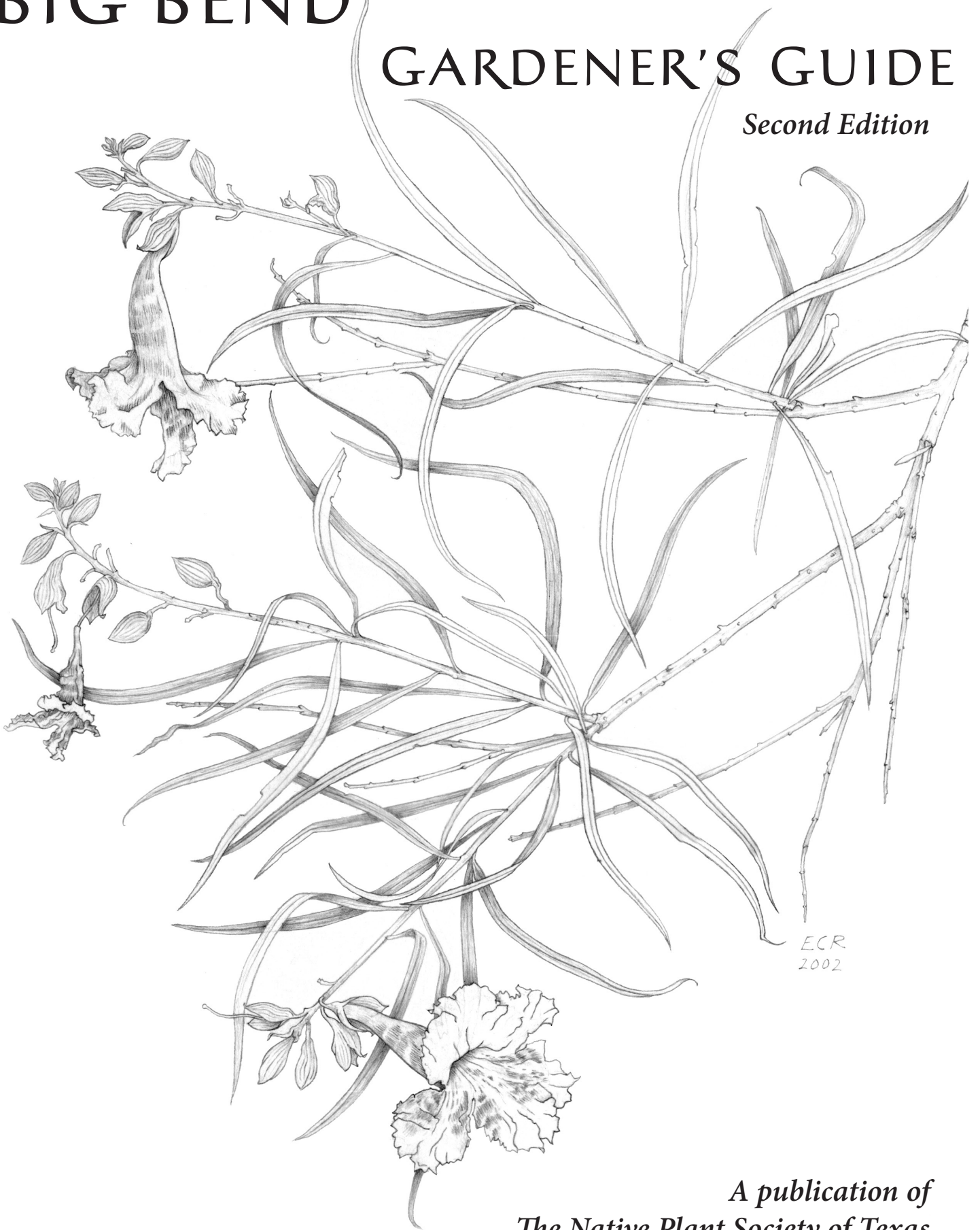


# BIG BEND

# GARDENER'S GUIDE

*Second Edition*



*A publication of  
The Native Plant Society of Texas  
Big Bend Chapter*

**Editor:** Dallas Baxter

**Design:** Vast Graphics  
www.vastgraphics.com

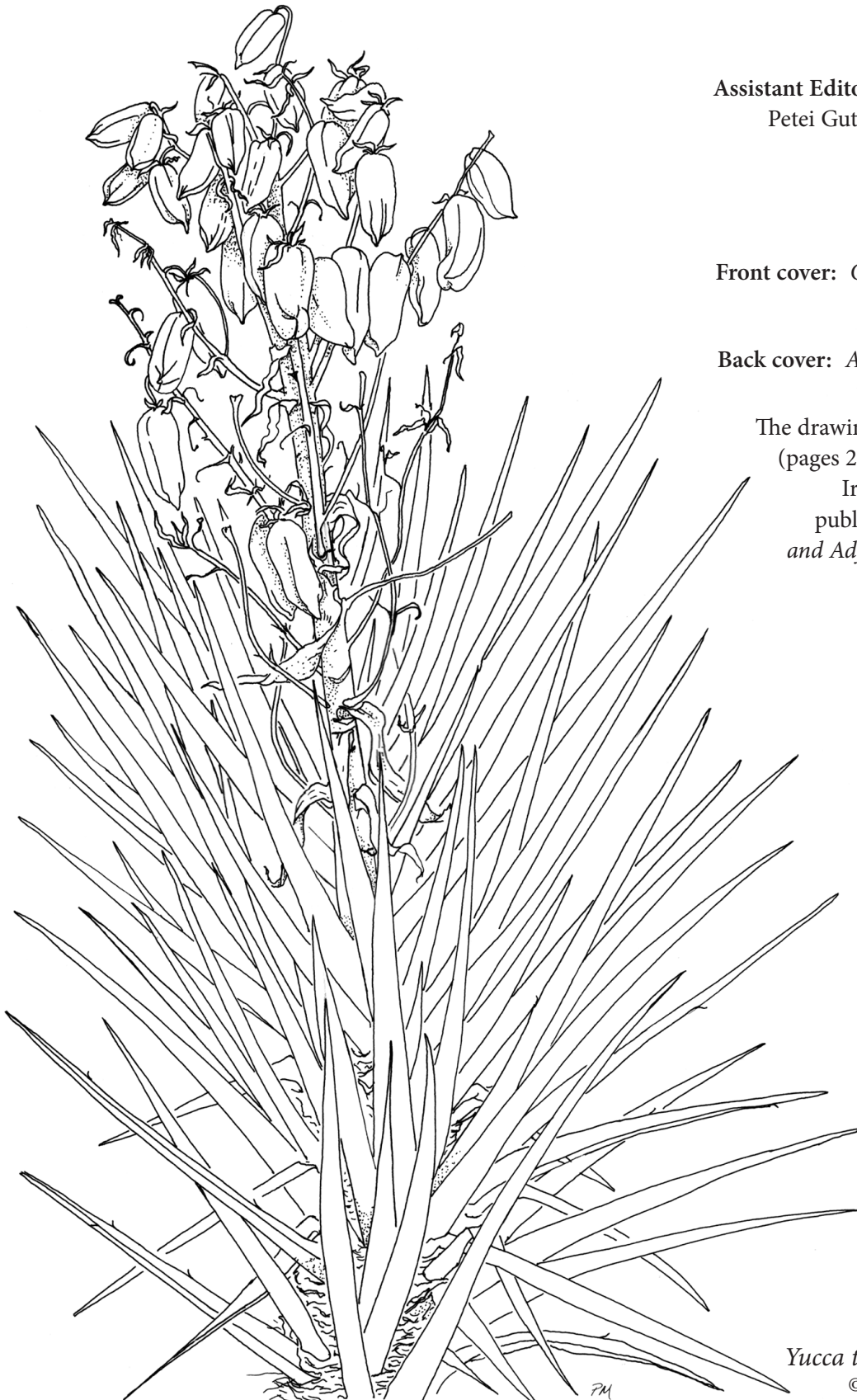
**Assistant Editors:** Michael Eason, Beth Francell,  
Petei Guth, Linda Hedges, Phyllis Kennedy,  
Susan Kirr, Martha Latta

**Copy Editor:** Linda Hedges

**Front cover:** *Chilopsis linearis* (Desert Willow)  
© Ellen C. Ruggia

**Back cover:** *Aquilegia chrysantha* (Columbine)  
© Petei Guth

The drawings of grasses by Patricia Manning  
(pages 20, 28, and 31) are used courtesy of  
Iron Mountain Press (2000) and are  
published in *Grasses of the Trans-Pecos  
and Adjacent Areas* by A. Michael Powell.



*Yucca torreyi* (Spanish Dagger)  
© Patricia R. Manning

# CONTENTS

2 **Welcome**

*by Dallas Baxter, editor*

3 **Why Use Native Plants?**

4 **Planting Zone Map**

4 **Weather Data by Community**

*compiled by Scott May*

5 **What Zone Are We In?**

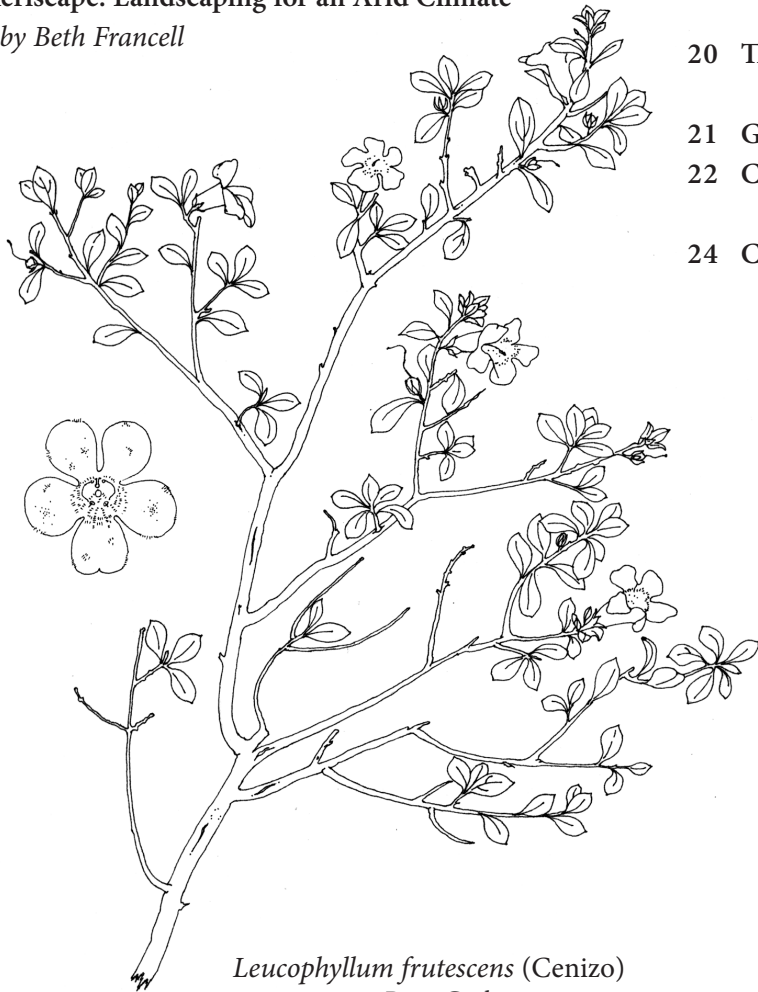
*by Patricia Manning*

6 **Tree Pruning Dos and Don'ts**

*by Brad Abrameit*

9 **Xeriscape: Landscaping for an Arid Climate**

*by Beth Francell*



*Leucophyllum frutescens* (Cenizo)  
© Petei Guth

32 **Firewise Landscaping**

*by Martha Latta*

34 **Collecting Native Plant Materials**

*by Micheal Eason*

36 **Recommended Reading**

**Inside back cover:** About our artists and contributors

Look for **Big Bend Then**, selected dates in the history of this region, *compiled by Beth Francell*

12 **On NOT Following the Rules of Landscape Design**

*by Jennifer Baur*

13 **Plant List for the Trans-Pecos Region**

15 **Big Bend Places to See**

16 **The Deer Problem**

*by Beth Francell*

18 **Planting for Wildlife Chart**

*compiled by Lois Balin*

20 **The Joys of Solarizing**

*by Dallas Baxter*

21 **Going Buggy: Integrated Pest Management**

22 **Catchwater Systems**

*by Sue Beach*

24 **Collecting/Harvesting Plants from the Wild**

*by Dallas Baxter*

26 **How to Plant a Tree**

*by Oscar Mestes*

28 **What is Making Me Sneeze?**

**A Few Words on Plant Allergies**

*by Dallas Baxter*

29 **Cacti: Food for Thought**

*by Bill Carlisle*

30 **Some Thoughts on Soil**

*by Patricia Manning*

## THINGS TO DO by month

*by Beth Francell & Dallas Baxter*

3 JANUARY

8 FEBRUARY

12 MARCH

17 APRIL

20 MAY

21 JUNE

23 JULY

25 AUGUST

27 SEPTEMBER

28 OCTOBER

29 NOVEMBER

31 DECEMBER

# WELCOME

## to the native plants of the Trans-Pecos

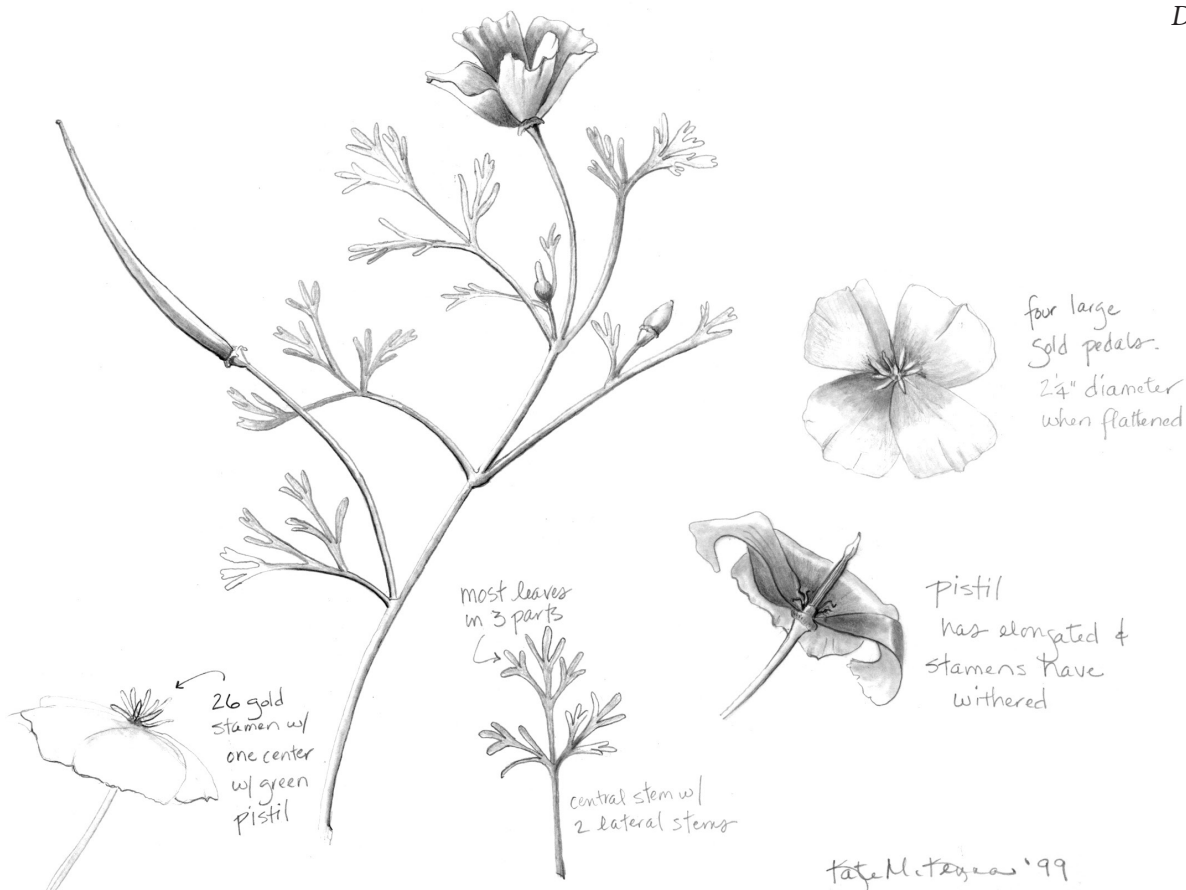
This beautiful land, often stark and rocky, is just as often verdant and fragrant with blossoms from the desert floor. It's a land of contrasts - at once forbidding and magically seductive. In this, as in all ecosystems, the birds, insects, reptiles, amphibians and mammals are woven together by the native plants. These plants provide food and shelter for the creatures indigenous to the area. They generally need little water and no fertilizer. They belong to the land - they "fit in" and "look right" - they create a sense of place. At a time when every big garden center in the country sells the same plants, native plants champion the idea that diversity is what makes the landscape - and life - beautiful.

