, Animal, Fungus, Protist, or Moneran.

Mushrooms were no longer plants, but Fungi.

Bacteria are not plants. Nor are they animals. They are Monerans.

Plants, Animals, Fungi, and Protists (generally one-celled animals living in water) have cells that contain a nucleus, a little bag inside the cell where the DNA is. They also have lots of little compartments inside the cell. Each compartment (organelle) carries on specific functions, which means there is lots of specialization and internal complexity. I've been to grade school classes where the students made little cells using sandwich bags with some water and stuff in them. A grape was often the nucleus. Peas and small chunks of carrots and rice grains and such were the other organelles.

Monerans don't have any of these compartments. No nucleus either. Just a ring of DNA and some other tiny chunks of stuff floating around inside. Very simple creatures. This difference in the internal makeup of the cells means they are a fundamentally different kind of organism from the others.

Current thinking is that the two main types of living creatures are not plants and animals. They are **Prokaryotes** (the Monerans, bacteria and Blue Green Algae) and **Eukaryotes** (everything else).

Nostoc is a Moneran. It is part of a group of Monerans known as Blue Green Algae. Most Blue



One of the most curious growth forms you may encounter in wild places after rain is the gelatinous green blob shown life-size on the LEFT.

This was photographed in Harlingen's Thicket after late February 2012 rains.

This is **Nostoc**, which is nibbled by rabbits before it dries into a thin blackish crust on the soil.

Native plant grower Benito Trevino recalls gathering dried Nostoc for his mother, who rehydrated it with water and served it as a green vegetable.

Because it rehydrates into a gelatinous membrane, it has been studied for medical uses such as a protective covering which could be rehydrated "in the field" for severe skin burns.

Green Algae live in water. Nostoc is uncommon in that it is terrestrial.

Watch out for the term algae. That is an old name for any photosynthetic creature that lives in water. Some are simple-celled Protists, like most of the pond scum stuff that you see. Others are vascular plants with specialized structures such as roots.

Most of the members of the Kingdom Monera are bacteria. You can't see them without using a microscope. The reason you can see Nostoc is because what you see is a colony of strings of microscopic Nostoc cells. They all work together to secrete a gelatinous material that holds it all together.

These simplest plants dominated the land areas of the planet at one time. They basically got out-competed by the seed plants. No water is needed for fertilization in seed plants. That was a big deal.

Ferns and mosses have a separate gametophyte, not attached to the sporophyte. In ferns it is almost microscopic, heart shaped. Some make eggs in a little flask-like structure. The male gametophytes make sperms that must swim through water to get to the eggs: not always an easy thing to do in dry areas.



ABOVE: Our most unusual fern is probably the **Bulb Lip Fern**, photographed in a desiccated state, growing on a caliche outcrop in Rio Grande City. It is *Astrolepis sinuata*, discovered growing at the site by Dr. Alfred Richardson and Ken King. In rainy weather, the leaves unfurl. Finding such a primitive plant in such a dry place is surprising, to say the least. Since moisture is needed for fertilization, reproduction is extremely limited in such conditions. As you might imagine, this fern is very rare locally.



ABOVE: Photo by Tom Stuart.

LEFT: *Astrolepis sinuata*, a young, cultivated plant. [Hardyfernlibrary.com] has additional information about this plant, using another common name: "**Wavy Scaly Cloak Fern**." It inhabits crevices, rocks and slopes, often on limestone. It is distributed from southwestern North America to southern South America, the Caribbean and is disjunct in Georgia in the U.S.

BELOW: Alabama Lip Fern was pointed out by Kathy Sheldon on a fieldtrip to the Rio Hondo property formerly owned by Frank & Georgiana Matz. It is *Cheilanthes alabamensis*, which is rarely encountered in Cameron and Starr counties. This fern may reach a growth of 20". One can see the difficulty in discriminating this leafy fern from the tiny leaflets of guayacan, in the shaded right-hand side of this photo.

(A more thorough and excellent discussion of RGV ferns can be found on pages 12-13 of "Plants of Deep South Texas," by Dr. Al Richardson and Ken King.)



BELOW: Lichen photo by Dr. Al Richardson. Lichens present another classification challenge for biologists. They result from a symbiotic relationship between a fungus and algae. They are often attached to woody plants, but also grow on rocky surfaces. They are soil-producers, in that they gradually break down the surfaces upon which they grow. Lichens are used by hummingbirds, as a camouflage covering for their tiny nests.



Seed Plants: The seed plants came up with a way to make lots of offspring without depending on those swimming sperms.

