



The Sabal

November 2010

Volume 27, number 8

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by Christina Mild, with Mike Heep, Ken King and Dr. Alfred Richardson.

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Nov. Meeting of the Native Plant Project:

“El Valle: A Visual Journey through the Valley”

by Seth Patterson

Tuesday, Nov. 23rd at 7:30 P.M.

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

Seth is a field photographer for Gorgas Science Foundation, member of the International League of Conservation Photographers, and the principal photographer for **El Valle**, a 284 page English / Spanish coffee table book of the Lower Rio Grande Valley. Come see some great photography of our native plants and animals and learn about Seth’s travels through the region while collecting these images.

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 - Eleanor Mosimann - (956)-748-2564; <mosimann@sbcglobal.net>

Indicator Species: Predominant Species in Soils with High Salt Concentrations

Second in a series on indicator plants. *By Christina Mild, with Mike Heep, Ken King and Al Richardson.*

Introduction: *by Christina Mild*

During many explorations with Bill MacWhorter of Weslaco, I became aware of several plants which provide clues about the soils they grow in or other environmental factors.

Carolina Wolfberry captured my attention, with succulent leaves, delicate lavender blooms and enticing red berries. I was further excited to learn that the berries are edible, delicious, and an important food-source for many species of birds, including sandhill and whooping cranes.

My first encounter with this small shrub (less than 40" tall) was at the Nature Conservancy's Chihuahua Woods. This Wolfberry grew as the dominant species in one area of the tract, with few plant competitors. Bill pointed out that area as being saline (high in salt), a factor which limits the growth of many plants.

Throughout the years, Mike Heep has recounted the problems of new landowners who were unaware of high-salt soils in acreage they acquired. Attempts to farm such tracts are often met with crop failure.

Carolina Wolfberry, when growing as a dominant species, provides a good clue to saline soils.

Screwbean Mesquite is another of these high-salt indicator species.

A number of succulents, including many species of cacti, and some species of grass, compete well in saline soils. In the western valley, Tumbleweeds occur in salty soils, and I've seen them growing in the Brownsville area, also.

The purpose of this article is not to provide an extensive list of salt-tolerant species. What you will find in this issue are:

*A few **easily-recognizable species** which are **reliable indicators of salty soils**,*

Resources which list additional salt-tolerant species,

Web links to soil survey maps,

A better understanding of salt tolerance.



ABOVE & BELOW: Carolina Wolfberry.
Lycium carolinianum, Solanaceae.



Screwbean Mesquite. Leguminosae. *Prosopis reptans* var. *cinerascens*. Shrublets up to 18" tall. Beans ~ 1.5" long. Spines ~ 1/2" long.

Berlandier's Wolfberry is taller and less salt-tolerant than Carolina Wolfberry. It has similar leaves and fruit, but smaller, often white blooms.



Mike Heep says: "Check out the surface soil. If it's powdery, it is saline/sodic. Lots of sodium really messes up the structure of the soil particles & creates that powder."

Sea Oxeye Daisy is another beautiful specimen which flourishes in saline soils. Colonies of this succulent-leaved small shrub are often surrounded by areas of barren soil.

A friend once pointed out such a colony, asking for identification. She planned to create a new garden of attractive natives to surround the Sea Oxeye Daisy. Other friends who wished to create butterfly gardens told me of their plans to do so in much the same habitat.

It's certainly tempting to select a salted-out area as the site of a new garden. Many weedy species don't survive in such soils. The salty area appears bare and in need of additional plant material. Such a salty garden spot would appear to require little pre-planting preparation. If only it were simple to alter the soil chemistry of such a spot!

Mike Heep provides this advice on altering saline soil chemistry:

Getting soil to drain well is the best way to improve the soil. Good drainage will carry the salt away. Some areas are salty because they collect water from higher spots. Then the water evaporates and leaves the salt there. They're a sink. If they drain, they're no longer the sink.

Adding organic matter improves the lousy structure, and helps to loosen it up. Makes the water penetrate better and helps to carry away the salt.

The **sodic soils, the powdery ones**, are tough to improve. Sulfur, especially Soil-Sul, can get rid of some sodium, as very soluble sodium sulfate.

But it's tough to get sodium out of there, as it is "mineralized". It's wedged into the soil particles. I think that the **more clay in the soil, the tougher it will be to improve. Sandy soils are much easier to improve**, as the salt doesn't stick to much of anything. In clay, sodium becomes part of the soil's "micelles."

