



The Sabal

October 2017

Volume 34, number 7

In this issue:

October program p1 below
 Adaptations to Environmental Stress—p2
 Cacti: Tough, Fleshy Green Stems—p3
 Woody Plants & Water Retention—p4
 Especially Tiny Leaves—p5
 Growing Smaller Leaves in Drier Areas—p6
 LRGV Native Plant Sources & Landscapers,
 NPP Sponsors, Upcoming Meetings p7
 Membership Application (cover) p8

Plant species page #s in the Sabal refer to:
 “**Plants of Deep South Texas**” (PDST).

Editor:

Christina Mild
 <mild.christina@gmail.com>
 Submissions of relevant
 articles and/or photos
 are welcomed.

Editorial Advisory Board:

Mike Heep, Jan Dauphin
 Ken King, Betty Perez
 Eleanor Mosimann
 Dr. Alfred Richardson
 Ann Vacek

Native Plant Project (NPP) Board of Directors

President: Ken King
 Vice Pres: Joe Lee Rubio
 Secretary: Kathy Sheldon
 Treasurer: Bert Wessling

Drew Bennie
 Ginger Byram
 Raziel Flores
 Carol Goolsby
 Sande Martin
 Jann Miller

Eleanor Mosimann
 Christopher Muñoz
 Rachel Nagy
 Ben Nibert
 Ann Treece Vacek

NPP Advisory Board

Mike Heep
 Benito Trevino

NPP meeting topic/speaker:

"Transformations: Outmoded City Dump to Nurturing Nature Park"

—by *Christina Mild*

Tues., October 24th, at 7:30pm

Mrs. Mild returns to illustrate how more than a decade of volunteer work has transformed Harlingen's old city dump into a place of beauty and solace for humans and a wonderful habitat for animals. Harlingen's Hugh Ramsey Nature Park is unique in the valley because revegetation has occurred over the partially buried remains of a municipal trash heap. It is one of only a few projects in which volunteers have been responsible for planning and executing improvements in plant diversity and installing wildlife-attracting features. How do volunteers effectively transform a city-owned property with very little funding? What's actually in Hugh Ramsey Nature Park? Come find out.

Please join us.

The meeting is at: Valley Nature Center,
 301 S Border, (in Gibson Park), Weslaco. 956-969-2475.



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 - Ken King - <wk_king01@yahoo.com>

Adaptations to Environmental Stress

— by Christina Mild

When autumn temperatures drop and rains have fallen in Deep South Texas, we see a remarkable resurgence of green leaves and reemergence of plants unseen for many months.

We sometimes pause to wonder how the myriad native species have survived through almost constant wind, excruciating heat, scorching sunrays and desiccated soil.

Some of the adaptations which allow plants to survive these conditions are permanent, i.e., one observes these phenomena all the time. Other adaptations kick-in, so to speak, when conditions require a change of some kind for survival.

Joe Ideker (who edited this newsletter for many of NPP's early years until his death in February of 2000) summarized these phenomena in **The Sabal**, November 1989. In this issue, I expand on Joe's list and offer examples. We'll return our thoughts to Joe in upcoming issues. His contributions to our knowledge of native plants and indigenous wildlife is beyond amazing.

Tough Wide Leaves.

A number of plants, especially those which occur primarily in our most extremely dry, hot, rocky, sandy places are composed of the toughest green tissues a plant can manufacture.

Sabal Palms, Yuccas, Agaves, and Guapilla (*Hectia glomerata*) are great examples of plants with very tough wide leaves. Fibrous tissues deter herbivory, as do the spiny edges of some Agaves and Guapilla. A tough epidermis slows down the rate of water loss from leaves. Because these leaves are very stiff, they do not wilt, but continue to function well as photosynthesizing organs, utilizing sunlight and carbon dioxide from the air to produce the sugars needed as energy for most forms of life on planet earth.