Seed plants make pollen. A pollen grain is the male gametophyte, the thing that makes the sperm. The female gametophyte is 7 little nuclei inside the ovary of the flower. Once the pollen grain gets stuck to the sticky stigma on the flower, a tube grows down the style. Two little sperm are produced inside the pollen grain and they travel down the pollen tube and reach the ovary. One of the sperm fertilizes the egg, forming a zygote which will grow into an embryo. The other sperm fuses with another cell of the gametophyte. This cell will begin dividing and form the endosperm, the food reserve for the embryo. So, a seed is an embryo with a food supply.

Then the pollen grain rolls over and goes to sleep.



Ephedra, shown in these photos, is another unusual plant found in the driest of local environments. ABOVE are photos by Dr. Al Richardson of *Ephedra antisiphilitica*. The photo TOP LEFT shows a male plant in flower, bearing multiple orange cones. The same species TOP RIGHT is shown in comparison with Cenizo. Note the thin straight stems with many nodes.

Ephedra pedunculata BELOW has a trailing or vinelike habit and climbs onto any convenient support. Separate male and female cones are found on different plants. Shown FAR BELOW is a female plant bearing mature red cones.



Gymnosperms & Ephedra: (excerpted from: **Remarkable Plants of Texas**, by Matt Warnock Turner, p. 122-124.)

“Gymnosperms ... are plants that lack true flowers and have exposed seeds, like those of a pine cone.”

“Ephedra actually holds a unique position between (the Gymnosperms and Angiosperms) ... On the one hand, it bears its seeds in cones and is definitely a gymnosperm; on the other hand, it has (highly specialized) reproductive features that are in line with angiosperms.”

“North American species of *Ephedra* in our area contain only minute amounts of ephedrine, though they do contain tannins and pseudoephedrine, the latter being the active ingredient in commercial decongestants.”

“The stems, simply chewed, are considered excellent thirst quenchers.”

“Early Mormon settlers ... found that they could imbibe the mildly stimulating *Ephedra* teas without violating the letter ... of their law.” Thus a common name: Mormon Tea.

“...the plant is heavily browsed by deer and cattle... quail feast on its seeds.”

“Although *Ephedra* teas likely helped to relieve the painful urination of gonorrhoea, they could not cure it.”

LRGV Native Plant Sources

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301 S. Border Ave.
Weslaco, TX 78596
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<info@valleynaturecenter.org>
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Perez Ranch Nursery

(Betty Perez & Susan Thompson)
12 miles north of La Joya, TX
(956) 580-8915
<PerezRanchNatives@gmail.com>

Mother Nature's Creations

(Billy & Sue Snider)
2822 Nueces, Harlingen, TX 78550
Nursery open by appointment:
(956) 428-4897

NABA Butterfly Park
Old Military Hwy & Butterfly Pk Dr
Mission, TX 78552
(956) 583-9009

Rancho Lomitas Nursery
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P.O. Box 442
Rio Grande City, TX 78582
(956) 486-2576 *By appt. only

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NPP Board & General Meetings 2011

(Fourth Tuesday each month)
Board Meetings at 6:30pm. Speaker at 7:30pm.

Here's an upcoming program for April 2012:

April 24, 2012.
John Goolsby:
the role of insects
on native trees.

PHOTO: Bee on
Barbados Cherry.



FROM: NPP; POB 2742; San Juan, TX 78589

The **Native Plant Project (NPP)** has no paid staff or facilities. NPP is supported entirely by memberships and contributions.

Anyone interested in native plants is invited to join.

Members receive 8 issues of **The Sabal** newsletter per year in which they are informed of all project activities and meetings.

Meetings are held at:

Valley Nature Center, 301 S. Border, Weslaco, TX.

Native Plant Project Membership Application

Regular \$20/yr. Contributing \$45/yr

Life \$250 one time fee/person

Other donation: _____

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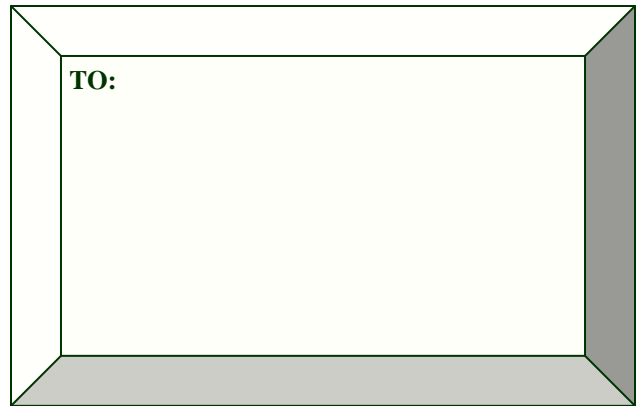
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Native Plant Project presents:

Tuesday, Mar. 27th, 2012, 7:30pm

Ken King:

“RGV Wildflowers”

at

Valley Nature Center,

301 S. Border

(in Gibson Park),

Weslaco.

956-969-2475

Photo: Pollinating Bee on Baby Blue Eyes, *Phacelia* sp.