You will hear many voices in this guide. It has been written by Big Bend gardeners and their friends for other Big Bend gardeners. It is by no means comprehensive, but offers a good place to start. Book and references (listed on page 36) give the reader an opportunity to gain a deeper knowledge of our native plants.

And the original artwork, by artists and gardeners from all over the Big Bend region, will give you a visual idea of the richness of Trans-Pecos natives. My thanks to all of them, especially Beth Francell around whose personal files of Trans-Pecos native plants and gardening knowledge the Guide began. We hope you will find the guide informative, easy to use and beautiful. We also hope that you will become part of the Big Bend Chapter of the [Native Plant Society of Texas \(NPSOT\)](https://npsot.org/wp/join-renew/) <https://npsot.org/wp/join-renew/>.

NPSOT's mission - promoting the conservation, research and utilization of the native plants and plant habitats of Texas through education, outreach and example - is one that needs *you* to succeed. Won't you join us in being the example - learning about these plants, using them in our landscapes and spreading the word about why they are important? We hope you'll join with us in this important work.

Dallas Baxter, editor



*Eschscholzia californica* subsp. *mexicana* (Mexican Gold-Poppy - "Amapolo de Campo")  
© Kate McKenna

# Why Use NATIVE PLANTS?

Native plants provide a beautiful, hardy, drought-resistant, low maintenance landscape while benefiting the environment. Native plants, once established, save time and money by eliminating or significantly reducing the need for fertilizers, pesticides, water and lawn maintenance equipment.

*Native plants do not require fertilizers.* Vast amounts of fertilizers are applied to lawns. Excess phosphorus and nitrogen (the primary components of most fertilizers) run off into lakes and rivers causing excess algae growth. This depletes oxygen in our waters, harms aquatic life and interferes with recreational uses.

*Native plants require fewer pesticides than lawns.* Nationally, over 70 million pounds of pesticides are applied to lawns each year. Pesticides run off lawns and can contaminate rivers, lakes and groundwater. People and pets in contact with chemically treated lawns can be harmed.

*Native plants require less water than lawns.* The modern lawn requires significant amounts of water to thrive. In urban areas, lawn irrigation uses as much as 30% of the water consumption on the East Coast and up to 60% on the West Coast. The deep root systems of many native plants increase the soil's capacity to store water. Native plants can significantly reduce water run-off, erosion, and flooding.

*Native plants help reduce air pollution.* Natural landscapes do not require mowing. Lawns, however, must be mowed regularly. Gas-powered garden tools emit 5% of the nation's air pollution. Forty million lawnmowers consume 200 million gallons of gasoline per year. One gas-powered lawnmower emits 11 times the air pollution of a new car for each hour of operation.

*Native plants provide shelter and food for wildlife.* Native plants attract a variety of birds, butterflies and other wildlife by providing diverse habitats and food sources. Closely mowed lawns are of little use to most wildlife.

*Native plants promote biodiversity and stewardship of our natural heritage.* In the U.S., approximately 20 million acres of lawn are cultivated, covering more land than any single crop. Native plants are a part of our natural heritage. Natural landscaping is an opportunity to reestablish diverse native plants, thereby inviting the birds and butterflies back home. ☞



~ Courtesy of the Garden Guide for Austin & Vicinity, published by the Travis County Master Gardener Association, copyright 2002.



*Tecoma stans* (Esperanza)  
© Petei Guth

## Things to do in JANUARY

**TOP OFF** mulch in beds as needed to conserve moisture and protect roots from freezing. Mulch should be no deeper than 3 inches. Compost, ground tree prunings, pine needles, acidified cotton burr compost or gravel all make excellent mulch. Which is best depends on your plants. See p. 10.

**CHECK AND REPAIR** drip and other irrigation.

**SHARPEN AND CLEAN** tools.

**PLANT** bare-root deciduous plants and early blooming perennials.

**PULL** noxious or invasive weeds.

**PRUNE** live oaks and red oaks now to minimize oak wilt risk; prune other trees now too, while the sap is down, and they are dormant.

**WATER** once a week. Immediately before a hard freeze thoroughly soak the ground around plants with one inch of water (to a depth of at least 12 inches), depending on the plant.

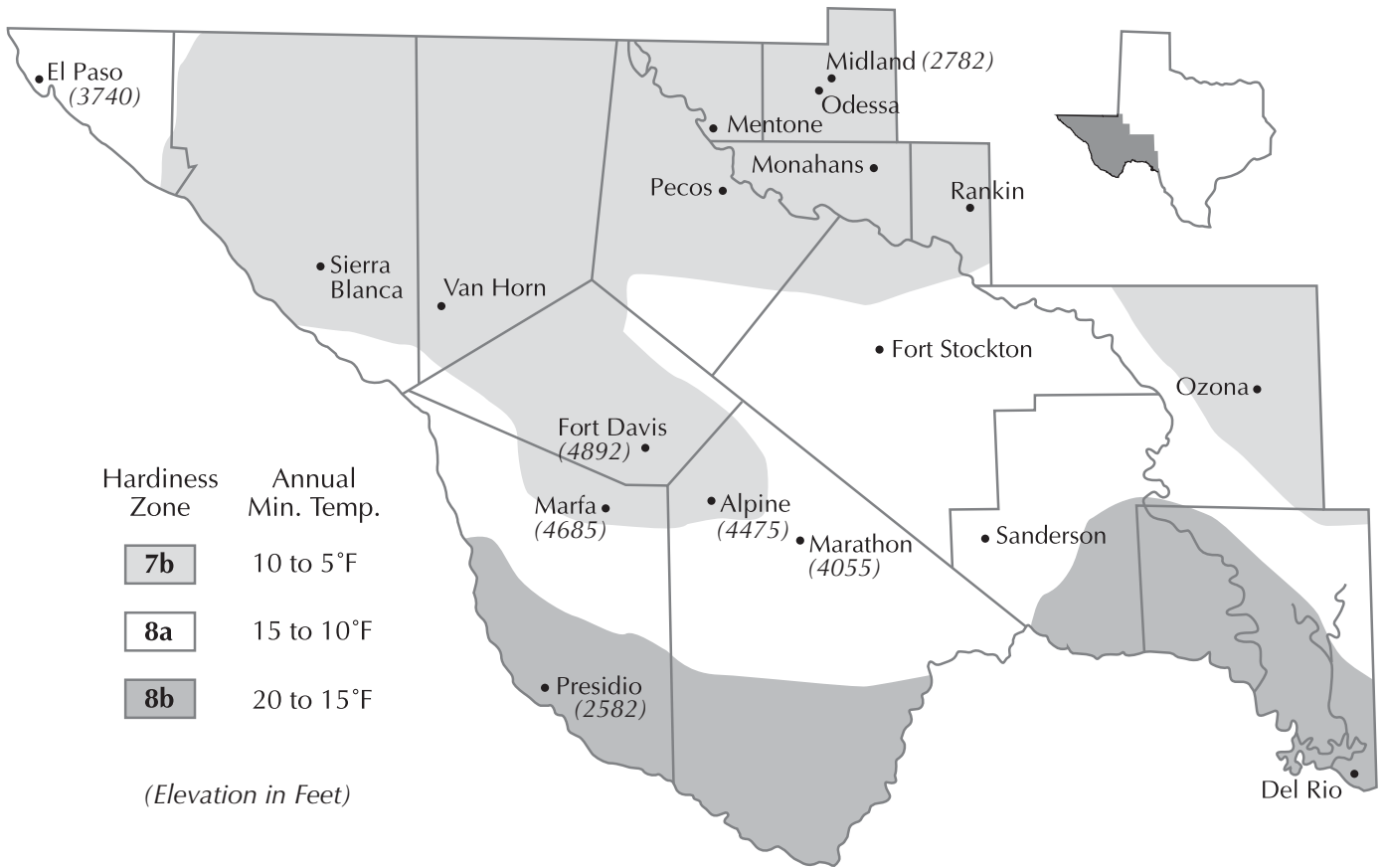
- Newer plantings or sod should be watered once a week if temperatures are above 65° during the day. If it rains or temperatures are in the 40's and 50's, watering can be reduced to once a month.

- Perennial beds may require water once a week. Test by sticking your finger in the soil.

- Fall seeded areas will require water once or twice a week to promote germination.

- Apply Ronstar pre-emergent to Buffalo grass, the only pre-emergent recommended to control early spring weeds in this type of grass. Other pre-emergents may set back the Buffalo severely. Use no pre-emergent on prairie areas. Just weed out sticker burs and undesirable grasses.

# ZONE MAP



## WEATHER DATA by community

How to read this chart: x° avg. max. temp. / y° avg. min. temp. n" avg. precipitation

compiled by Scott May

	ALPINE	EL PASO	FORT DAVIS	MARATHON	MARFA	MIDLAND	PRESIDIO
January	60°/32° 0.57"	56°/29° 0.4"	59°/28° 0.51"	62°/29° 0.43"	60°/26° 0.44"	59°/30° 0.59"	67°/33° 0.39"
February	65°/35° 0.47"	62°/34° 0.4"	64°/32° 0.43"	66°/32° 0.41"	65°/28° 0.46"	65°/34° 0.52"	74°/38° 0.33"
March	71°/40° 0.33"	70°/40° 0.3"	70°/37° 0.37"	72°/36° 0.4"	71°/34° 0.3"	72°/40° 0.43"	82°/44° 0.16"
April	78°/47° 0.55"	79°/48° 0.2"	78°/44° 0.55"	80°/44° 0.78"	79°/41° 0.61"	81°/49° 0.77"	90°/53° 0.34"
May	85°/55° 1.34"	87°/57° 0.3"	85°/53° 1.39"	86°/53° 1.64"	86°/50° 1.24"	88°/58° 2.19"	97°/62° 0.7"
June	91°/62° 2.22"	97°/64° 0.7"	89°/59° 1.95"	91°/60° 1.92"	91°/58° 1.86"	94°/66° 1.27"	103°/71° 1.27"
July	90°/64° 2.76"	96°/68° 1.5"	88°/62° 2.8"	91°/62° 2.22"	90°/60° 2.69"	95°/69° 1.94"	101°/73° 1.63"
August	88°/63° 2.59"	94°/67° 1.6"	87°/61° 2.94"	90°/61° 2.16"	88°/59° 2.95"	94°/68° 1.92"	100°/71° 1.45"
September	84°/58° 2.71"	87°/62° 1.7"	82°/55° 2.36"	85°/56° 2.64"	84°/54° 2.71"	88°/61° 2.53"	95°/66° 1.61"
October	78°/49° 1.36"	78°/50° 0.8"	76°/45° 1.36"	78°/46° 1.45"	77°/44° 1.43"	79°/51° 1.24"	87°/55° 0.9"
November	68°/39° 0.52"	66°/38° 0.4"	67°/36° 0.54"	69°/36° 0.56"	68°/33° 0.53"	68°/39° 0.6"	76°/42° 0.38"
December	61°/34° 0.67"	57°/31° 0.6"	60°/30° 0.61"	63°/30° 0.58"	61°/27° 0.55"	61°/32° 0.48"	67°/34° 0.46"

# WHAT ZONE are we in?

by Patricia R. Manning

Before I dive in about gardening zones in “The Big Bend Country” I would like to clarify what we’re talking about when we call ourselves the Big Bend Chapter of NPSOT and how we define the area we represent.

In a strict sense, we mean all of Texas west of the Pecos River and east of the state line. But Nature is no friend of maps, and some counties that are not included in that geographic boundary, that overlap or adjoin the Pecos, do have some overlapping vegetation - vegetation that is considered typical of the Northern Chihuahuan Desert. Plants don’t necessarily recognize the Pecos as a boundary line, but many, many of our native plants don’t exist (in nature) east of the Pecos. Also, strictly speaking, “The Big Bend” is a fairly nebulous south Brewster/Presidio county designation. It is all that country within the bend of the Rio Grande. The boundary lines of Big Bend National Park, of course, are very specific.

We call ourselves the Big Bend Chapter in the broadest sense, meaning all of west Texas including, at least vegetation wise, the counties surrounding the Pecos and west of the Pecos, to the state line. Whew, that was wordy. Within that vast area, there are a number of different habitats, temperature and rainfall averages. The fol-

lowing paragraphs are intended to be a rough guide to planting zones within our area of interest.

Planting zones are designated based on the minimum temperatures of a given region, and plants are suggested for each zone based on the minimum temperature at which they can survive. The USDA Planting Zones Guide indicates that the Trans-Pecos falls into three zones:

- 7b, which is roughly the northern third of the area, with average minimum temperatures of 5-10° F
- 8a, the middle portion of the area, averaging 10-15° F.
- 8b, the lower third of the area, averaging 15-20° F.

However, while this is a good general guideline, it does not take into consideration the factors that might alter the minimum temperature for a given area, such as elevation, average rainfall, aspect (predominant direction you face), or how protected your home is, either by landforms or vegetation, etc. If, for example, one happens to live in zone 8b, the low temperature will probably be different at 2000' than it is at 7000', and it will vary with whether you live on a north facing slope or a south facing slope.

Temperatures can also vary with the type of microhabitat one has, whether the area is in a protected situation, or

out in the open, subject to more wind, etc.

The key is to know something about your own particular situation and to acquaint yourself with the known range of the plants you want before you acquire them. Many beautiful native plants have a wide tolerance of temperatures and conditions while others are very specific in their requirements. To some extent, you can create habitat for a plant that is out of its range, but this needs to be researched first, if you don't want a lot of mortality.

There is an excellent description of zones for arid land plants in *Landscape Plants for Dry Regions* by Warren Jones. It is very detailed and describes various mitigating factors related to temperature. I recommend checking this out.

I will be happy to give advice about the range of particular plants and hardiness factors (or find out for you if I don't know).

Call or text 432-940-1124; email address: [pmanning@sulross.edu](mailto:pmanning@sulross.edu). Leave your name and phone number or email address, and I will contact you. ☺

## NOTES

---

---

---

---

---

---

## Big Bend THEN

**1535** Cabeza de Vaca travels through what is now Southern Presidio County

**January 5, 1684** Juan Dominguez de Mendoza, Spanish explorer, camps at Kokernot Spring

**1850** Presidio County is created out of Bexar County

**1854** Fort Davis is established

**1864** Captain Henry Skillman is assigned the duty of delivering the mail between San Antonio and El Paso

**1867** Fort Davis is reopened after the Civil War

**July 25, 1875** Presidio County is organized and Fort Davis is made its county seat

**January 12, 1882** The Southern Pacific Railroad is completed between San Antonio and El Paso and passes through Murphyville (Alpine) and Marfa

**1883** Silver is discovered in the Chinati Mountains and the site is named for General William Shafter

**May 6, 1883** James Cotter arrives by train in Murphyville, a town of three buildings

**1885** The county seat of Presidio County is moved from Fort Davis to Marfa

**August 24, 1886** The first newspaper published in Murphyville (Alpine)

**February 2, 1887** Two more counties are created out of Presidio County: Brewster and Jeff Davis

**February 3, 1887** The name of Murphyville is changed to Alpine

**February 12, 1888** A fire destroys many buildings along Front Street in Alpine

**July 4, 1888** A "Negro" band from Fort Davis furnishes the music for the first big Fourth of July celebration held in Alpine

**January 1889** The waters of Ojo Caliente near Candelaria long enjoyed by locals are claimed to have powers to cure almost any disease

# TREE PRUNING

by Brad Abrameit



*Prosopis glandulosa* (Mesquite)

© Beth Francell

## DON'Ts

\* *Do not top your tree.* Topping is unfortunately a common practice designed to encourage vigorous new growth. While that is achieved, the overall strength and structure of the tree are sacrificed. The limbs that are forced from latent buds are very often weakly attached, which makes them susceptible to wind damage.