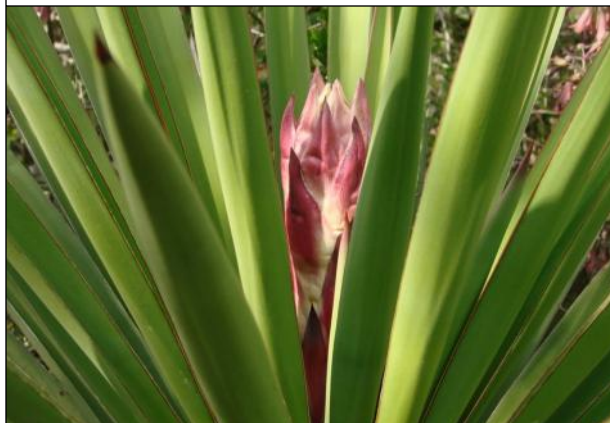
Below: PDST 28, *Hectia glomerata*. Slick leaves in a basal rosette direct raindrops into the ground before they can evaporate. Tender new leaves, curved to expose white undersides, reflect sunlight.



Below: PDST 27, *Sabal texana*. These reflective stiff fibrous leaves are further strengthened by folds and a strong central curving rachis. They simply do not wilt.



Below: PDST 20, *Yucca treculeana*. Shiny outer leaves reflect sunlight, protecting the tender bloomstalk. Spiny leaf tips deter herbivory as blooms mature.



Below: PDST 17, *Agave lophantha*. Slick leaves direct moisture quickly toward the plant's base for absorption by the root system. Fibrous leaves, with horny margins armed with sharp spines, slow down herbivores.



CACTI: A few water-preserving adaptations.
Tough Fleshy Green Stems.

Cacti have perfected the growth of wide fleshy green, photosynthesizing stems. Anyone learning about desert survival finds that cacti store copious amounts of water in these modified fleshy stems. How do they prevent that moisture from evaporating? In myriad ways, just a few of which we'll explore.

Cacti have a slick, reflective epidermis which allows little evaporation from underlying photosynthetic tissues and deflects moisture to the roots.

Stems are notoriously protected from herbivores by spines.

Reflective Spines. Cacti which appear to be composed primarily of spines are protected from constant scorching sunrays. The spines reflect many of the sun's rays, bouncing them away from the water-storing tissues of the fleshy stems.

Tubercles and Ridges. Many cacti have ridges, and/or tubercles, which allow the stem to expand when water is plentiful (without bursting) and to shrink when drought occurs.

Cottony Fuzz. Developing blooms are sometimes covered with cottony fuzz, which holds moisture and reflects excess sunlight.



Above: PDST 163, *Echinocactus texensis*. Bloombuds are protected by cottony fluff, which insulates from cold, holds moisture and reflects drying rays of the sun. Between swollen ridges one sees splits in the waxy epidermal covering.

Below: PDST 160, *Acanthocereus* sp. Ribs allow this and many other cacti to expand when water is plentiful and shrink in drought.



Below: PDST 169. *Mammillaria prolifera* var. *texana*. Hair Covered Cactus, with a spiny cover, is protected from herbivores. Excess sunlight is reflected away from the green epidermis below.



Below: PDST 163, *Echinocactus texensis*. Ribs of the Horse Crippler cactus allow the plant to shrink into the ground during drought. It's harder for herbivores to uproot when shrunken into hard soil.



Woody Plants & Water Retention.

Tough Green Stems & Bark. Many of our woody plants have chlorophyll-laden green stems, usually tough and fairly inedible. They carry on photosynthesis, especially when the plant is without leaves.

These plants are sometimes called xeriphytes, implying that they prefer dry places. Rather, they survive in very dry places because they're able to photosynthesize even when leafless. Most plants drop their leaves, or leaves shrink and wilt in very dry conditions. In places wet enough for most plants to produce masses of leaves, leafless or tiny-leaved "xeriphytes" are shaded out. They require ample sunlight to thrive.

Examples of species with photosynthetic stems and bark include Ephedra sp., Lotebush, *Koeberlinia spinosa*, Palo Verde and Retama.

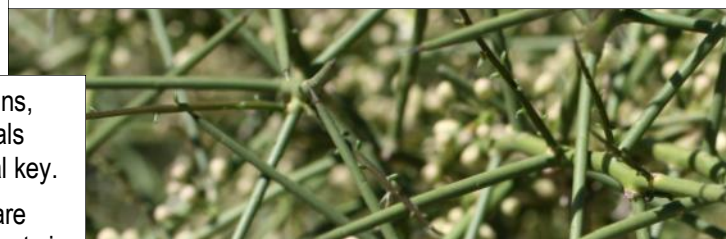
Below: PDST 234, *Parkinsonia aculeata*, Retama. During drought, leaflets fall from the rachis, exposing the green bark of branches.