For a small plot, perhaps planting a succulent plant and then removing it and hauling it away would help. Succulents are salt accumulators. They take up the salt, as opposed to other plants that exclude it. The sodium is toxic (it messes up enzymes that use Zinc, Magnesium, or other metals). Succulents stash salt in vacuoles to keep it from messing up any of the cellular chemistry. I think the Israelis have done that: plant a salt accumulator, let it pull in a bunch of salt, then harvest it and take it away. Sea Purslane (*Sesuvium portulacastrum*) would probably be the best local one to use. If I had land where that Seaside Heliotrope (*H. curassavicum*) grows, I'd harvest it and get it out of there, as it probably accumulates salt also.

In cases where it isn't practical to alter soil chemistry or to farm succulents, consider planting salt-tolerant species:

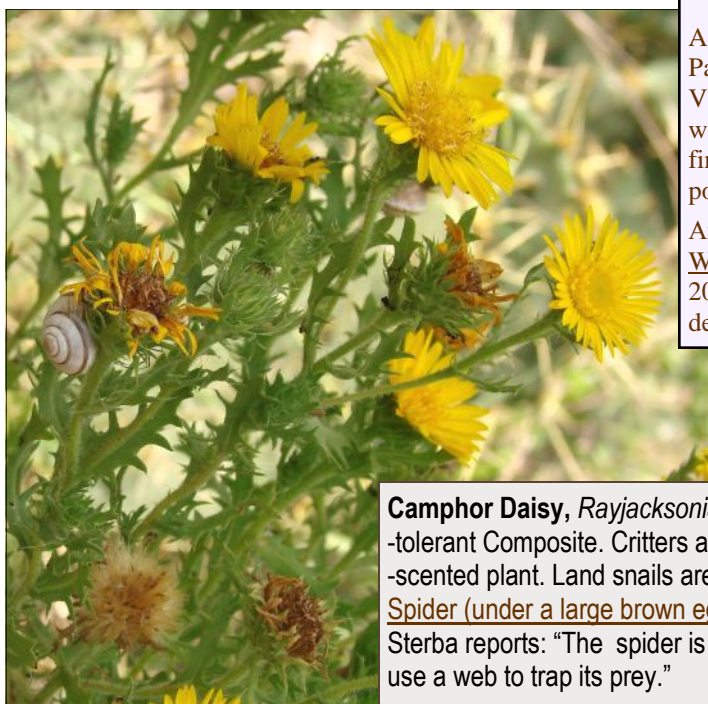


Borrichia frutescens, **Sea Oxeye Daisy**. Note the succulent leaves with toothed edges. An indicator of saline soils.

Help with selecting salt-tolerant natives:

A list of natives which have been successfully used in South Padre Island landscapes can be accessed on the website of Valley Proud Environmental Council: [<http://www.valleyproud.org>]. Select the link for Print Material to find a link to the planting guide. Species on this list will possess varying degrees of salt-tolerance.

An excellent pictorial guide is Dr. Alfred Richardson's [Wildflowers and Other Plants of Texas Beaches and Islands](#), 2002. In general, each species in this field guide has some degree of salt tolerance.



Camphor Daisy, *Rayjacksonia phyllocephala*, another salt-tolerant Composite. Critters are abundant on this camphor-scented plant. Land snails are at work and a [Green Lynx Spider](#) (under a large brown eggcase) is at home. Stan Sterba reports: "The spider is a stalker, hunter and doesn't use a web to trap its prey."





Subsaline Soils: In Aug. 2005, a large colony of a yellow-blooming composite with blue-green foliage was blooming in Margaret Colvin’s pasture near San Benito. *Clappia suaedifolia* is found in “subsaline soils,” which Mike Heep explains as “barely salty.” 0.5 – 3 grams per liter is the official amount of saltiness implied by subsaline. “Those are often the hardest plants to grow,” Heep continues, “plants which grow in subsaline soils.”

Clappia (photo on left) seems to fare well in grazed areas. Heep recalls seeing *Clappia* in bloom throughout an area near Brownsville. “Jackass Flats, or the Jackass Prairie, as it was known by,” Heep explained. “There were wild donkeys in there until they were reportedly rounded up and sold for dogfood.”

