



The Sabal

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Mr. Yuck's Garden

by Christina Mild

Introduction. Let's take an imaginary tour on a cautionary trail thru a garden of mostly native plants *with toxic or irritating attributes*. Thorns, spines and prickles are such blatant problems that we'll ignore those for the most part. The qualities in focus here are less obvious, but equally problematic.

Humans have a propensity to propagate and coddle some of the most toxic plants on the planet. When I lead tours thru Harlingen's Thicket, most folks want to carry home three species of exotic Kalanchoes which threaten to abolish the understory diversity along much of the Arroyo Colorado. Reputable sources claim that a toddler who munched on one leaf of these might expire before reaching an emergency room. Many people insist they would never plant a thorny native in their yard, as a means of "protecting grandchildren." One might wonder, as a friend of Mike Heep questions aloud,

whether they believe their grandchildren to be stupid. Heep's son Matthew, age 4, is already prepared in this regard. I've tried repeatedly to show him just how cute tiny cacti can be, and offered to give him one of his very own. He digs in his heels, refuses to come close, and warns me that "they hurt!"

Plants worldwide have developed toxins as a means of protection, to prevent the entire plant from being eaten before it can reproduce, or the entire seed bank being digested before germinating in a suitable environment. So it comes as no surprise that our **native** plants have developed various toxic strategies for protection. The larger number of studies regarding non-cultivated plants concentrates on toxicity to domestic and game animals. Taylor, Rutledge & Herrera include that type of information in "A Field Guide to Common South Texas Shrubs," 1994. I concentrate herein on danger to humans.

Many of the species in "Mr. Yuck's Garden" contain chemicals with useful medicinal

properties, and this is the very reason investigators have studied their pharmacology. I don't encourage self-medicating, however. As any curandera can attest, dosage of hand-picked herbs, seeds and roots is tricky. Wild plants don't bear ingredient labels, and concentrations of active substances vary widely with growing conditions and the genetics of a particular plant.

Each of the plants covered here is useful in many ways and a vital component of diversity.

Toxic Seeds.

Several known toxic seeds are borne on Legumes. Some, but not all, are brightly colored. Those which are brightly-colored are, unfortunately, quite attractive to children and craftspeople, who often string them on necklaces, handy for gnawing when boredom strikes. Examples of legumes which can be toxic:

***Sophora secundiflora*, Mountain Laurel, Mescal-Bean.** (Leaves also toxic.) Maroon-red seeds contain volatile liquid alkaloid, sophorine (identical with cytisine). Beautiful landscape plant, butterfly host.

***Sophora tomentosa*, Necklace-Pod, Tambalisa.** These seeds contain the alkaloid sophorine. (Several other species of *Sophora* contain the alkaloids matrine and sophocarpine.) Lovely, soft foliage.

***Erythrina herbacea*, (Eastern) Coral Bean, Colorin.** Coral-colored beans contain the alkaloid erythroidine. (Similar in effect to curare, strong effects on motor nerves, used in Mexico to kill rats and dogs.) Beautiful, thorny nectar plant excellent for watery edges.

Many leguminous seeds are food staples. Ebony, retama and mesquite beans have long been used for food in this part of the world. There are probably an equal number of highly-toxic beans and/or leaves on Legumes. *One must carefully identify a plant before consuming any part of it with confidence.*

In addition to Legumes, plants from other families contain toxins in their hard seed. *Many toxic seeds have dull colors or marking. There's no simple rule for recognizing them.*

***Karwinskia humboldtiana*, Coyotillo.** These blue-black fruits are relished by coyotes and chachalaca. All parts of the plant may contain toxins which cause limb paralysis in humans and domestic animals. A lag period of weeks may occur between poisoning and onset of symptoms. Local neurologist Dr. Terry Fuller has treated coyotillo toxicity and reports: "There is no commercially available test for the Coyotillo toxin and history is the best way to make the diagnosis." Family Rhamnaceae. Butterfly host plant.

Popular misconception. Coyotillo is a case in point to dispel the widespread and dangerous notion that humans can safely eat what birds, pets and domestic animals consume.