Below: PDST 235, *Parkinsonia texana* var. *macra*, Palo Verde. When water is needed for blooms or fruit, leaflets are tiny or absent. Branches continue to carry out photosynthesis.



Below: PDST 176, *Koeberlinia spinosa*, Junco. Tiny leaves appear after rain. Short, stabbing woody branches protect nesting birds and are photosynthetic. In cool, rainy weather, blooms have a pleasant smell. In the heat of summer they stink like a corpse! Thus different pollinators are attracted seasonally.



Above: PDST 336, *Ziziphus obtusifolia*, Lotebush. After rains, large shiny leaves may obscure the spiny Lotebush. Animals quickly devour the leaves. Photosynthetic bark is a survival key.

Below: PDST 226, *Jatropha dioica*, Leatherstem. Leaves are larger in rainy season and absent during stress. Red pigments in the stem may allow crassulacean acid metabolism, which gives some arid plants another advantage in handling stress.



Below: PDST 14, *Ephedra pedunculata*, Vine Joint Fir. This gymnosperm's leaves are tiny, if present. Photosynthesis occurs mainly in thin flexible stems and branches.



Woody Plants & Water Retention, continued.

Especially Tiny Leaves.

Many of us find locally-native species difficult to identify, often because they have especially tiny leaves. The leaf-keys Midwesterners use to distinguish different trees and shrubs are not so useful here.

Subtle differences in leaf margins, color, texture, thickness, venation, taste and smell are more helpful characteristics for us to use.

Tiny leaves might be considered the rule rather than the exception. Here are notable examples, including *Gymnosperma*, Mexican Fiddlewood, Squawbush, and Amargosa.

Below: PDST 103, *Gymnosperma glutinosum*, Tatalencho, Gum-head. One of the many “damned yellow composites,” hard to distinguish or remember. This tiny-leaved shrub, up to 6’ tall, blooms from spring to fall, providing vital nectar and pollen for myriad insects.



Below: PDST 412, *Citharexylum brachyanthum*, Mexican Fiddlewood. Young stems are squared and dark in coloration, a bit reddish. Tiny white blooms are flattened onto leaf axils. This specimen is lush from the rainy season. Hidalgo and Starr counties.



Below: PDST 365, *Condalia spathulata*, Squawbush. During a rainy spring, myriad leaves adorn this thorny, low-growing shrub. Leaves are few and small in drier seasons. Starr County. Blooms in summer or fall. Magnified.



Below and right: PDST 390, *Castela erecta*, Amargosa. These tiny leaves illustrate several adaptations to survival in sunny arid climates. Leaves are often appressed against the stems and branches, shielding them from predation, sun and water loss. Undersides (see below) are white, reflecting much of the light which hits them. In addition, these leaves are extremely bitter, which limits the quantity an animal would normally consume.



Woody Plants & Water Retention, continued.

Growing Smaller Leaves in Drier Areas.

Familiarity with shrubs and trees in our eastern counties may leave you mystified to identify the same species growing in the arid western regions, and vice versa. In general, the same species growing in an arid region or season will produce smaller leaves.

In the case of Mexican *Trixis*, the trait appears to involve a genetic difference on some level, as a western plant transplanted into a well-watered area will continue to produce leaves much smaller than plants of more eastern origin.

Below: PDST 133, *Trixis inula*. Wide glossy leaves adorn specimens originating from more-rainy eastern areas of the valley. The wide leaves are fairly atypical of plants of deep south Texas. Specimen on right was photographed on Betty Perez' ranch near La Joya. It has typical narrow leaves of specimens from western valley.



Left: PDST 205, *Diospyros texana*, Chapote, Texas Persimmon. Leaves are often reduced in size in drier parts of the valley. One looks for curled-under edges on the leaf margins and the beautifully-peeling bark on the trunk and large limbs.



Above: PDST 409, *Ulmus crassifolia*, Cedar Elm. Usually found near resacas, ponds or the Arroyo Colorado, leaves on specimens growing in dry areas have leaves which are comparatively small. This is a strong tree which is especially resistant to wind and storm damage. This specimen is producing new leaves. Older leaves fall as new growth appears.