\* *Do not make stub cuts.* (fig. A) Do not leave a portion of the branch sticking out; this will allow rot to enter more easily.

\* *Do not remove all of the lower limbs on newly planted trees.* This is sometimes referred to as "limbing up." Some of the lower branches should be left intact for a period of time to encourage caliper growth. No more than one-third of the top growth on younger trees should be removed.

\* *Do not make cuts flush with the trunk or adjoining limb.* (fig. B) The proper cut is made flush with the collar at the base of the branch (fig. C). The collar

is the somewhat raised area surrounding the branch union with the parent branch or trunk. This zone contains chemically-protective tissue; if it is cut off or severely cut into, proper natural "healing" cannot occur. And once this area is damaged, it is damaged for good. Trees have the unique ability to compartmentalize, or surround injured tissues with a protective barrier.

\* *Do not cut large limbs with a one-cut method.* This will surely result in bark peeling from the weight of the cut limb. Rather, use the three-cut method. (fig. D)

\* *Do not use pruning paints or wound dressings.* They do not encourage "healing," nor do they prevent pathogens from entering the tree. Although they will not damage the tree, they will certainly prove to be an unwarranted cost. Painting could be justified where aesthetics are concerned. A dark paint can hide the glaring spots made from fresh wood being exposed from a recent cut.



## DOs

\* *Do approach the tree, and look for any limbs that might be a hazard to someone underneath it or to a building or structure nearby.* Broken branches, weak branches, narrow crotch angles, and other obvious faults should be identified. First and foremost, these limbs should be removed.

\* *Do remove any dead or dying material on the tree.*

\* *Do remove limbs that are rubbing each other or cross over one another.* Limbs that rub will develop wounds that attract insects and diseases.

\* *Do remove excessive vertical sprouts.* Some may need to be left in place to encourage caliper growth.

\* *Do prune to encourage fruiting.* In the case of fruit trees, thinning out of limbs will allow allocation of nutrients, etc., for fruit production. In addition, practices such as open-center pruning allow sunlight penetration for fruit ripening.

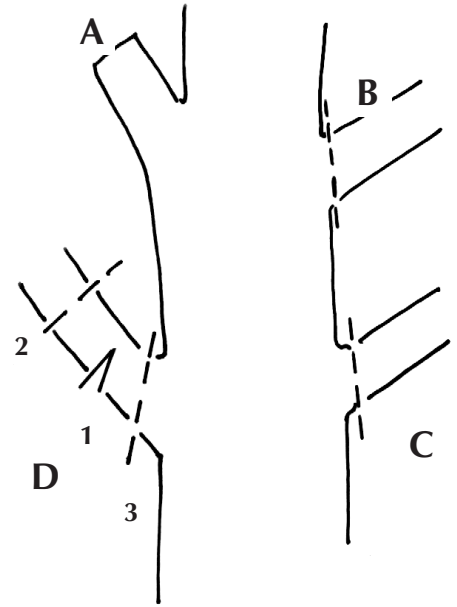
\* *Do choose to keep branches with wide crotch angles.* Wide crotch angles are generally from 40 to 90 degrees, and are very strong as a result of being composed of solid wood. Narrow crotch angles are less than 40 degrees, and

contain a bark inclusion that causes them to be very weak. Narrow crotch angles should be pruned out while the tree is still young. In older, established trees, bracing and cabling may be the only resort.

\* *Do prune the tree to your liking.* There are many different ways that one particular tree may be pruned. Even experts will have differing opinions on which branches to remove. The bottom line is: whatever you like is what you should do, so long as you utilize proper cutting techniques and pruning methods.

\* *Do keep in mind that you should always have a reason for every cut that is made.* ☼

- This article by Brad Abrameit, Former Extension Horticulturist and Master Gardener Coordinator for Rio Grande Valley, appeared in "Valley Master Gardeners," Vol. 1, No. 8, May 1997. This article also appeared in the July/August 2001 issue of *Horticulture Update*, edited by Dr. Douglas F. Welsh, and produced by Extension Horticulture, Texas Agricultural Extension Service, The Texas A&M University System, College Station, Texas.



**Fig. A:** Stub Cut (Do not)

**Fig. B:** Flush Cut (Do not)

**Fig. C:** Leave collar of branch (Do)

**Fig. D:** 3-cut method (Do)

For an excellent article and diagrams on pruning: <https://aggie-horticulture.tamu.edu/earthkind/landscape/proper-pruning-techniques/>

## NOTES

---

---

---

---

---

---

---

---

---

---

## Things to do in FEBRUARY

**LOOSEN OR REPLACE** plant ties on climbing vines and trees.

**PLANT** or transplant trees or shrubs you missed in the fall.

**PULL OR DIG** seedling trees and shrubs that have sprouted where they are not wanted (weeds!)

• Undesirable weeds. Tempted to use Round-up or Finale? Remember they are non-selective and work on green leaves actively growing and only when the temperatures are fairly warm. Hand pulling is necessary in February and may be more desirable at other times, too.

**PRUNE** (see pruning tips)

• Shrubs for shape. Some shrubs - all salvias and penstemons, *Tecoma stans*, *Anisacanthus* or hummingbird bush, Maximillian sunflower, turks cap, Mexican mint marigold, lantana, fragrant sumac, yarrow, verbenas, skeleton-leaf golden eye, chili pequin, turpentine bush, *Leucophyllums* (cenizo), pavonia, grasses - can be completely cut to the ground in the winter for improved spring shape and vigor.

• Non-blooming shrubs to shape and remove dead wood.

• Dead growth on perennials and vines as new growth appears.

• Damaged or dead tree limbs

**DON'T PRUNE** trees or make hedges of native shrubs that you want to grow into a natural shape.

• Spring-flowering shrubs until immediately after blooming (or during blooming if you want cut flowers). If you prune later in the year, you prune off next year's flowers.

**WATER** 1 inch per week

• If there has been no rain and weather is warm, continue to water twice a month to soak soils 18" deep at each watering. Use a piece of dowel or metal rod as a "probe." When the probe can easily slide into the soil to 18", note how long you've had the water on and water accordingly each time. Remember that different soils will need more or less water to penetrate to 18". You may want to test this in different areas of the garden and note the length of time you need to water each area.

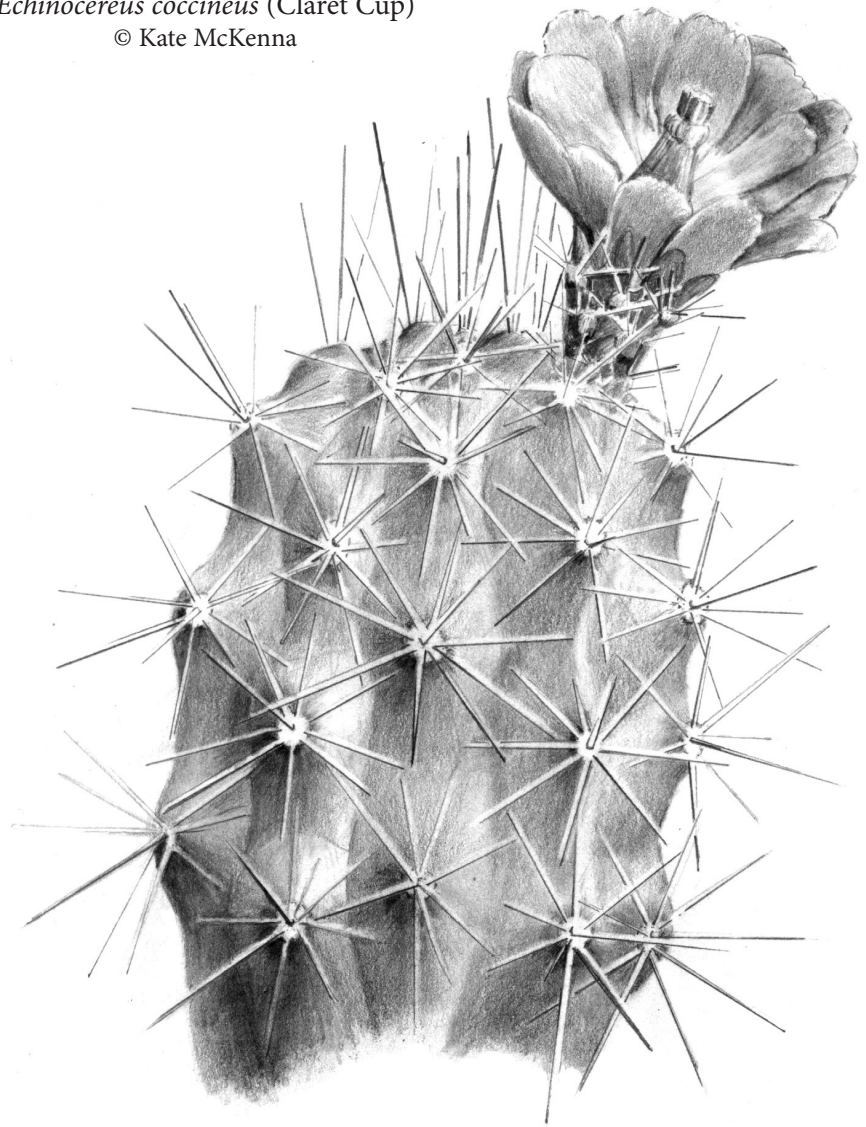
• Watch the weather - wind and warm temperatures call for more water, cool temps, rain or snow call for less.

**DIVIDE AND PLANT** perennials; dig and transplant trees, seedlings, perennials and evergreens while plants are dormant.

**APPLY** corn gluten meal as a pre-emergent to control the germination of winter/spring weed seeds.

*Echinocereus coccineus* (Claret Cup)

© Kate McKenna



Kate McKenna '01

# XERISCAPE landscaping for an arid climate

by Beth Francell

Gone are the days when we could use natural resources with abandon. We now realize the folly of the notion that there will always be “plenty” of whatever we are using. Nowhere is this more true than here in Far West Texas with the issue of water. Arid in the best of times, we frequently are subject to drought that seriously inhibits our rainfall. This means hardship for wildlife, the loss of trees, shrubs and grasses that hold our soil in place, the drying up of old wells and the prohibition of drilling new ones. Water is scarce; water is valuable. It needs to be conserved. Is it possible to have gardens that will give pleasure to the eye and heart, provide food and habitat for wildlife and enhance the natural landscape without wasting water? Yes! This is just what Xeriscape is all about. The term Xeriscape (xeric means dry, remember Xerox?) was coined thirty-five years ago to describe the practice of landscaping to conserve water and protect the environment.

Xeriscaping incorporates seven basic principles that save water:

- 1) Planning and design
- 2) Soil analysis
- 3) Practical turf areas
- 4) Appropriate plant selection
- 5) Efficient irrigation
- 6) Use of mulches
- 7) Appropriate maintenance

## *Design for Wise Water Use*

Well thought out landscape design starts with a scale drawing, and decisions dictated by your desires and your budget. With a good plan as your guide, you can implement the plan in logical phases over several years if necessary to stay within a budget. Without a plan, you can end up with an expensive and inefficient hodge-

podge.

First, define your wants and needs for a landscape. Zone each part of your yard for specific functions and consider how water use can be saved in each area. Some typical functions are: play equipment or games; entertaining outdoors; bird or butterfly watching; pets; storage of tools, firewood, boats or extra automobiles; vegetable or flower gardening; shading west or south facing windows; enjoying views; retaining slopes or terraces; creating privacy; water gardening.

Second, define your microclimates according to how much water is necessary in each. On your base site plan divide your yard into function and water use zones. Try to locate these areas where the terrain and exposure will support your choice.

- *Lowest water use*, no supplemental water, only rainfall. For south and west facing slopes, hard-scape areas such as paths and patios, around concrete drives and parking areas, rock outcroppings, service areas for tool sheds, compost and trash collection, clothes drying, and dog runs.

- *Low water use*, only a little supplemental water. For drought tolerant shrubs and trees, where you can take advantage of roof run off and topographic features that provide extra moisture, where mulch and groundcover keep moisture in, and on north sides of buildings and under trees.

- *Moderate to high water use*, for small areas where you will benefit most from the extra water use. For entryways, around entertaining areas, vegetable gardens, and lawn areas limited to a functional size.

## *Analyze and Improve Soil*

Complete soil tests are required to determine deficiencies. Before you

spend time and money amending your soil, get a soil test kit from your county extension agent and have the soil tested. The test results will tell you what your soil has and what it lacks. This way your efforts go toward giving your soil what it really needs - not just what you think it needs. Properly prepared soil allows for better absorption of water and proper aeration and water holding capacity. The addition of large quantities of compost makes sandy soil hold water longer, and makes clay soil break up and become less rock-hard when it is dry. Compost adds beneficial organisms that help root development and break down existing nutrients into parts plants can use. Micronutrients can be added as needed from various rock powders, manures and marine products.

Even desert plants will benefit from additives that improve drainage and add organic matter. Remember, desert soils have taken thousands of years to develop. The topsoil brought onto your lot and compacted during construction may not suit the plants you are planting. Caliche or volcanic ash is suitable for some plants but not for many others. Adding compost to the soil, whatever its type, is always an improvement.

## *Limit Turf Areas*

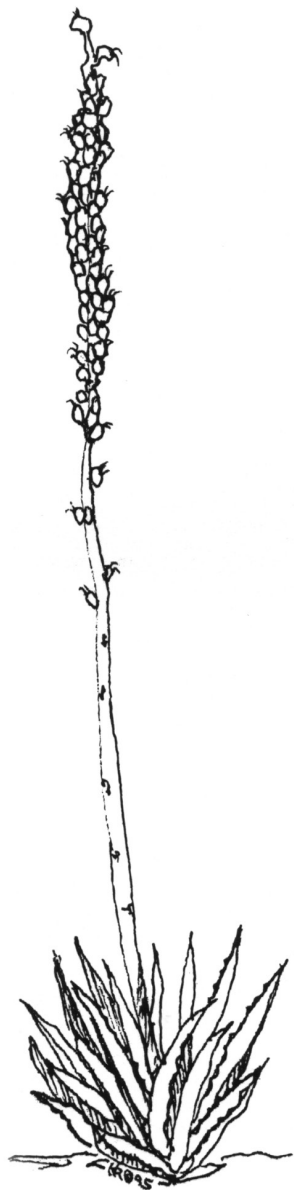
Use mulch, gravel, or low maintenance ground cover wherever possible. For play areas use a grass that requires less water. Instead of Kentucky Blue Grass or Saint Augustine, try native grasses such as Buffalo or Blue Gramma. New types of Bermuda require little water. These grasses go dormant without water but will not die out.

## *Appropriate Plant Selection*

*Xeriscape continued on next page*

Don't mix water use zones. Use the right plant for the right water use zone. Avoid mixing plants with different moisture requirements. They won't be happy in the same planting area.

Learn about native and adapted xeric plants for your area. Select the appropriate plants for the site, the use, and the region.



*Agave lechuguilla* (Lechuguilla)  
© Kathleen Romine

## **Efficient Irrigation**

Systems can be designed to deliver water to separate zones within the garden so each area gets what it needs and no more. Electronic timers can be programmed as to frequency and duration. Re-program them each season as evaporation rates change, and turn them off during rainy periods.