Research data on Coyotillo found via web search on Google Scholar:

Karwinskia species (as well as some species of **Cassia**) are a source of dimeric tetrahydro-anthracenones. One of these (T-514) controls the growth of some tumor cell types and has been patented.

"The ingestion of the green or ripe fruit of *Karwinskia humboldtiana* (buckthorn), a bush known in Mexico as coyotillo or tullidora, causes a flaccid, symmetric, progressive, and ascending palsy of the lower limbs, which, in severe cases, can cause bulbar palsy and death. The neurologic symptoms are similar to those of poliomyelitis, Guillain-Barré syndrome, and other polyradiculoneuritis syndromes, for which it is often mistaken. The clinical diagnosis of intoxicated patients can be difficult without a history of the fruit ingestion." (*Pediatr Dev Pathol.* 2007 Jan-Feb;10(1):66-8)

Additional seeds with known toxicity:

***Argemone* spp. Texas Prickly Poppy.** Leaves and seeds contain isoquinoline alkaloids (berberine, protopine, sanguinarine). Family Papaveraceae, Poppy. Birds eat these with abandon.

***Ipomoea* spp. Morning Glory bush and vines.** Seeds may contain toxic and hallucinogenic ergoline alkaloids. These plants provide nectar and loveliness.

***Sapindus drummondii*, Western Soapberry, Jaboncillo.** Yellow-marble-like seeds (or fruits) contain saponin, a poison which makes a good lather in water. Handle the fruit with caution, as the author has witnessed one case of extreme eye irritation. Other members of this family appear under skin irritants.

***Ricinus communis*. Castor Bean.** Although castor bean is not native here, it is frequently encountered and worth mention. The toxic, ricin-containing, beetle-like seeds bear intriguing markings.

Toxic Fruits.

Many plants entice animals to ingest their seeds with a layer of sweet, fleshy fruit surrounding it. Toxins are more likely found within hard seed, rather than fleshy fruit. This, of course, is not always the case.

Lantana sp. All parts of some species, particularly the green fruits, are poisonous. *Lantana horrida* is reported by some to have medicinal fruits and by others as having toxic fruits. Nectar and host plant.

***Melothria pendula*. Melonette.** Tiny cucumbers on this delicate Cucurbit vine are toxic.

The Nightshade family, Solanaceae, which provides food in the form of potatoes, tomatoes, tomatillos and peppers, has a number of toxic-fruit-bearers. Caution is advised regarding the consumption of this family. Known toxic fruits of Solanaceae include:

***Physalis* sp. Ground Cherry.** Unripe fruit contains toxic glycoalkaloids (e.g. solanine). There are known cases of poisoned children and sickened cattle. (Other species of Solanaceae are cultivated as edible ground cherries. Best not to pick them in the wild.)

***Solanum* sp. Nightshade.** Many contain toxic glycoalkaloids and any part of the plant may be toxic. (Common local species include: Potato Tree, Silverleaf Nightshade, Texas Nightshade and American Nightshade.)

Another misconception put to rest: Survivalists and military trainers sometimes teach simple rules regarding fruit color and

toxicity. There are no simple rules to offer regarding color and fruit toxicity in the LRGV. Blue-black fruit on Texas Persimmon and Brasil is deliciously edible, while the blue-black fruits on Coyotillo could leave you paralyzed long after forgetting you've eaten them. Orange fruits on Granjeno are tasty and edible, while orange berries on Lantana may sicken you. One would think red fruits might be poisonous, yet Prickly Pear, Biznaga de Chilitos and Wolfberry are tasty, indeed. There's no shortcut. One must learn the story of each plant.

Toxic Leaves or Sap.

Many leaves have too much cellulose for humans to digest. Thus, a list of natives with edible leaves would be shorter than inedible ones. Some leaves are actually toxic, and are used by butterflies as host plants (Pipevines are one example.). Other butterfly host plants are garden favorites, like cabbages, dill and parsley, to name just a few. Don't munch on:

Coyotillo. Foliage (perhaps all plant parts) can be fatally toxic to livestock and to humans.

Lantana spp. Several species have toxic leaves. The strong odor could be an avoidance clue.