County Extension Service offices often have printed volumes of soil survey maps, with detailed information about soil types. Recently, this information has also become available online, where soil type information is overlaid on satellite maps of the area.

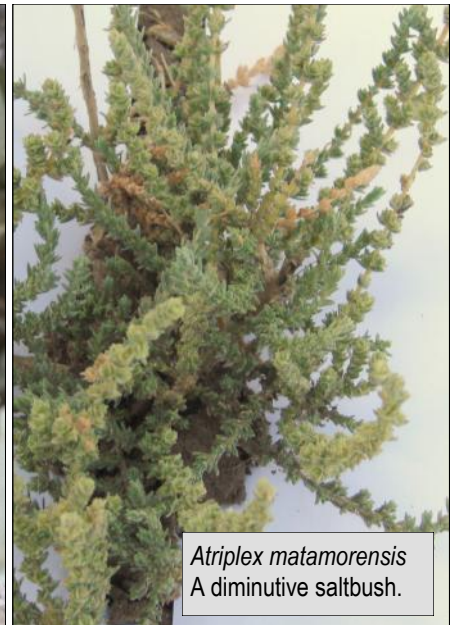
Check out: [<http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>]



Atriplex canescens.
4-wing Saltbush.



Atriplex acanthocarpa.
Spiny-Fruited Saltbush.



Atriplex matamorenensis
A diminutive saltbush.

*While we fully expect that coastal areas may have high-salt soils, various inland sites **are also high in salt concentrations.***

Ken King provides some detail on these areas:

The Salt Lakes. La Sal Vieja in northern Willacy County and La Sal del Rey in northern Hidalgo County are hyper-saline playa lakes. They were formed from dissolved minerals washing downhill and collecting in areas with no outlet except for evaporation. The concentration of minerals building up over time created the hypersaline conditions.

In the western valley are concentrations of crumbly-surface (sodic) soils with high mineral concentrations. The fossilized oyster beds also found in the western valley are an indicator of areas of former seabeds. Some of the species found in these areas include a wide variety of Saltbush, *Atriplex* species. (Photos in center above.)

Species which tolerate high salt conditions often “extrude” salt, and crystals accumulate on their leaves or stems. (Photo left.)

Some high-salt-tolerant plants are beautiful and quite rare; examples are featured on p.5.



Some Rare & Beautiful “Halophytes”



Frankenia Johnstonii.

Frankenia is a perennial shrub. Numerous stems grow thickly from woody roots. Bees and flies are the main pollinators.

Seedlings are rarely observed. Cattle seem to relish eating the plants' new growth. Frankenia is endemic to Texas (found in no other state in the U.S.). It occurs in only three counties: Webb, Zapata, and Starr.

Frankenia appears to be restricted to pockets of hypersaline soils. Frankenia uses salt elimination. It has very small leaves, oblong in shape, with edges which curl under. On the leaf underside are many small, dense hairs and numerous salt crystals which have been excreted by the plant.

Details from Jim Everitt about the soils where Frankenia is found: “I did some soil salinity tests in Starr County about 30 years ago on sites where Frankenia occurred and found these eroded hillsides to have salinity levels about 10 to 15 times that of sandy loam soils.

This was on Maverick Clay sites on Loma Blanco Road that have a great deal of shell material.”



It is often assumed that plants which survive in high salt soils are “obligate halophytes,” requiring salt for growth. In reality, many terrestrial plants which tolerate salt do not require it.