Flower and shrub beds can be watered with drip irrigation lines covered with mulch. No water will spray on foliage and cause damage and no water will be wasted to evaporation with drip irrigation.

Trees should not be planted in turf. Trees should have mulch or ground cover underneath their canopy to the "dripline" - the outer extent of the branches where water would drip to the ground. This is where primary water uptake occurs. Drip irrigation can be placed at the dripline and moved out every three or four years as the canopy expands. You should remove the small well you created at the base of the tree when you planted it by the time the trunk is six inches in diameter, and the watering and mulching zone should extend to the edge of the canopy. If mature trees are watered only near the trunk, the main feeder roots get no water since they are at or beyond the dripline.

Turf can be watered with hose-end sprinklers or an irrigation system, or buried techline pipe. Large areas of irrigated turf are incompatible with sustainable desert land use. Even famous golf courses in Phoenix irrigate only the greens. Use sound watering practices. Water from 8 pm to 8 am when evaporation is less.

Prepare to irrigate transplants. It is a commonly held fallacy that native plants require no maintenance. But consider what is happening to the plant: a nursery or field grown plant is going from ideal conditions into a new soil bed. Its roots, once confined in a pot or damaged in transplanting,

can only transport a limited amount of water to hydrate the plant. Until there is extensive root growth into the surrounding soil, which may take a year or two, the plant must have plenty of supplemental water. You cannot just "plant and forget" - even if the plant is native. Our existing rainfall is too little and too infrequent.

## **Mulch**

Mulching is the key to successful gardening in West Texas. Mulch keeps the soil cool and minimizes evaporation of soil moisture. Mulches reduce weed growth. They help the soil capture rain and snow moisture by holding it so the moisture soaks in slowly rather than running off. Mulches help protect against erosion. Trees love mulch. It simulates the forest floor.

Newly planted plants should always be mulched, and established beds should be kept mulched year-round. Mulches can be coarse compost, either homemade or "Back-to-Earth." Wood chips from local tree trimmers, laid 3 to 4 inches deep are great permanent mulch under trees and shrubs. Annuals need 1 to 2 inches.

Never use black plastic sheeting as a weed barrier under mulch, as it prevents air and water exchange into the soil for plant roots. Rot-proof woven weed barriers allow rainfall and oxygen to penetrate the soil while preventing most weed roots from penetrating.

Gravel mulches are low maintenance *if weeds can be prevented*, but they add both stored and reflected heat. Next to the house and under south facing windows, it is better to use ground covers or shrubs instead of gravel to prevent heat gain in the house interior. Where rainfall exceeds 25 inches, gravel mulch helps protect xeric species from rotting during wet winters.

Organic mulches decompose and add humus to the soil. They must be renewed periodically. Gravel mulches



cf. *Engelmannia pinnatifida*  
 (Engelmann's daisy)  
 © Carol Fairlie

do not break down and they can be pressed into the soil, but they are less likely to be washed away. For cactus and yucca, they are much preferred over compost or wood chips.

### ***Appropriate Maintenance***

Generally (unless you are establishing sod or seed) it is better to water deeply and less frequently than with daily shallow watering. Some types of turf need frequent water to stay green. You may decide not to use them. Maintain and monitor your irrigation system to conserve water.

Water perennial and shrub beds to soak the soil to one foot in depth. Trees benefit from even deeper soakings. Probe the soil with a metal rod to determine if water has penetrated deep enough from weekly waterings. Annuals and vegetables have more shallow roots and need water to 8 inches in depth. In this climate, annuals and vegetables may need daily watering during the summer.

Fertilize with organic or organic based fertilizers. This way you do not risk over-fertilizing or polluting streams and water sources with runoff.

You are also adding humus and water holding capacity. Mulching and compost will also add humic acids, and a humus-rich soil is key to minimizing water use.

Turf can be fed in the early spring, early summer and fall with a slow-release organic fertilizer, depending on the type of turf. Native grasses generally require no fertilizer. In the heat of summer, over-fertilizing without sufficient water can burn the grass and cause thirsty fast growth.

A maintenance program should preserve the integrity of the design and be efficient in its use of resources. Do not plan more garden than you can maintain. If you select the right plants for the right places and mulch and water them properly, you can create beauty and function appropriate to the region and your lifestyle and reduce your maintenance needs as well as conserve land and water. ♡

## NOTES \_\_\_\_\_

---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



---

## Big Bend THEN

**September 1889** *The Marfa History Club, a women's organization, is founded*

**October 10, 1890** *Five ranching families meet in Skillman Grove to form an annual Camp Meeting under the leadership of W.B. Bloys; By 1923 over 1,000 people attend*

**August 1891** *Fort Davis is abandoned by military forces*

**July 1892** *Juan Acosta discovers quicksilver in Terlingua*

**August 28, 1892** *A cloudburst in Ranger Canyon floods Alpine*

**September 26, 1892** *Father Brocardus E. Ker of Austria, who built the church in Fort Davis, establishes the Catholic church in Murphyville (Alpine); In 1895 the Reverend Maas begins regular services*

**1892** *Coal is discovered below the rimrock northwest of Valentine*

# On NOT FOLLOWING THE RULES of Landscape Design

by Jennifer Baur

I often find myself chuckling when the garden “expert” comes on the radio and attempts to explain the basics of landscaping to the listener. Why does it make me so happy? I have seen the light. After spending twenty-two years in the landscape design and maintenance business I have become a born-again gardener. I have made a conscious decision to throw out all the golden rules of design and just have a good time.

Now that I look back upon it, I always had a difficult time designing a “landscape” because I was really a gardener at heart. Landscaping and gardening - two opposing forces. One cannot be a truly liberated gardener and worry about the elements of landscape design. Landscape design implies pencil and graph paper, and labored thinking about what will go where. One has to consider line and form and color and motion and texture and space and unity and balance and proportion and areas of emphasis. Well I say what about digging frenzies just before a rainfall; planting a “riot of color”; going to a nursery and saying, “what shall I plant today?” or seeing a Scarlet Bouvardia and saying “I have got to have that plant but where can I plant it?”

Gardening is an obsession, an addiction (a disease?). Landscaping is something you hire out. Gardeners let plants go to seed so they can have more of the same for free. Landscapers deadhead. Gardeners get dirty. Landscapers want edging everywhere. Gardeners have been known to sing and dance in the rain. Landscapers experience the shower from the lanai. Gardeners gaze with wonder as the

cutter bee zips a perfect circle from a rose leaf. Landscapers search the internet for the latest in legal but lethal pesticides.

Is my view of landscaping prejudiced? For this I must apologize. It took many years to finally rid myself of all the guilt associated with landscaping. It was difficult to let myself plant every color of the rainbow in my garden, not fretting about complementary colors or contrasting colors or cool or warm colors. It was even more disconcerting to plant with abandon, even knowing that by the end of the day a true work-of-art would be my reward. My own creation, from my own hands, mind, and heart evolves throughout the day, season, and years to come. My garden: a place for me to sit and watch and wait and meditate and gain inspiration. ☞



*Hechtia texensis* (Texas False Agave)  
© Kathleen Romine

## Things to do in MARCH

**SOW** summer flowering wild-flower seed.

**CHECK** irrigation system for clogged emitters.

**PLANT** seeds indoors that need 6 weeks before the last freeze date (around April 10 in our area) before they can be set out.

- Hardy container-grown stock and mulch well

- Summer-flowering perennials.

**WATER** every other week or every week depending on rain and heat. Check moisture in soil with a soil probe (see February) to determine how wet and how far down and adjust watering system for proper length of time. Remember: It is better to water less frequently and longer to encourage deeper roots. However, in the spring, light frequent watering helps newly planted seedlings get a good start. Wind and rising temperatures will increase the water requirements of new transplants.

**WEED** undesirables after watering or a rain. Pulling out small weeds now eliminates heavy weed problems later and prevents weeds from reseeding.

**SET OUT** hardened off perennials. Hardy shrubs can continue to be planted as long as they are kept damp until they are established: when they start new growth or through the first growing season.

# PLANT LIST for the Trans-Pecos Region

compiled by Jennifer Baur

\* Grows in the shade or sun  
 \*\* Attracts hummingbirds  
 and butterflies

## Flowers

\**Aquilegia chrysantha*\*\*  
 Golden Columbine  
*Baileya multiradiata*\*\*  
 Desert Marigold  
*Berlandiera lyrata*  
 Chocolate Daisy  
 \**Bouvardia ternifolia*\*\*  
 Scarlet Bouvardia  
*Calylophus hartwegii*  
 Yellow Primrose  
*Croton monanthogynus*  
 Croton  
*Eupatorium greggii*\*\*  
 Mistflower  
*Gaura coccinea*  
 Scarlet Gaura  
 \**Ipomopsis aggregata*\*\*  
 Standing Cypress  
*Liatris punctata*\*\*  
 Dotted Gayfeather  
 \**Lobelia cardinalis*\*\*  
 Cardinal Flower  
*Lotus oroboides*  
 Pine Deer Vetch  
*Lupinus havardii*  
 Big Bend Bluebonnet  
*Lygodesmia texana*  
 Texas Skeleton Plant  
*Macrosiphonia macrosiphon*  
 Rock Trumpet  
 \**Melampodium leucanthum*\*\*  
 Blackfoot Daisy  
 \**Menodora longiflora*  
 Showy Menodora  
*Monarda pectinata*\*\*  
 Horsemint  
*Parthenium incanum*  
 Mariola  
*Penstemon baccharifolius*  
 (and many others) \*\*  
 Beardstongue

*Portulaca parvula*  
 Purslane  
*Psilostrophe tagetina*  
 Paper Flower  
*Ratibida columnaris*  
 Mexican Hat  
*Salvia farinacea*\*\*  
 Mealy Sage  
*Salvia pinguifolia*  
 Rock Sage  
 \**Salvia regia*\*\*  
 Mountain Sage  
*Salvia roemeriana*\*\*  
 Cedar Sage  
*Scutellaria potosina*  
 Blue-flowered Skullcap  
*Senna lindheimeriana*  
 Senna  
 \**Silene laciniata*\*\*  
 Catchfly  
*Sphaeralcea angustifolia* var.  
*cuspidata*  
 Globe Mallow  
*Townsendia exscapa*  
 Boutonniere Plant  
*Vernonia marginata*  
 Plains Ironweed  
*Wedelia acapulcensis* var.  
*hispidata*  
 Hairy Zexmenia  
*Zinnia grandiflora*\*\*  
 Desert Zinnia  
**Yucca, Cacti and Euphorbia**  
*Agave havardiana*  
 Century Plant  
*Ariocarpus fissuratus*  
 Living Rock Cactus  
*Coryphantha vivipara*  
 Spiny Stars  
*Cylindropuntia imbricata*  
 Cholla  
*Dasyliirion leiophyllum*  
 Sotol  
*Echinocactus horizontalonius*  
 Eagle's-Claw Cactus



*Agave havardiana*  
 (Havard Agave)  
 © Kathleen Romine

*Echinocactus texensis*  
 Horse Crippler Cactus  
*Echinocereus coccineus*\*\*  
 Claret Cup Cactus  
*Echinocereus dasyacanthus*  
 Texas Rainbow Cactus  
*Echinocereus stramineus*\*\*  
 Strawberry Cactus  
 (Pitaya)  
*Euphorbia antisiphilitica*  
 Candelilla  
*Ferocactus hamatacanthus*  
 Fishhook Barrel Cactus  
*Fouquieria splendens*\*\*  
 Ocotillo  
*Hechtia texensis*  
 Texas False Agave  
*Jatropha dioica*  
 Leatherstem  
*Opuntia polyacantha*  
 Prickly Pear Cactus  
*Yucca elata*  
 Soaptree Yucca  
*Yucca faxoniana*  
 Giant Dagger  
*Yucca rostrata*  
 Thompson's Yucca  
**Shrubs**  
 \**Aloysia gratissima*  
 Whitebrush  
 \**Aloysia wrightii* \*\*  
 Oreganillo  
*Anisacanthus linearis*\*\*  
 Hummingbird Bush  
*Atriplex canescens*  
 Four-Wing Salt-Bush  
 \**Berberis trifoliolata*  
 Agarita  
 \**Bouvardia ternifolia*\*\*  
 Scarlet Bouvardia  
*Buddleia marrubifolia*\*\*  
 Woolly Butterfly Bush  
*Cassia wislizenii*  
 Shrubby Senna  
 \**Cercocarpus montanus*  
 Mountain Mahogany  
*Chrysactinia mexicana*\*\*  
 Damianita  
*Chrysothamnus nauseosus*  
 Chamisa  
*Cowania mexicana*  
 Cliff Rose  
*Dalea formosa*  
 Feather Dalea  
*Dalea frutescens*  
 Black Dalea  
*Dalea greggii*  
 Trailing Indigo Bush  
*Dermatophyllum secundiflorum*  
 Mountain Laurel  
*Ephedra torreyana*  
 Mormon Tea  
 Plant List continued on next page

**Shrubs, continued**

- Ericameria larcifolia*\*\*  
Turpentine Bush
- Eriogonum wrightii*  
Wright's Buckwheat
- Fallugia paradoxa*  
Apache-Plume
- Guaiacum angustifolium*  
Guayacán
- Koerberlinia spinosa*  
Allthorn
- Krameria erecta*  
Range Ratany
- Lantana urticoides*  
(and other species)\*\*  
Lantana
- Larrea tridentata*  
Creosotebush
- Leucophyllum candidum*  
Boquillas Silverleaf

- Leucophyllum frutescens*  
Texas Sage
- Leucophyllum minus*  
Big Bend Silverleaf
- \**Rhus microphylla*  
Little-Leaf Sumac
- \**Rhus trilobata*  
Fragrant Sumac
- \**Rhus virens*\*\*  
Evergreen Sumac
- Rosa woodsii*  
Woods Rose
- Salvia ballotiflora*  
Shrubby Blue Sage
- Salvia greggii*\*\*  
Autumn Sage
- \**Salvia lycioides*\*\*  
Canyon Sage
- Tecoma stans* var. *angustata*  
Yellow Bells
- Thymophylla acerosa*  
Dogweed

- Vachellia constricta*  
White Thorn Acacia
- Viguiera stenoloba*\*\*  
Skeletonleaf Goldeneye

**Trees**

- \**Acer grandidentatum*  
Bigtooth Maple
- \**Arbutus xalapensis*  
Madrone
- \**Celtis laevigata* var. *reticulata*\*\*  
Netleaf Hackberry
- Celtis ehrenbergiana* \*\*  
Desert Hackberry
- \**Cercis canadensis* var. *mexicana*  
Mexican Redbud
- Chilopsis linearis*\*\*  
Desert Willow
- \**Crataegus tracyi*  
Tracy Hawthorne
- \**Diospyros texana*  
Texas persimmon
- Juniperus deppeana*  
Alligator Juniper
- \**Leucaena retusa*\*\*  
Goldenball Leadtree

- Pinus edulis*  
Piñon Pine
- Prosopis pubescens*  
Screwbean Mesquite
- \**Prunus serotina*  
Southwestern Chokecherry
- Quercus emoryii*  
Emory Oak
- \**Quercus gravesii*  
Chisos Red Oak
- Quercus grisea*  
Gray Oak
- Quercus muehlenbergii*  
Chinkapin Oak
- \**Ungnadia speciosa*  
Mexican Buckeye

**Lawn Grasses**

- Bouteloua gracilis*  
Blue Grama Grass
- Buchloe dactyloides*  
Buffalo Grass

**Ornamental Grasses**

- \**Muhlenbergia emersleyi*  
Bull Muhly
- Muhlenbergia rigida*  
Purple Muhly
- Nolina microcarpa*  
Bear Grass
- Schizachyrium scoparium*  
Little Bluestem
- Sorghastrum nutans*  
Indiangrass
- \**Stipa tenuissima*  
Finestem Needlegrass