***Nicotiana repanda*, Wild Tobacco.** These leaves can be poisonous if smoked. They contain nicotine and other alkaloids. As a member of the family Solanaceae, this is no great surprise.

Asclepiadaceae. Milkweed family. The milky sap of this family contains toxins such as alkaloids and glycosides, and most animals avoid eating them. These same alkaloids have historic medicinal use.

Euphorbiaceae. Spurge family. Some of these have milky sap. Toxins these contain: alkaloids, cyanogenic (cancer-causing) glycosides, and diterpenoids (which cause contact dermatitis and may act as co-carcinogens). A few examples of Euphorbs with toxic leaves:

***Ricinus communis*. Castor bean.** Poisonous leaves. (Non-native, but naturalized and cultivated.)

***Croton* spp.** Livestock avoid eating these toxic leaves. Irritating substances: crotonaldehydes.

***Euphorbia cyathophora*. Wild poinsettia.** Poisonous leaves. Cultivated species are also poisonous.

Oleander. Toxic leaves. Toxic fumes from burning leaves and stems. Common. Not native.

Irritating Leaves: Contact Dermatitis (& Worse). Leaf surfaces are protected by various structures and substances which may cause contact dermatitis. You may not encounter poison ivy in the LRGV, but numerous other candidates bring on rash and eye irritation. In fact, most leaves can be irritating if you rub against them for extended periods.

Lantana spp. Possible contact dermatitis. Marvelous plants adored by butterflies and birds.

Croton spp. Easily-maintained. Possible contact dermatitis and extreme eye irritation when handled.

***Plumbago scandens*. White Plumbago.** Gorgeous butterfly nectar plant. A sticky exudate, primarily on seed capsules, can cause blisters. Dogs are sometimes afflicted. (Family Plumbaginaceae.)

Soapberry Vines. Family Sapindaceae. From personal experience, I suspect that these cause contact dermatitis, probably induced by saponins on the leaf surface. (*Wear long sleeves & gloves .*)

Cardiospermum spp. Balloon Vines.

Serjania spp. Serjania Vines.

***Urvillea ulmacea*.** Apaac (vine).

Family Euphorbiaceae. These re-surface among the irritating leaves:

***Stillingia spp.* Queen's Delight.** Latex has blister-causing properties.

***Euphorbia tirucalli*. Pencil Euphorbia.** This African pest has been accidentally introduced into revegetated areas due to long-time popularity in local landscaping. All parts ooze a milky sap when damaged or cut, causing dermatitis in some people. In the eyes, the sap can cause temporary blindness which may last for several days. When branches are macerated and placed in a stream, the juice will stupefy fish.

Stinging Hairs.

A number of plant leaves and stems are protected by delicate stinging hairs. Glass-like, fragile and prickly, these may contain formic acid or other allergens. The first two are Euphorbiaceae:

***Urtica chamaedryoides*. Stinging Nettle.** Low-growing, shade-loving, butterfly hostplant. Edible!

***Tragia glanduligera & ramosa*. Noseburn Vine.** Delicate pretty vine, butterfly hostplant.

***Cevallia sinuata*. Stinging Cevallia.** (western Valley) Family Loasaceae. Quite a sting!

Concluding Remarks:

For the most part, we're familiar with the noxious qualities of these plants because they also have useful qualities of one kind or another. Most of the plant world is much less known to us. Awareness of the dangers plants pose can make wild places less problematic and more interesting.

To my knowledge, there's been no previous attempt to summarize precautionary information regarding the subset of plants which are native or common in this area. The author would appreciate input which would make this writing more complete.

The Author.

Christina Mild has an M. S. in Biological Sciences. She taught high school science classes for most of her working life and now volunteers in revegetation and "locally-relevant environmental education." To contact her, send email to: <mild.christina@gmail.com>. For more information about native plants, visit her website at [www.riodeltawild.com].

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Bajaj, Yashpal Singh. Medicinal and Aromatic Plants XI, p.235. (This tome, parts of which are accessible for online preview, contains details of scientific studies and even structural drawings of pharmacologically-active compounds found in plants.)