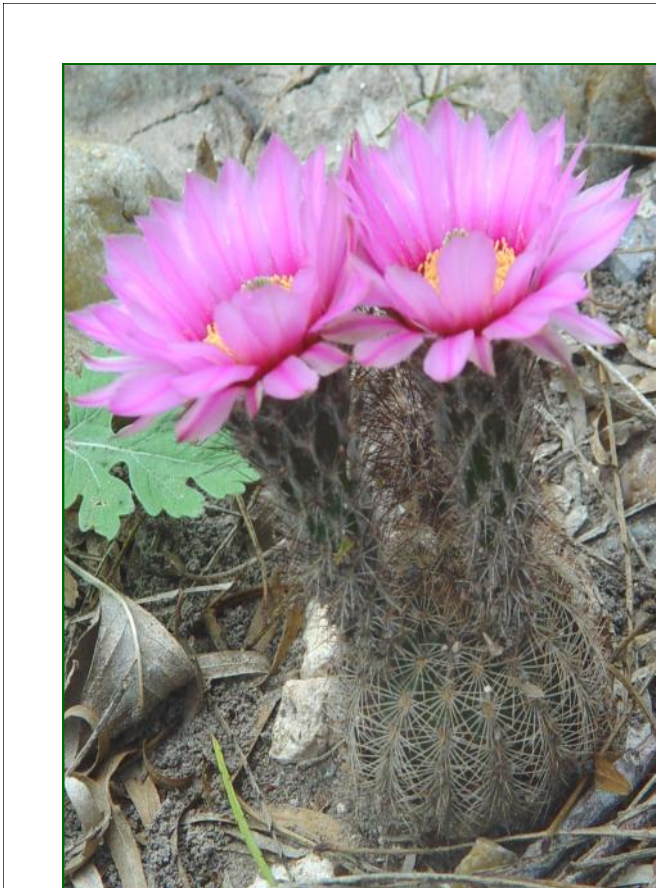
Cressa truxillensis, **Silky (or spreading) Alkaliweed.** Morning Glory family. Photographed at La Sal del Rey, 2005.



Cressa was previously reported from West Texas and along the Coastal Bend. The usual habitat is alkaline, saline soils on beaches, desert flats and playas (shallow, inland lakes). A population was found growing in abundance in 2005 at La Sal del Rey. Cressa had not been previously reported for the LRGV. It is a perennial herb.

Source: (Plants of Deep South Texas) in press.

Note the white crystals dotting the leaves above. They may be extruded crystalline salt.



Echinocereus reichenbachii var. *fitchii*

Fitch's Rainbow Cactus.

This pretty cactus is one of many western-valley species. Like many cacti, it survives in salt-laden soils.



LRGV Native Plant Sources

Heep's Nursery (& Landscaping)

(Mike Heep)
1714 S. Palm Court Drive
Harlingen, TX 78552
(956) 423-4513 * By appt. only

Valley Nature Center

301 S. Border Ave.
Weslaco, TX 78596
(956) 969-2475
<info@valleynaturecenter.org>
[www.valleynaturecenter.org]

Perez Ranch Nursery

(Susan Thompson & Betty Perez)
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

(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

Landscaper using Natives:

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Native Plant Rescue:

Valley Nature Center will rescue native plants slated for
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NPP Board & General Meetings, 2010: Nov 23
2011: Jan. 25, Feb. 22, Mar. 22, April 26, May 24

(Tuesdays) Board Meetings at 6:30pm. Speaker at 7:30pm
Most meetings held at Valley Nature Ctr.



Saladillo, *Varilla texana*. Several-branched subshrub growing 8-12 inches tall, usually spreading and forming clumps. Leaves are thick, succulent and dark green. Yellow composite flowerheads rise above the plant, resembling buttons on stems. Saladillo blooms from April to July and often in September thru October. Locally abundant in gypseous or saline soil of Hidalgo, Starr, Webb and Zapata counties.

Highlights from the Board of Directors Mtg. Oct. 26th, 2010

Jann Miller was appointed to fill a
vacancy on the NPP board of
directors. Miller will complete her
term in January 2012

The board of directors approved the
requested Sabal publishing increase.

Membership dues will be increasing
for the first time in at least 15 years.

Dues are collected in January.
An envelope will be provided
for returning dues payment
in the January 2011 Sabal.

New dues will be as follows:

Regular \$20 per year
Contributing: \$45 per year
Lifetime remains at \$250

There is no December meeting.
Happy Holidays to all.

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

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 __Life \$250 one time fee/person
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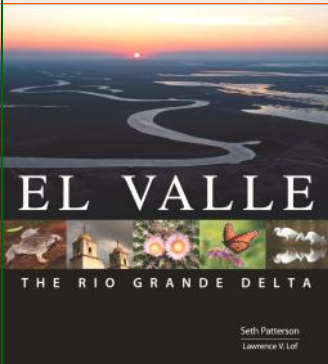
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www.NativePlantProject.org



"El Valle: A Visual Journey through the Valley"

by Seth Patterson



Valley Nature Center,
 301 S Border,
 Weslaco, TX

**Tues., Nov. 23rd
 at 7:30 p.m.**



ABOVE: Pixie on Whitebrush.
 BELOW: Queen on MX Trixis.

**Fall is
 Butterfly season!!**