**Vines**

- Clematis drummondii*  
Old Man's Beard
- Maurandya antirrhiniflora*  
Snapdragon Vine
- Parthenocissus heptaphylla*  
Seven Leaf Creeper
- Vitis arizonica*  
Canyon Grape



*Salvia greggii* (Autumn Sage)  
© Petei Guth



# Big Bend PLACES TO SEE

## *Around Alpine*

- Museum of the Big Bend at Sul Ross State University
- Cactus Garden at Sul Ross
- Native Plant Greenhouses at Sul Ross
- Hike Hancock Hill behind Sul Ross to the desk at the top
- Elephant Mountain Wildlife Management Area (Hwy 118 South)
- Hwy 118 drive to Terlingua
- Railroad Park gardens on Holland Ave.
- Farmer's Market - East Murphy Street, 9-12 every Saturday year-round.
- Murphy Street Mercado – gifts, pots and some plants. West Murphy Street

## *Around Marathon*

- The Gage Gardens –birding & a two mile hiking trail
- Native plant landscaping at the Gage Hotel
- M 2 M Marathon last Saturday in October
- Fort Pena Colorado (the “Post Park”) great birding; big dance 4th of July weekend
- El Fiesta de Noche Buena – 1st Saturday night in December

## *Around Fort Davis*

- McDonald Observatory visitors' center native plant garden
- Scenic Loop from Fort Davis and back (Hwy 118 north and Hwy 166 south)
- Davis Mountain Preserve – Nature Conservancy (432) 426-2390
- Point of Rocks picnic area on Hwy 166 off Hwy 17
- Chihuahuan Desert Nature Center Hwy 118 south, hikes and pollinator garden
- Davis Mountains State Park hike from the top of the Scenic Drive to the Fort Davis Historic Site
- Wild Rose Pass drive from Fort Davis to Balmorhea
- San Solomon Springs at Balmorhea State Park

## *Around Marfa*

- Hwy 2810 (Pinto Canyon Road) from Marfa to Ruidosa (south half is unpaved) private property; stay on road
- Marfa Lights Visitor Center Hwy 90 east of Marfa
- Heliostat “Drug Interdiction Balloon” ... look up!
- The Fort Davis, Marfa, Alpine highway triangle
- The Dixon Water Foundation / Mimms Ranch some days open to the public.
- Marfa Presidio County Museum
- Chinati Foundation open areas to walk / hike / see art on the prairie
- Marfa Studio of Arts / Imagination Station / Marfa Public Radio studios / Ballroom, San Antonio St. between Dean St. and Highland Ave.

## *Around Big Bend National Park*

- Turkey buzzard migrations – south in October, returning in early March
- Bigtooth Maples in fall along Boot Canyon on the Chisos/South Rim Trail
- The hike to Emory Peak (off the east side of the South Rim trail) ... especially spring ladybug migration

## *Along the Rio Grande*

- Judge Roy Bean Museum and Roadside Park in Langtry
- Black Gap Wildlife Management Area
- Two International Chili Cook-offs in Terlingua 1 st weekend of November
- Barton Warnock Visitor Center between Lajitas and Terlingua
- Big Bend Ranch State Park, multiple sites including the hoodoos
- Picnic at the Fern Grotto (left side of the road) on the way to the Big Bend Ranch State Park Lajitas
- Chinati Hot Springs
- Sierra del Carmen National Park in Northern Mexico
- Trail at the “Big Hill” between Presidio and Lajitas spectacular overlook of the Rio Grande
- River Road between Terlingua and Presidio (especially driving east at sunset)
- River Road teepee rest stop for spring flowers

# THE DEER PROBLEM

by Beth Francell



## Trees Deer Do Not Prefer

Ash	Mountain Laurel*
Desert Willow	Pine
Fir	Smoke Tree
Juniper	Spruce
Madrone	Sumac *
Maple	Vitex or Chaste-tree

## Shrubs Deer Do Not Prefer

Agarita*	Salvia *
Buddleia	Santolina
Lantana	Sumac*

## Flowers Deer Do Not Prefer

Agave	Monarda
Aster *	Ornamental Grass *
Cactus	Oxalis
Columbine	Penstemon *
Coreopsis	Poppies *
Ferns	Rudbeckia
Gaillardia	Salvia *
Lantana*	Yarrow *
Lupine (Bluebonnet)	
Zinnias*	

As you look at the list, you see a general rule - deer prefer not to eat plants that are strong smelling, prickly or fuzzy. The plants with a star (\*) are the ones deer sincerely don't like, however, deer will eat anything young, tender and green if they are starving. They need the moisture in the tender new growth, i.e. that new native plant you brought home from the nursery. Deer browse on shrubs and young tree seedlings and the lower leaves of trees. They are not grass eaters or grazers like cattle. When they are starving, they eat even juniper and cypress. Often they will leave mature plants alone, but eat all the offspring of the plant.

## PROTECTION OF YOUR GARDEN:

### Fencing

The only complete protection from deer is an eight-foot fence or a six-foot fence that deer cannot see through. Some catalogs sell an almost invisible fence, a roll of black plastic mesh netting (7 ft. by 100 ft. costs around \$20.00). It is UV-stabilized and easy to install with any kind of post. However, at the bottom, you need to place 2 to 3 feet of a rigid material like cattle panel or welded wire to keep deer and javelina from going underneath. Tie streamers of reflective tape that flashes and sparkles at the top of the fence to create a visible deterrent to the deer. If the fence is set on a slant away from the jumping spot it is even less likely to be jumped.

### Sprays and Scents

Most commercial sprays are made from pepper and egg. You can make your own by putting a raw egg in the blender with a cup of water and blending until completely smooth. Add some liquid hot sauce and enough water to make a gallon. Sprinkle this on the plants every few days. It does not smell bad to humans, but even this is not foolproof. Irish Spring soap flakes in mesh bags work for a little while. Predator scents (fox and coyote urine) are collected in very inhumane ways so we discourage their use.

### Sonic Deterrents

The sound of barking dogs or sounds inaudible to us but annoying to deer are effective for a while, but deer tend to get used to them, especially if the property has no activity for hours or days at a time. An actual big dog that stays out all night is some help, but even dogs get complacent. Also you risk having the dog encounter javelina and skunk.

### Population Control

Deer have been called one of the greatest threats to native plant habitat next to development and invasive exotic plants. Eat more venison. ☼



Above: *Rhus virens* (Evergreen Sumac)  
 Right: *Rhus microphylla* (Desert Sumac)  
 © Kathleen Romine

## Things To Do In APRIL

*last average freeze date is  
the middle of the month*

**START FEEDING** hummingbirds now.

**MOW** grass to grind up leaf litter and dead top growth. Set blade high and allow clippings to fall back into the grass - they decompose and act as mulch.

- Undesirable weeds - henbit, wild mustard, oxalis - (or pull them out or chop them down) to prevent flowering and seeding out.

**DON'T MOW** prairie areas as wildflowers are just setting buds.

- Clump grasses - they were meant to grow tall so we can enjoy them in the wind and watch the sun through the seed heads!

**WAIT** until the mesquite blooms - Spring has Sprung! And you can set out tender seedlings mid-month.

### **WATER**

- March and April are often dry and windy, so water weekly unless temperatures stay very cold.

**STAKE** newly planted trees against the wind. (See planting section for how).

**PLANT** tender annuals after mid-month.

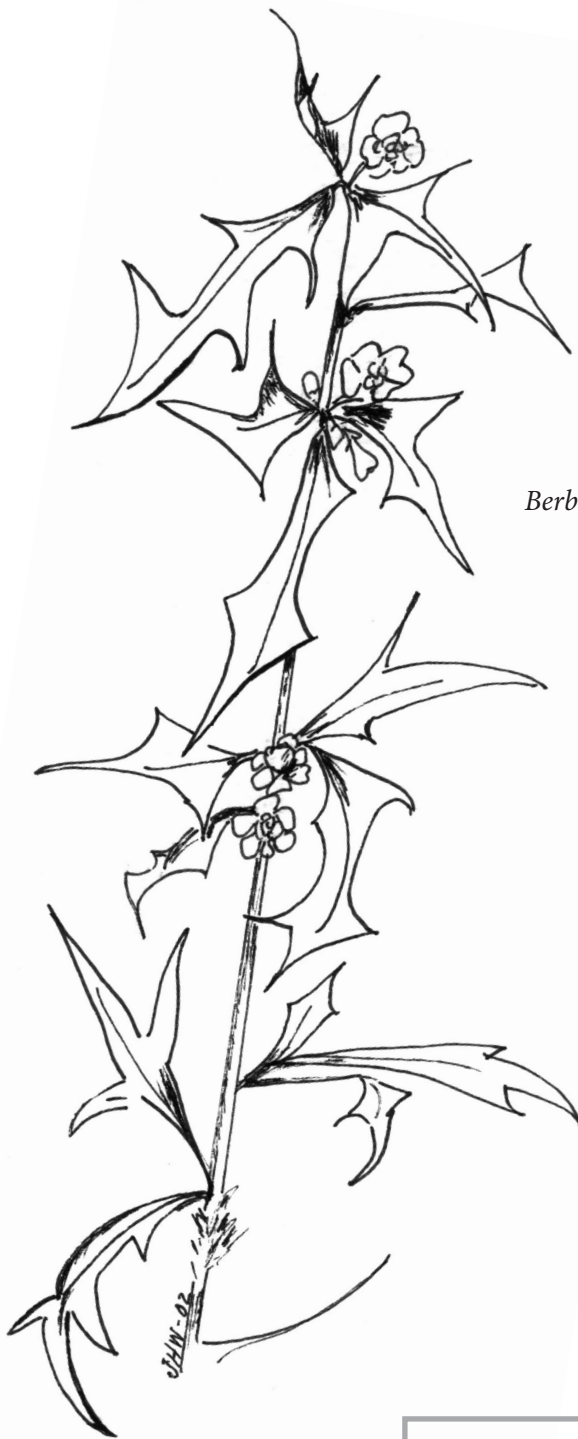
**MOVE** desert trees and shrubs like agaves, cactus, ocotillo and yucca.

**FERTILIZE** with composted manure, compost or organic fertilizer.

### **COMPOST**

- Having kept your compost pile moist all winter, it will begin to "cook" as temperatures rise. Be sure to turn it every 6 weeks or so. If you construct your compost pile with a "gate" on the fourth side, you can simply open the gate and pull out the bottom 1/3 to 1/2 of the pile. The top of the pile will fall to the bottom. You can either use the compost you have pulled out (if it has undecomposed material such as sticks in it, try sieving it through a piece of hardware cloth fastened to a sturdy frame) or, if it's not ready, return the partially broken down plant material to the top of the pile. Continue to keep the pile moist - a good way to do this is to create a hole in the middle of the pile so that rain or hose water can penetrate the inside of the pile.

- Resist the temptation to throw seeded out weeds into the compost - they need to go in the trash and take their seeds with them!



*Berberis trifoliolata* (Agarita)  
© Jean Waterston

## Big Bend THEN

**November 27, 1892** The Reverend W.B. Bloys establishes the First Presbyterian Church of Alpine

**March 30, 1900** The newspaper reports that there is not a vacant house in Alpine

**April 30, 1900** The Federal census for Brewster County reports a population of 2,356

**1910** The Jeff Davis County Courthouse is completed

# NATIVE and ADAPTED PLANTS for wildlife

Compiled by Lois Balin

Type of food produced:



Fruit (fleshy)



Fruit (bean)



Fruit (hard)



Seeds



Nectar

Provides sustenance for:



Birds (general)



Songbirds



Gamebirds



Butterflies



Mammals (general)



Small Mammals



Large Mammals

## SPRING through SUMMER

<i>Fraxinus cuspidata</i> Fragrant Ash		
<i>Ephedra species</i> Ephedra		
<i>Quercus species</i> Oak	<i>insect substrate</i>	
<i>Vachellia rigidula</i> Blackbrush Acacia		































## SUMMER

<i>Celtis reticulata</i> Netleaf Hackberry		
<i>Chilopsis linearis</i> Desert Willow		
<i>Morus microphylla</i> Texas Mulberry		
<i>Prunus serotina</i> SW Chokecherry		
<i>Prunus mexicana</i> Mexican Plum		
<i>Aloysia wrightii</i> Wright's Lippia		
<i>Rhus microphylla</i> Little-leaf Sumac		
<i>Rhus trilobata</i> Fragrant Sumac		
<i>Castela texana</i> Allthorn		
<i>Berberis trifoliolata</i> Agarita		
<i>Calliandra eriophylla</i> Fairy Duster		
<i>Agave species</i> Agave		
<i>Machaeranthera tanacetifolia</i> Tahoka Daisy		
<i>Machaeranthera linearis</i> Tahoka Daisy		








## SUMMER through FALL

<i>Prosopis glandulosa</i> Honey Mesquite		
<i>Prosopis pubescens</i> Tornillo		
<i>Eysenhardtia texana</i> Texas Kidneywood		
<i>Atriplex canescens</i> Four-wing Saltbush		
<i>Larrea tridentata</i> Creosotebush		
<i>Schaefferia cuneifolia</i> Desert Yaupon		
<i>Nolina species</i> Sacahuista		
<i>Opuntia species</i> Prickly Pear		
<i>Opuntia species</i> Cholla		
* <i>Lantana species</i> Lantana		
<i>Yucca species</i> Yucca		
* <i>Echinacea angustifolia</i> Purple Coneflower		
<i>Pinus edulis</i> Piñon Pine		
<i>Cercocarpus montanus</i> Mountain Mahogany		
<i>Colubrina texensis</i> Hogplum		
* <i>Parkinsonia aculeata</i> Retama		
<i>Senegalia greggii</i> Catclaw Acacia		
<i>Helianthus maximiliani</i> Maximillian Sunflower		
<i>Pectis angustifolia</i> Limoncillo		
<i>Quercus species</i> Oak	<i>insect substrate</i>	







































## FALL

<i>Chilopsis linearis</i> Desert Willow		
<i>Leucaena retusa</i> Goldenball Leadtree		  
<i>Quercus</i> species Oak		  
<i>Sapindus saponaria</i> Western Soapberry		 
<i>Pistacia texana</i> Texas Pistache		
<i>Cupressus arizonica</i> Arizona Cypress		 
<i>Artemisia filifolia</i> Sand Sagebrush		
<i>Vachellia constricta</i> Whitethorn Acacia		  
<i>Cercis canadensis</i> var. <i>mexicana</i> Mexican Redbud		  
<i>Zizyphus obtusifolia</i> Lotebush		 
<i>Choisya dumosa</i> Star-leaf Mexican Orange		









## FALL through WINTER

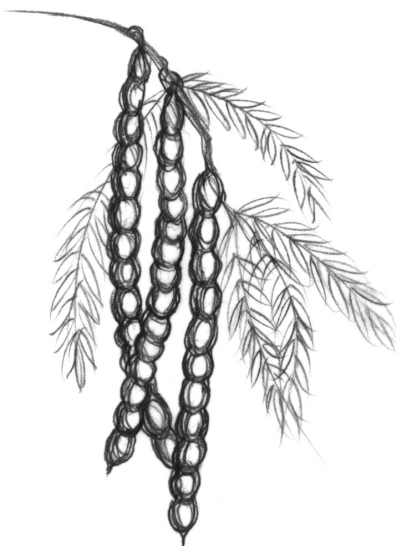
<i>Rhus lanceolata</i> Flameleaf Sumac		   
<i>Rhus virens</i> Evergreen Sumac		 
<i>Sophora secundiflora</i> Texas Mountain Laurel		  
<i>Quercus fusiformis</i> Escarpment Live Oak		 

## SUMMER through WINTER

<i>Rhus trilobata</i> Fragrant Sumac		  
<i>Celtis pallida</i> Desert Hackberry		   
<i>Celtis reticulata</i> Netleaf Hackberry		   
<i>Diospyros texana</i> Texas Persimmon		   
<i>Juniper</i> species Juniper		    
<i>Viguiera stenoloba</i> Skeletonleaf Goldeneye		  
<i>Chrysactinia mexicana</i> Damianita		
<i>Fallugia paradoxa</i> Apache-Plume		 
<i>Ratibida columnaris</i> Mexican Hat		 
<i>Eriogonum wrightii</i> Wright Buckwheat		

## SPRING through FALL

<i>Lycium pallidum</i> Pale Wolfberry		
<i>Lycium torreyi</i> Torrey Wolfberry		
<i>Sphaeralcea</i> species Globe Mallow		 
<i>Calylophus fendleri</i> Sundrops		



*Prosopis glandulosa* (Mesquite) fruit  
© Beth Francell



**Fruits (fleshy)** - Attract bluebirds, cardinals, mockingbirds, orioles, tanagers, thrashers, thrushes, robins, cedar waxwings, warblers, vireos, quail, doves, fox, coyote, opossum, raccoon, ground squirrel, skunk, ringtail cats



**Fruits (hard)** - Attract woodpeckers, chats, jays, porcupine, opossum, raccoon, mice



**Seeds** - Attract chickadees, titmice, cardinals, wrens, pyrrhuloxias, finches, goldfinches, sparrows, blackbirds, towhees, buntings, jays, woodpeckers, doves, cottontails, jackrabbits, mice



**Nectar** - Attracts hummingbirds, butterflies, bats

\* Non-native species

## Things to do in MAY

**PLANT** sod of warm season grasses - buffalo, blue grama and Bermuda. Wait until days are over 70° and nights over 55° before planting seed.