Coyotillo, Rhamnaceae
Karwinskia humboldtiana
Toxic fruit, leaves



Coral Bean, Colorin
Legume,
Erythrina herbacea
Toxic Bean



Exotic Invasive
Kalanchoe
Devil's Backbone

cultivated
"Needle-Leaf"
Toxic Leaves

Nature Happenings Lower Rio Grande Valley, Texas

For a comprehensive calendar of Nature Happenings go to **RGV Nature Coalition** at www.rgvnaturecoalition.org Scroll down to and click on Nature Events Calendar on right side

Sabal Palm Grove Sanctuary— Wonders of Nature. Call (956) 541-8034. Or go to www.tx.audubon.org/centers/sabal

Edinburg Scenic Wetlands and World Birding Center — **Bird Walks and Nature tours.** Native Plant Landscaping. 714 Raul Longoria Rd., Edinburg, TX (956) 381-9922.

Quinta Mazatlan - McAllen Wing of the World Birding Center— 600 Sunset Ave., McAllen, TX. Call Colleen Hook (956) 688-3370 for scheduled events

Bentsen Rio Grande Valley State Park WBC offers butterfly walks, bird walks, nature tours. Call 956-584-9156 for details and times.

Santa Ana NWR near Alamo offers **Nature Tram rides** with Interpreters at 9:30 a.m., 12 noon and 2:00 p.m. every day (956) 784-7500 or **Valley Nature Center** (956) 969-2475

Estero Llano Grande State Park WBC - 3301 International Blvd. (FM 1015) in Weslaco, TX Call (956) 565-3919 for scheduled events

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The Sabal is the Newsletter of the Native Plant Project and conveys information on the native habitat, and environment of the Lower Rio Grande Valley Texas. Co-editors: Gene Lester and Eleanor Mosimann. You are invited to submit articles for *The Sabal*. They can be brief or long. Articles may be edited for length and clarity. Black and white line drawings -- and colored photos or drawings -- with or without accompanying text are encouraged. We will acknowledge all submissions. Please send them, preferable in electronic form - either Word or WordPerfect - to: Native Plant Project, P.O. Box 2742, San Juan, TX 78589 or contact **Gene Lester @ 956-968-3454, or g-el1951@sbcglobal.net**

See *The Sabal* and our 5 handbooks on our website:
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Regular \$15 per year Contributing \$35 per year Lifelong \$250 one time fee per individual. Members are advised of meetings, field trips, and other activities through *The Sabal*. Dues are paid on a calendar year basis. Send checks to Native Plant Project, P.O. Box 2742, San Juan, Texas 78589.

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Native Plant Project Meetings – February 26, 2008. **Board meeting** at 6:30 p.m.; **General meeting** at 7:30 p.m. **This month only**, we will meet at the Bentsen-Rio Grande State Park, World Birding Center in Mission. Chris Hathcock, Habitat Restoration Biologist at the park, will present the program “Two Years Later: Past, Present, and Future Woodlands of Bentsen State Park”. Chris will show us how his restoration and revegetation efforts are transforming agricultural fields into woodland plant communities, what has worked and what hasn’t. Come see the changes that have happened in the two years since our last meeting at Bentsen/WBC.

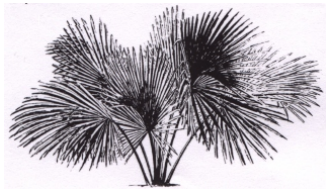
Board and General Meetings 2008:

January 22	March 25	May 27	October 28
February 26	April 22	September 23	November 25

SUMMARY OF THE MINUTES OF THE BOARD MEETING – January 22, 2008

The NPP received a donation of \$250 from the Art of the Earth event, at which Director Hagne had spoken. Susan Thompson was appointed to fill a vacant seat within the Board. After the Annual General Meeting, Director Mosimann was re-elected as Vice President by the Board. **Annual General Meeting:** Directors Hagne, Hathcock, Martin, Mosimann, and Thompson were re-elected to the Board. Maryann Wingert was nominated and elected to fill the remaining vacant seat within the Board.

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