Above: PDST 372, *Randia rhagocarpa*, Crucillo. Leaf size on this shrub is dependent on the weather. After rains, leaves grow quite large in size, often mystifying plant enthusiasts who are actually quite familiar with this beautiful shrub. Blooms appear mainly in spring and summer, sometimes covering leafless branches. Paired spines form a cross, thus "crucillo."

LRGV Native Plant Sources

See also our
Sponsors on right

Perez Ranch Nursery

(Betty Perez)

12 miles north of La Joya, TX

(956) 580-8915

<PerezRanchNatives@gmail.com>

These vendors may sell exotics:

National Butterfly Center

Old Military Hwy/3333 Butterfly Pk Dr

Mission, TX 78572

office (956) 583-5400

Marianna Trevino Wright, Exec.Dir.

cell 956-648-7117

<mariana@nationalbutterflycenter.org>

[<http://www.nationalbutterflycenter.org>]

Rancho Lomitas Nursery

(Benito Trevino)

P.O. Box 442

Rio Grande City, TX 78582

(956) 486-2576 *By appt. only

Valley Garden Center

701 E. Bus. Hwy. 83

McAllen, TX 78501

(956) 682-9411

M&G Double D Native Plants & Seeds of South Texas, (Gail Dantzker)

956-342-5979; <gdld@att.net>

7500 N 21st St; McAllen, TX 78504

[mandgdoubled.com]

Grown at The Woods, Willacy Cty., TX.

Landscapers using Natives:

Landscaping, Etc. Inc.

Noel Villarreal

125 N. Tower Rd, Edinburg

Sponsors (Native Plant Nurseries)

Heep's LRGV Native Plant Nursery

Owned and operated by Mike and Claire Heep

We grow plants suited to landscaping
and revegetation in south Texas.

1714 S. Palm Court Drive, Harlingen, TX 78552

(956) 457-6834 <heep0311@yahoo.com>

[www.heepsnursery.com]



Come visit the VNC:

301 S. Border Ave.

Weslaco, TX 78596

(956) 969-2475

info@valleynaturecenter.org

www.valleynaturecenter.org



Native Plants for Sale

*Watch Birds
& Butterflies*

*A Secret Garden
in the Heart of the
Rio Grande Valley*

Valley Nature Center
-6 acre Nature Park & Trails -Book & Gift Shop-
-Native Plant Nursery-Meeting Room-
-Environmental Education and Exhibit Hall-



Above: PDST 92, *Clappia suaedifolia*, photographed by Raziel Flores Burquez. This tiny-leaved composite was blooming near the coast. Leaves are also thickened and succulent. Usually found in saline soils. Raziel posted this photo on [Facebook](#), in the "[Native Plants of the Rio Grande Valley](#)" Public Group. This is an excellent source for information on native plants and what's blooming around deep south Texas.

NPP Board & General Meetings are held at
Valley Nature Center

(4th Tues. each month, except thru summer)

Brd Mtgs 6:30pm — Speaker 7:30pm.

2017 meeting remaining: 11/28

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: _____

Please print:

Name _____

Address _____

City _____ State ____

Phone _____ Zip _____ - _____

I'm choosing the "green option!"

Send my SABAL via .pdf file to:

Email address: _____

*Please mail this form with dues check payable to:
Native Plant Project, POB 2742, San Juan, TX 78589-7742*



NPP meeting/speaker:

The Native Plant Project will present:

**"Transformations: Outmoded City Dump
to Nurturing Nature Park"**

—by *Christina Mild*

Tues., Oct. 24th, at 7:30pm

Follow the development of Ramsey Nature Park in Harlingen as volunteers from several groups transform mesquite and guinea grass into diverse plant life enjoyed by humans and wild creatures.

The meeting is held at
Valley Nature Center,
301 S Border, (in Gibson Park), Weslaco.
956-969-2475.

We hope to see you there!

In this issue: **Adaptations to Environmental Stress,**
Cacti: Tough, Fleshy Green Stems, Woody Plants &
Water Retention, Especially Tiny Leaves, Growing
Smaller Leaves in Drier Areas.



Above: *Isocoma drummondii*, PDST 110, Goldenweed. The tiny leaves and blossoms of this woody perennial allow the nectar-providing plant to survive in a hot, dry environment. A number of Composite plants have these tiny leaves and yellow blooms, making them a bit hard to differentiate. The butterfly is a White Peacock. This photo and many others in this issue are by Dr. Alfred Richardson.