- Last call for planting container trees and shrubs.
- Transplant cacti now before it gets too hot.

### **WATER**

- First in line - new plantings twice a week,
- Then - established plantings actively growing, once a week but long and deeply
- Lastly - everything else including cacti

**MULCH** should be added if the old mulch has decomposed below 2" depth.

**DEADHEAD** flowers after bloom. (Cut the flower heads off so the plant doesn't use its energy to make seed and will rebloom).

**PUT OUT** NoLo bait for young grasshoppers.

**CUT BACK** *Salvia greggii* after it blooms.



*Elionurus barbiculmis* (Woolspike Balsamscale)  
by Patricia R. Manning

# The Joys of Solarizing

by Dallas Baxter

**W**ant to prepare an area for planting without chemicals or huge outlays of money? Solarizing may be just the thing for you. Granted, this method is neither quick nor attractive, but it does work, and it is fairly hassle-free. When you solarize an area, you are, literally, steaming it to death. That means that plants above the soil, roots and insect larvae beneath and seed in either place will bite the dust. One hopes the worms and other good guys in the soil will crawl to safety.

Choose the hottest summer months, when the sun is high. You'll need 6-7 weeks "under plastic" to accomplish your goal. Designate an area to be sterilized. Don't make it more than you can cope with at one time. Mow if weeds are tall. Water the area thoroughly and cover it with a layer of clear plastic at least 6 mil thick. Now, seal the edges of the plastic (this is an essential step). You can use lumber, stones, bricks, soil - anything that will hold the entire edge of the plastic firmly to the ground. You don't want air or moisture to get under the plastic until you're ready to remove it. If you don't seal the edges effectively, you will achieve only partial success and will have had to look at that plastic for weeks without accomplishing your goal.

When you remove the plastic, you should see only brown, dead plant material. Remove this and prepare the soil appropriately for what you're planting. If you're planting seeds, follow the directions on the packet, mulch and enjoy. If you're planting perennials or annuals that have already been started in pots, you can keep the area free of volunteers-from-seed longer by applying a pre-emergent (follow directions) and covering the area with porous weed barrier (available at garden centers). When you plant your plants, cut X's in the barrier to create a hole. Plant through the hole and then replace the barrier around the plant and cover the area with the mulch of your choice (see p.10).

This porous weed barrier allows oxygen and water to get to the root system and does a good short-term job of retarding unwanted volunteers. If you are going to cover a large area with stone or gravel, you should use this weed barrier (it is available in wide widths for large areas) rather than black plastic as the plastic will not allow oxygen or water to penetrate the soil and nourish any plant material you may have installed.

Though somewhat unsightly, solarizing will spare you a lot of work, and it is a very effective help when you're preparing an area for planting. Try it! You have only the weeds to lose!

☺

# GOING BUGGY

## Integrated Pest Management

### Beneficial Insects

Many insects play a beneficial role for plants in the landscape. Honeybees and other pollinators are involved in the reproductive growth phase of plants and flowers. We are extremely dependent on this group of insects for the development of fruits and seed.

There are also a number of insect predators that can attack harmful pests in the landscape. Most gardeners prize ladybugs and the occasional praying mantis for their ability to devour pesty critters. However, there are also tiny parasitic wasps as well as nematodes that have beneficial attributes. Other bug friends include ground beetles, predatory mites, spiders and wasps.

Protecting these natural pest enemies is an important part of maintaining an environmentally friendly landscape. Best way to do this: limit pesticide use. Provide host and nectar plants for these predators. Tolerate some insect damage. Handpick critters. Use soapy water spray and other less toxic items. Learn to distinguish the good bugs from the bad.

Did you know that less than 3% of all insects are considered pests? The rest are either beneficial or harmless. Insects pollinate fruits and vegetables, provide food for birds, fish and other wildlife, produce useful products like honey, silk, shellac and wax, help decompose leaves, branches and other organic debris in soil-enriching humus and provide the useful service of feeding on other insects considered pests to humans.

Insects are part of a complex and interrelated ecosystem. A spray applied to destroy a pest may well be destroying beneficial ones as well. Remember that when you kill a beneficial insect, you inherit its job.

The best pest control is the gardener's

shadow. Inspect regularly and hand pick the pests. Use a strong spray of water to dislodge unwelcome visitors. Encourage beneficial insects and birds by providing water and appropriate habitat. Use pesticides as a last resort.

### Integrated Pest Management - IPM

Integrated Pest Management uses four key strategies to control pest damage while fostering environmental awareness and stewardship:

\* Proper plant selections - choose plants with genetic resistance to pests and disease (Natives!)

\* Biological control - use one organism to control another - organic solutions, too.

\* Environmental and cultural controls - encourage conditions that are favorable for the plant, unfavorable for the pest.

\* Chemical control as a last resort.

Because native plants are relatively pest free, you may find that your need to control pests is at a minimum. But many of us also grow fruits and vegetables as well as a favorite adaptive plant.

For those, there is more information on IPM on the following websites:

<http://www.reeusda.gov/nipmn/>

<http://entowww.tamu.edu/extension/extipm.html>

And these books:

Texas Bug Book: The Good, the Bad and the Ugly, Malcolm Beck

A Field Guide to Common Texas Insects, Bastiaan Drees and John Jackman.

A Field Guide to Texas Critters: Common Household and Garden Pests, Bill Zak. ♡

~ Courtesy of the Garden Guide for Austin & Vicinity, published by the Travis County Master Gardener Association, copyright 2002



*Prosopis glandulosa* (Mesquite) flower  
© Beth Francell

### Things to do in JUNE

**WATER** newly planted trees and shrubs deeply, to 18", once a week.

• Early in the morning or at night; avoid using a fine mist spray - too much of it will evaporate and never get to the plant!

• At least once a week - but watch for stress on new plants and water as needed.

• Deeply irrigate flower borders, raised beds and containers daily, as transpiration is very high. (In this climate, we may receive 10-15" of rain a year, but we evaporate 52")!

### Big Bend THEN

**March 22, 1911** A raid in lower Brewster County is connected with the beginning of a Mexican revolution led by Francisco Madero. 100,000 American troops are ordered to Camp Marfa

**June 2, 1911** Francisco I. Madero, leader of the Mexican revolution, stops in Alpine

**October 28, 1911** Aviator Cal Rogers lands the first plane in Alpine

**April 19, 1913** The Kansas City, Mexico and Orient of Texas Railroad Station opens in Alpine

**October 1913** The Limpia Hotel is completed and opened in Fort Davis

# CATCHWATER SYSTEMS

by Sue Beach

Are you one of those West Texas persons who would like to have a garden, but feel guilty about using already scarce water resources? If so, you should know there are water sources you may not be using! Let's talk about rainwater and graywater. These sources can be easily tapped and are available to everyone. While you may question my saying that rainwater is available in Far West Texas, I maintain that it is, in quantities to support native and drought-resistant plants.

Rainwater catchment is a viable method of water conservation. It can be as simple as a barrel sitting beneath a gutter spout or a more complex system of piping rainwater to some type of catchment, an underground tank or an aboveground cistern.

Another source of water is graywater. Graywater consists of water used in the home for bath, shower, bathroom sinks, and laundry. These sources are, however, more difficult to reuse for an already existing home.

When we built a home in the desert, we determined that we would make use of both water sources in order to have a place surrounded by native and drought-tolerant plants. Our home was built with a parapet wall surrounding a sheet metal shed roof, sloping to a gutter. The roof has one-eighth inch slope to one foot. We installed an in-ground tank with a pressure pump and drip system. A gutter on the eave of the house and garage-carport area drains into the tank. To quote the Texas Water Development Board: "One inch of rain on one square foot of collection area equals 0.6233 gallons. Many simply round this off to 600 gallons collected per inch of rain on one thousand square feet." They also tell us that the average annual rainfall in this area (South Brewster County) from 1961-1990 was ten inches. With three thousand square feet of roof, and an average annual rainfall of ten inches, approximately eighteen thousand gallons of water

per year is available for catchment!

In addition, we also catch our graywater through a dual sewer system. The blackwater from the sink, dishwasher and toilets goes into the septic tank. A separate line carries all other water used in the house into the underground tank. We use drip irrigation on our plants and very seldom have to supplement with any other watering. One side effect to the system is this: at times of the year when we receive no rain, the water has an odor. However, watering frequently, so that water does not stand in the tank for any length of time, can eliminate this problem. Although we have never measured the amount of graywater we catch, it provides a large quantity of water for irrigation in dry periods of the year. We have had no adverse effects to any of our plants from the use of graywater, and we appreciate the available water source in the desert.

If you consider the cost of 18,000 gallons of water through a commercial water meter, you realize you are saving two valuable resources, water and money. ☺

For more information, go to the Texas Water Development Board web site: [www.twdb.state.tx.us](http://www.twdb.state.tx.us)



*Jatropha dioica* (Leatherstem)  
© Kathleen Romine

## NOTES

---

---

---

---

---

---

---

---



## Things to do in JULY

**MOW** when wildflowers have finished blooming and dropped most of their seeds, mow at highest setting to create a neat appearance. Use a mulching mower to grind tops fine and leave on the ground for mulch and fresh seed for next year's blooms. Grasses will now take over.

- Or weed-whack annual weeds before they set seeds. If you mow, set the mower on the highest setting to keep roots of desirable grasses from drying out.

**REPLENISH** mulch to conserve moisture.

### **WATER**

- Use the soil probe to check how deeply that rainwater is really irrigating - you may need to supplement the rain.

- Twice a week, depending on rain and the needs of plants and turf.

- Extend watering basins around new trees to the extent of the dripline - that's where the feeder roots are. You want a wide shallow basin around the tree, especially trees on a slope. For well-established trees, basins can be removed, but if the tree is on a slope, it's a good idea to put gravel or rocks underneath it to slow down rainwater so more is absorbed.

- From a hose that's been sitting in the sun can burn you and your plants - Watch out!

**WEEDS** will burst forth with summer rain. Pull, hoe or zap them while they are young and throw them in the trash. Wear leather garden gloves to save your hands.

**PINCH BACK** native fall asters for the last time for better fall blooms.

### **LAWNS**

- Stop fertilizing.

- Aerate compacted areas if necessary.

- Consider making yours smaller.

- Raise mowers one notch to keep grass taller to protect it from the heat.

### **COMPOST**

- Keep piles moist.

**GRASSHOPPERS** only die from NoLo bait when they are young. Dose now before September and October plague hits. (When they are big, NoLo prevents them from eating and laying eggs.)

**PLANT NOTHING** right now - low survival rate in hot weather!

**TREES** like live oaks may drop leaves and not put out new ones if dry weather persists. They are not dead - just conserving water.

**STORM DAMAGE** from thunderstorms and winds can damage trees. Remove broken limbs quickly. Cut close to the larger branch but leave a 1/2" to 1" collar to begin the healing process (See section on pruning, page 6).

**DEADHEAD** perennials for more flowers and a longer blooming season.

## Big Bend THEN

**1913** Camp Marfa is established in Marfa, Renamed Fort D.A. Russell in 1930

**January 10, 1914** In the Battle of Ojinaga, Pancho Villa's soldiers route the Federales

**1917** Pancho Villa makes Ojinaga his headquarters. Bandits raid the Brite ranch killing four people

**March 1917** Alpine Light and Power Company begins operation

**November 1918** The Highland Hereford Breeders Assoc. is established with 52 members representing about 45,000 cattle

**October 1, 1919** The first bridge club begins games in Alpine

**July 1919** The great national influenza epidemic reaches Marfa and quarantine is put into effect

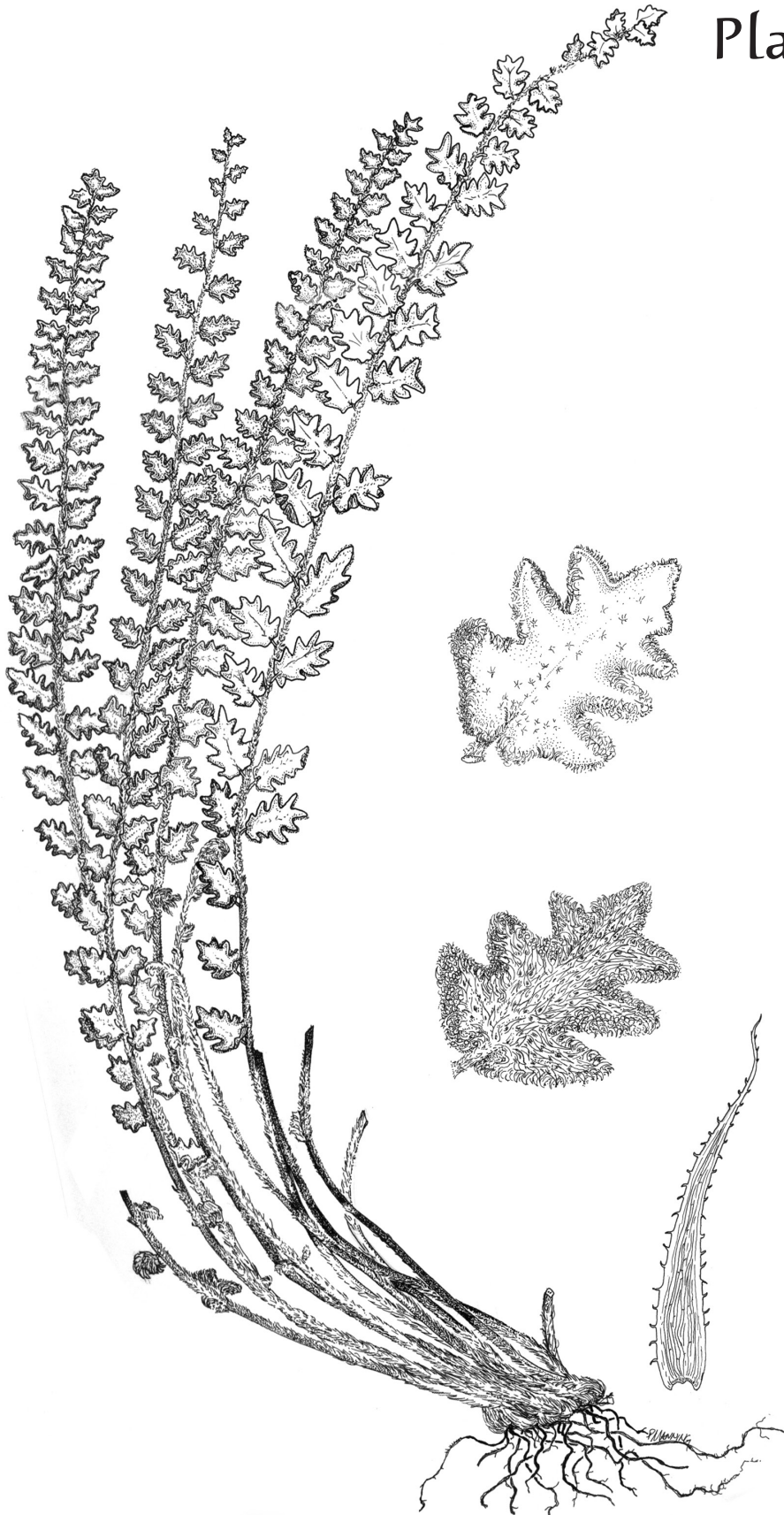


*Penstemon havardii* (Havard Penstemon)

© Kathleen Romine

# COLLECTING/HARVESTING Plants from the Wild

by Dallas Baxter



*Astrolepis sinuata* (Wavyleaf Cloak Fern)

© Patricia R. Manning

It's easy to fantasize about taking a beautiful plant from the wild and making it your own - how unusual that giant yucca would look against your rock wall, or how special that tiny fern would make your rock garden. But things are not always what they seem....

*If you're thinking:* "I could never afford - or find - a plant that big, and I have a pick-up truck so I could make it home quickly to replant it."

*Think again!* Large plants have large root systems that are impossible to transport without special equipment. You will almost certainly lose the plant because the injured root system won't be able to support it. (Most large plants dug from the desert do not survive.)

*If you're thinking:* "That's such a small plant, I can dig that successfully?"

*Think again!* In rocky soil, even small plants can have root systems that travel long distances to absorb as much water as possible. You cannot get all of the root system. A weakened root system won't support the plant. And garden soil is not necessarily better for the plant than the rocky soil in which you found it.

*If you're thinking:* "There are so many of them, a few won't matter."

*Think again!* To maintain genetic diversity, nature creates many specimens. Often a profusion of a plant is necessary to insure pollination and continuation of the species.

*If you're thinking:* "No one will miss this plant."

*Think again!* Every native plant supports a network of insects and animals. Even the welfare of the soil - or the presence of soil at all - depends on the presence of the plants. When you see a

truckload of ocotillo leaving the Big Bend, you can be sure that the birds and butterflies that depended on those plants for food and habitat have been compromised as well.

But all of this does not mean that nature will not share her bounty with you. Here are the guidelines that NPSOT has established for harvesting from the wild:

### *Native Plant Society of Texas' Collections Policy*

The Native Plant Society of Texas, in keeping with its basic purpose of education, conservation, and preservation of the native plants of Texas, has created this policy for its members on collection of plant material in accordance with the laws (city, county, state and Federal) and accepted practices of said activity.

\* Collection of any plant material from public land, such as parks, forests, and roadsides, without proper consent from the proper authorities could be considered vandalism (picking roadside flowers itself is not illegal). To collect any part of an endangered species on public land requires the collec-

tor to secure a permit, allowing such activity, from the proper authorities. Texas Parks and Wildlife has two classifications of permit, one for education/research facilities and the other for commercial/private personnel, for land under its jurisdiction.

\* Collection of plant material from privately owned land (this includes land owned by timber companies and other industries) is only allowed when the collector has received prior written permission from the owner. Endangered species may not be collected without the permission of the landowner.

When dealing with rare, endangered, threatened, uncommon, or species in an unusual location, several factors should be taken into consideration:

~First, propagules (seed, cuttings, divisions) should be collected, rather than the whole specimen, whenever possible. Take no more than a small proportion from any site.

~Second, if the population at a given site contains less than one hundred specimens, it should be left undisturbed if possible. (This factor should

include more common species due to the importance of genetic diversity.)

~Third, material should only be collected when there is a high probability of success with propagation/ relocation. (Example: Lady Slipper Orchids should never be disturbed because they don't transplant, and propagation of seed is difficult.)

~Fourth, relocation/removal of a complete specimen should only be done when the site or species is in imminent danger of being disturbed or destroyed.

~Fifth, material in preserves, wilderness areas, and other protected lands (like Big Bend National Park) should never be utilized.

~ Use common sense. ☺

*This policy on plant collection has been developed and adopted by the Board of the Native Plant Society of Texas, in response to many requests from our chapters. Our thanks to Peter Loos for his research on legal and ethical issues, and for drafting the final document.*



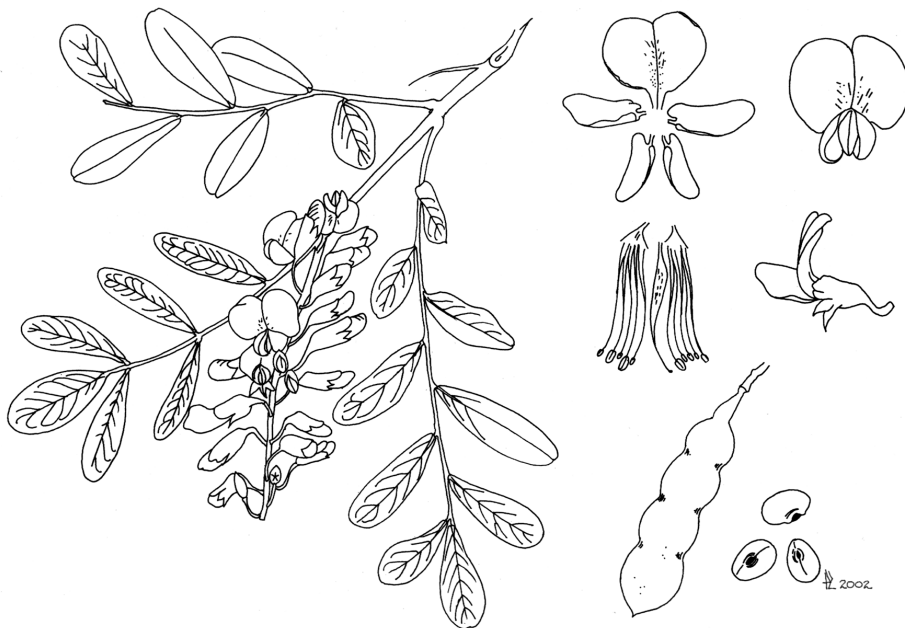
### Things to do in AUGUST

**WATER** can be cut back if rains are heavy and consistent. Light showers do not water deeply enough. Add a minimum of 1 inch of water per week to the garden.

- Consider manual rather than automatic watering control to provide the right amount of water. In this climate, drip is best as the water goes directly to the plant.

**CUT BACK** blooms of summer flowers to prepare for blooms that will come when autumn's cooler temperatures encourage a "second spring."

**WEED** after each rain - pulling weeds from soft soil is easy, and you'll save yourself lots of work later on.



*Sophora secundiflora* (Texas Mountain Laurel)  
© Petei Guth

# How to PLANT A TREE

by Oscar Mestes

## Site Selection Questions:

Ask yourself:

*Purpose:* Why am I planting this tree? Is it for shade, fruit, flowers, etc?

*Size:* How big is my tree going to get?

*Utilities:* Where are my overhead and underground utilities located? Call before you dig: 1-800-454-6005.

*Views:* Am I blocking a desirable view? Do I want to hide a view?

*Area:* How much room do I have for a tree?

*Water:* Where is my nearest water source?

*Safety:* Will this tree create a hazardous situation, such as blocking the line of sight in a traffic situation?

*Sidewalks & Foundations:* Will the tree roots cause problems as the tree matures?

*Energy:* Will the tree block my or my neighbor's solar access as it grows larger?

## Selection at the Nursery:

\*Be sure you have selected a healthy tree, free of insects and disease. The main trunk and branches should not have numerous wounds, cracks, discolored bark, or oozing sap.

\*Container grown trees can become pot or root bound if they are left in the same container too long. If you suspect a problem, ask the nurseryman to show you the root system. Make sure the tree you select is absent of girdling or circling roots.

\*The root ball of a ball and burlap tree should be covered with soil or mulch, keeping the roots moist. The root ball should be solid, not broken, and the stem should not move independently of the root ball.

\*Be sure the tree you select is recommended for this area. If possible, select a tree that has been locally grown or grown in a climate very similar to West

Texas.

\*Know the form of the tree you're selecting. Most juvenile trees should have a strong central leader with well-spaced lateral branches. Don't pick a tree which has been topped (indiscriminate removal of major limbs) at the grower's or nursery. It may look good now, but will later prove to be a maintenance nightmare. Avoid trees with co-dominant stems or double leaders.

\*The tree you select should be able to stand erect on its own. If the tree is tightly tied to a pole or stake, more likely than not it has formed weak wood and will need additional support after planting.

**Transporting:** Self-Serve or Delivered - Follow These Rules:

\* Never carry the tree by the trunk. Always support the root ball.

\* If transporting the tree home in an open-air situation, always wrap the crown of the tree with a blanket or tarp. This prevents drying, especially if the tree is leafed-out or is an evergreen.

\* Store the tree in a shady place, keeping the roots moist until you are ready to plant. Plant the tree as soon as possible.

## Steps to Planting Your Tree:

1. Select your site (See site selection questions).

2. Loosen the soil 3 to 5 times the diameter of the root ball to a depth of 8-12 inches.

3. Dig a hole in the center of the loosened soil, making the hole at least twice as wide as the root ball, but no



*Arbutus xalapensis* (Texas Madrone)  
© Kathleen Romine

deeper than the root ball. The side of the hole should slant with the top wider than the bottom.

4. Carefully place the tree in the center of the hole, making sure it is plumb and the top of the root ball is at ground level.

5. Be sure to remove all containers, wire, burlap and string before backfilling. Check for circling or girdling roots. Root prune and gently tease the roots if needed.

6. Backfill with the original soil - do not add soil amendments. On sites where there is very little soil remaining after removing the large rocks, match the backfill soil as closely as possible to the original in texture and content.

7. Backfill the hole one third to one half, adding water in order to settle the soil and remove air pockets. Repeat the process until the top of the root ball and backfill soil are all at even grade. Use the excess soil to form a watering basin about 4 inches high around the planting hole.

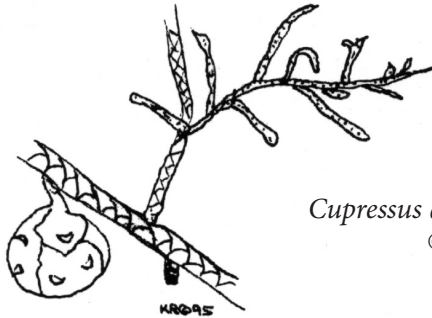
8. Staking is not necessary unless the root ball is not large enough to support the tree or if high winds are a problem. If you must stake a tree, use 2-3 stakes placed equidistant around the tree. Make sure you do not drive the stake through the root ball. Secure the tree to the stake with a wide band of material such as the webbing used in lawn chairs, old bicycle tire tubes or similar material. Do not use wire! Remember, staking is used to keep the tree from falling over, not to keep the tree standing up. Do not support the

tree so rigidly that it cannot sway in the wind.

9. Add a layer of mulch around the planting area. A 3-4 inch thick layer will help conserve moisture, inhibit weed growth and help keep the soil temperatures at a more constant level. Organic mulches are preferable because they return nutrients to the soil as they decompose. ☺

~To obtain a copy of the Texas Forest Service Tree Planting guide and a chart of Trees for High Desert Communities, join the West Texas Urban Forestry Council, P.O. Box 23249, El Paso, TX 79923. The membership cost is \$10. (\$11. for the Spanish version of the Guide).

~For a list of trees and shrubs see p.13



*Cupressus arizonica* (Arizona Cypress)  
© Kathleen Romine

NOTES \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## Things to do in SEPTEMBER

**SOW** wildflower and other seeds for spring blooms.

**ALL CATERPILLARS** are actively chewing:

- Before applying BT to control damage, consider what the caterpillar is - you may be sacrificing a beautiful butterfly or moth. Accept at least a small population to provide food for birds. What you see on herbs like dill and parsley are probably swallowtails!

- Grasshoppers do major damage. But chemical baits, while effective on caterpillars and grasshoppers, are often lethal to birds, horned toads, animals and beneficial insects. Try biological controls such as NoLo bait.

## Big Bend THEN

**June 1920** Sul Ross Normal College opens

**September 4, 1920** is designated Women's Suffrage Day by the Marfa History Club after successfully encouraging their menfolk the previous May to vote for the 19th Amendment

**August 3, 1921** Paisano Baptist Encampment is established

**October 1922** Big Bend Telephone is established

**1923** Pancho Villa is assassinated in Parral, Chihuahua

**April 10, 1923** The Holland Hotel in Alpine is completed

**June 5, 1926** Sul Ross State Teacher's College confers the first Bachelor of Arts degree

**June 1, 1928** "Rancho Valle de la Cienega," the first dude ranch in Texas, is opened on the old L. Haley Ranch

**October 22, 1929** The Sacred Heart School is established in Alpine

**June 1930** The Paisano Hotel, designed by Trost and Trost of El Paso, is completed and opened in Marfa

**August 16, 1931** Valentine is the epicenter of a major earthquake

# What Is Making Me Sneeze?

by Dallas Baxter

## A few words about plant allergies

Where allergies are concerned - it's all about sex! Plants that are pollinated by the wind are getting you down. When plants have brightly colored flowers and large sticky pollen that attracts insects, the birds and the bees will do the job and leave you out of it. But when plants have tiny male flowers on one plant and tiny female flowers on another - as many trees do - they rely on the wind to do the job. And you're getting caught in the mating dance! Nature, being as clever as she is, knows that the chances of a single grain of pollen making it from the male tree to a faraway female are slim. So millions of grains of pollen are released to raise the chances for a successful fertilization. Here in the Big Bend, juniper, elm, ash, cottonwood, walnut, pecan, mulberry, some pine and oak are among the trees that can give trouble.

You may know about those baddies,

but how can you tell if you'll be affected by a new tree you come across? Find a good tree manual and search for the word "dioecious" in the description of its flowers. If you find it, steer clear of this tree. Dioecious trees have separate male and female trees. Pollen will blow between them. Likewise, "staminate" refers to a species with flowers of one sex or the other so that pollen will have to pass between the blossoms to successfully fertilize the female.

What are the good guys called? "Monoecious" describes species in which both sexes are present in the same tree. "Perfect" flowers are those that have both male and female reproductive organs present in each flower. You can relax around these.

Grasses that can also cause trouble are Fescue, Johnson grass, Bermuda grass, Salt grass, Perennial Rye and Redtop. You can see that these are invaders - not native grasses. If you find them, remove them or at least

keep them cut so that they don't bloom (those pretty seed heads we enjoy in native grasses should not be allowed to form on invaders).

How can you co-exist with these plants? Try to garden in the evening - most pollen is released in the morning. Stay inside if it's sunny and blowing during pollinating season. Rain suppresses pollen, but since we seldom have a drippy day in the Big Bend, garden after watering. Wear long sleeves and long pants and wash your gardening duds before you wear them again. A quick shower after gardening is refreshing as well as getting rid of pollen that may aggravate your allergies.

Of course, if you are incapacitated by allergies, see your doctor. You were meant to be outside enjoying the beauty of the Big Bend! ☺

~To learn more: <http://www.asthma.about.com/health/asthma/>



*Bouteloua barbata* (Sixweeks Grama)  
by Patricia R. Manning

### Things to do in OCTOBER

**SOW** spring blooming wildflower seed - the best time!

**PLANT** trees: evergreens and container grown trees and shrubs. Keep them watered through the winter and windy spring until the rains come in summer.

- Hardy cacti (ask when you buy if the cactus is hardy).

#### COMPOST

- Clean out the compost pile and use it to mulch or create new beds.
- Add fallen leaves to the pile to start new compost (see section on soils and compost, p.30).

#### BENEFICIAL INSECTS

- Praying mantis, ladybugs, and other critters - lizards, toads and birds will keep the bad bugs at bay this month. Put water out for them.

#### WATER

- Rainy season is usually over, so prepare to resume weekly watering.
- ROOT** cuttings of tender plants before frost so you'll have them next spring. You can do this in a greenhouse or on a south or southwest windowsill (it does get hot, and you have to keep the seedlings watered).

# CACTI food for thought

by Bill Carlisle

Imagine, if you would, living tissue capable of withstanding temperatures upwards of one hundred thirty degrees Fahrenheit, years of continuous drought, the ravages of hungry animals and the disdain of the human populace.

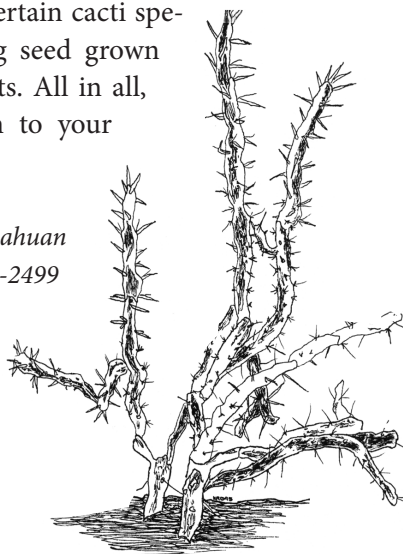
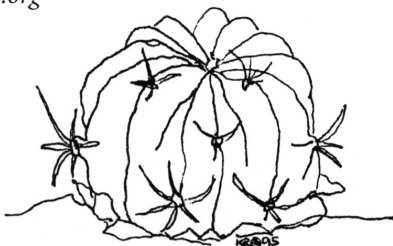
If you imagined cacti, then you are probably apt to appreciate such a tenacious will to survive. The geometric designs of cacti: spheres, cones, oblongs, rounded and ribbed, aid in capturing and using any available water, and lend a pleasing visual to the eye. Add the barbs, spines, spikes, fishhooks, cat claws, and all other protective measures of stab, stick, puncture and second-degree scratch, and you have a truly unique way of life. Cacti too often share the plight of spiders and snakes and bats - much maligned through misinformation, but in fact, necessary to the successful desert garden.

If you are pondering a Xeriscape or a modified desert garden and incorporating some xeric plants, cacti should well be considered. Blooming, according to species, from late March into October and with colors of red, orange, brown, green, white, yellow, magenta and combinations thereof, they will show themselves worthily. Once established, they are relatively carefree, will lower your water usage, and reward you with a hands-off environment you'll appreciate. Blossoms and fruits attract birds and pollinating insects. They tend to repel dogs, children and all other mammals with sensitive flesh. They deal reasonably well with hailstorms and are not at all offended by strong winds and dust.

Should you decide to plant with cacti, you might go into the desert and observe them as they grow naturally. Observe that some prefer full sun while others are comfortable with some shade. There are species that are at home in gravelly terrain and others that like some soil beneath them. You will probably notice that all are in a well-drained situation. Use these observations in your garden. Should you choose to visit the desert vicariously there are many reputable and informative books on species as well as growing requirements.

It would be best not to take plants from the wild. Years of plant harvesting has greatly reduced the native seed banks and in some cases totally destroyed entire populations of certain cacti species. There are many nurseries now carrying seed grown cacti, also there are sources for salvaged plants. All in all, cacti are cautiously user-friendly, take them to your heart, not literally, and enjoy. ☼

~To obtain cacti grown from seed, contact The Chihuahuan Desert Nature Center & Botanical Gardens: 432-364-2499 or [www.cdri.org](http://www.cdri.org)



*Echinocactus texensis* (Horse Crippler) and *Opuntia leptocaulis* (Pencil Cactus)  
© Kathleen Romine

## Things to do in NOVEMBER

### WATER

- Cut back on watering when weather gets colder. On established plants, every other week is enough.
- Wildflower seed and fescue are sprouting and need frequent watering.
- Consider installing drip irrigation to conserve water in the future.
- Don't forget the compost pile.

### MULCH

- Crowns of tender perennials with leaves or mulch to protect those marginally hardy or new plants prior to a sudden freeze, especially when temperature drop is dramatic and can do the most damage.

### PLANT

- Perennials and bulbs while weather is mild.

### CLEAN UP

- Dead tops of frozen plants and add to the compost pile.

## Big Bend THEN

**April 28, 1934** The outdoor theater at Kokernot Park is dedicated

**August 3, 1935** The Big Bend Immigration and Border Patrol moved to Alpine

**May 1936** The Davis Mountain State Park, established in 1933, opens to the public

**May 5, 1939** McDonald Observatory begins operation with the first dome on Mt. Locke

**July 3, 1941** Governor O'Daniel signed the bill to purchase, for \$1,500,000, and open Big Bend National Park

**September 20, 1944** Paving is completed on the road from Marfa to Alpine.

**June 15, 1946** The Alpine Cowboys Baseball Club is organized

**May 1952** Prude Ranch, a dude ranch on Limpia Creek, begins a summer camp for boys and girls

**July 4, 1963** Fort Davis is made a National Historic Site

# Some Thoughts on SOIL

by Patricia R. Manning

Soil should be, and is, an important topic for those of us who like to grow things, and the subject could take up pages and pages. These are but a few thoughts on our soils in Trans-Pecos Texas - what to do (or not to do) to create a suitable substrate for the planting of native plants.

## Composition

In very general terms, our soils in Trans-Pecos Texas range from limestone (alkaline) to soils of volcanic origin (some slightly acidic) to alluvial gravels, clays, silts and sands. The soil composition out here is a product of the extremely diverse geology of the area, and so, it is very difficult to generalize about it. Most of the soils in our region are not extremely acidic. Some are more fertile than others and some drain better than others. Some are

extremely saline. Some overlay dense, hard swaths of caliche. But, whatever type of soil you happen to have can be amended to accommodate a wider range of plants than would be completely natural. It is a good idea, however, to plant plants that do well in the type of soil that you have. This is probably particularly true with soils that are extremely alkaline or salty. Madrones and Mexican Piñons in Study Butte, for example, will struggle (or worse). In these situations, it is better to seek out plants that thrive in those soils.

Regardless of what you start out with, most soils will benefit by being amended to attain a condition of good drainage, some amount of moisture retention, and some amount of fertility. Naturally, with such a wide range of habitat diversity in this region, there will be plants that require soil conditions that are on the extremes of the above-mentioned qualities, and knowing something about a plant's particular native habitat can guide you to try to provide the conditions needed.

If you happen to have soil that is mucky when wet, hard as concrete when dry, and drains very slowly, chances are that your soil contains a lot of clay, or silt. This can be remedied to some degree by adding sharp sand and some form of organic material. Be sure to use sharp, or coarse sand. Fine sand will only make things worse. If, on the other hand, your soil drains very quickly, adding a lot of well-composted organic material will help retain moisture for longer periods. Some products, such as composted cotton hulls (Back to Earth is a good brand) are very good at both retaining moisture in fast draining soils and helping tight soils drain better. It is relatively expensive, however, and in the long

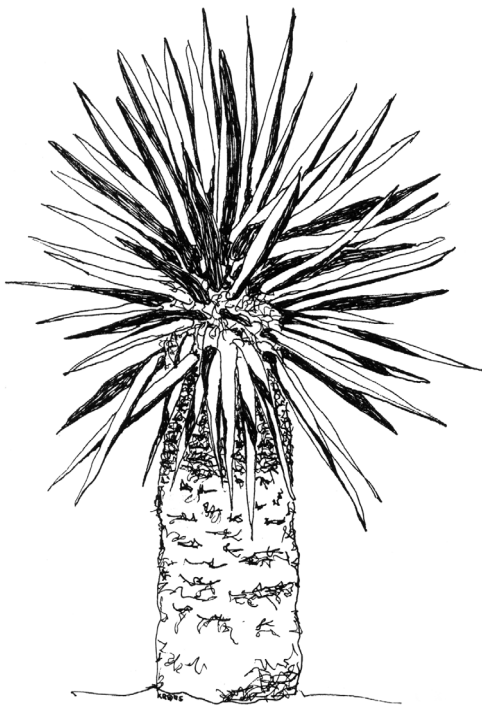
run, starting your own compost and adding it year after year is really the best solution.

## Soil Tests

To start out with, it is a good idea to have your soil tested. Contact your county extension agent and ask about how to go about this. That way you'll know what the pH (acidity or alkalinity) is and something about the fertility of the soil, and this will give a clue about what to add. If, however, you are resistant to that kind of approach, look around where you live and see what kind of plants are thriving and what kind are struggling (there may be extenuating circumstances). This will also give a clue about what does well where.

## Organic Amendments

Once you know what your soil's basic composition is, you can go about providing additions that are necessary for a particular plant's needs. I will confess a particular bias for organic amendments. Plants can certainly be kept happy with chemical fertilizer, as has been shown time and again. However, creating healthy soil is more beneficial and, I believe, economical in the long run than keeping your plants addicted to a chemical fix. Research has shown that most plants require the symbiotic relationship with beneficial fungi in the soil, called mycorrhizae, in order to thrive. Most native soil that hasn't been too drastically disturbed contains these mycorrhizae already. The mycorrhizae form an association with the roots of the plants and help the plant take up nutrients. If the soil is fed with composted material, a cycle will ensue that encourages those mycorrhizal associations with the desired plants



*Yucca faxoniana* (Giant Faxon Yucca)  
© Kathleen Romine



and everybody will be happy. Chemical fertilizers, on the other hand, leave a salty residue that does not encourage and may ultimately kill off mycorrhizae.

If you do live in an area of nutrient stripped soil or fill soil that came from who knows where, it might be worth investigating commercial sources of mycorrhizal inoculants. I don't know of a local source, but there is a source in Las Lunas, New Mexico, for a product called Mycorbeasties. I believe that the closer the source to our region the better.

### Composting

Anyway, you can't go wrong by just starting a compost pile and using good old compost as your chief amendment. There are also pages and pages that could be written on the fine art of composting, but I will mention some basic requirements for a workable system. Alternate layers of green (moist) and brown (dry) organic waste with shovels full of native soil (to incorporate native microbes), watering between layers. Good candidates for the pile include kitchen scraps (minus the grease and meat scraps), grass clippings, animal manures (dog and cat leavings are not a good idea), leaves (live oak leaves compost slowly), general yard debris, straw, etc. As much as possible, chop the material up into smaller pieces (I use my lawn mower). The size of the pile you make doesn't matter, but a

manageable size is about 3 feet tall.

Unless you are very diligent and achieve a very hot pile, don't put weed seeds in there. It takes a temperature of about 150°F-180°F to kill out most seeds. The more green material, smaller sized particles and moisture that you add, the faster the pile will heat up and then start to sink. When it has stopped sinking, it can be turned to move the stuff on the outside inside. Be sure to add more water. Out here in West Texas, it usually takes more supplemental water to keep a compost pile working. The material will break down anyway, eventually, but if you want to use it in your lifetime, water must be added. The pile also needs air, so turning it periodically or just lifting it will keep it from breaking down anaerobically. Anaerobic compost works too, it's just pretty smelly. Finished compost should be brown, crumbly and smell sweet and earthy.

It is really hard to over-fertilize with compost. Some of our natives do not take well to high levels of fertilization, but most will respond very well to the addition of compost as time goes by.

As I said at the beginning of this article, soil is a subject that is hard to address in a finite amount of space, but if you are willing to research your particular soil, the plants that do well in that kind of soil, or provide what the plants that you want need, you can have pretty much the kind of garden you want. ~

## What to do in DECEMBER

**DO NOT PRUNE** shrubs until late January or February.

### COMPOST

• Add fall leaves to the compost pile. Keep the pile lightly moist and add kitchen vegetable scraps, prunings, composted manure. Remember: no animal fat, dog or cat feces.

**WATER** wildflowers.

### SNOW

• Heavy snow can damage evergreens. Shake off quickly after a snowfall.

**MARK AND LABEL** plants that freeze to the ground. Mulch root systems.

### RELAX

• One of the joys of gardening with natives is that it puts us back in touch with the world around us - the soil, the moisture, the birds, animals and insects that are a part of our natural environment. Rest is part of that rhythm of nature. To be dormant is to sleep, to rest, to rejuvenate. There is a time for activity and this is not it! Join the natural world in resting this month.

## NOTES

---

---

---

---

---

---

---

---



*Pappophorum bicolor*, spikelet  
(Pink Pappusgrass)  
by Patricia R. Manning

# FIREWISE LANDSCAPING

by Martha Latta

On April 9, 2011 the “Rockhouse Fire” that started in Marfa that day was blown by high winds to Fort Davis in less than 2 hours and continued to burn its way to Balmorhea. When it was over, nearly a month later, well over 300,000 acres had burned.

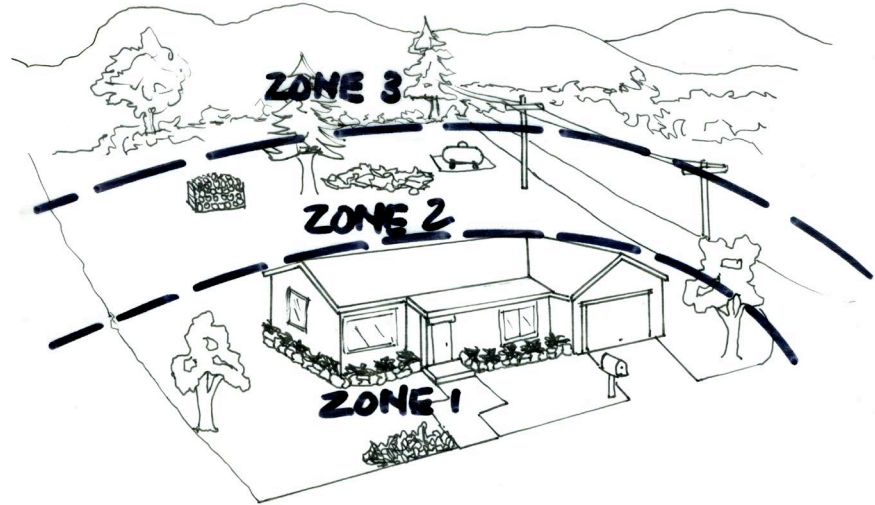
This event was a wake-up call to everyone in the area. Thankfully, the Texas Forest Service was quick to start educating homeowners with a program called “Firewise Landscaping” the primary goal of which is to reduce fuel and save homes. Limiting the use of flammable vegetation and materials surrounding a house and increasing the moisture content of remaining vegetation creates a buffer sufficient to slow or halt the spread of wildfire. Appropriate manipulation of the landscape can make a significant contribution toward wildfire survival.

Through proper plant selection, placement and maintenance, diminished possibility of ignition, lower fire intensity, and faster recovery may all be achieved. In Firewise landscape design, plant selection is primarily determined by the plant’s ability to reduce the wildfire threat. Ideal plants have a high moisture content (think succulents), are low growing, and deciduous or perennial.

Using the concept of “defensible space” which protects a home from igniting due to direct flame or radiant heat, it consists of 3 zones which extend out from the house, from 30 to 200 feet. Specific treatment of the landscape in each zone is recommended:

**ZONE ONE** extends 30 feet out from the house, decks, outbuildings, and other structures.

- Create a “fire-free” area within five feet of the home, using non-flammable landscaping materials and/or



high moisture content annuals and perennials.

- Remove all dead or dry vegetation from yard, roof, and rain gutters.
- Plant low-growing, resin-free plants and have open space around each plant.
- Mow and water lawn frequently.
- Prune trees up 6-10’ from the ground to eliminate “ladder” fuels.
- Keep a 30’ space between crowns of trees.
- Trim back trees that overhang roofs.
- Relocate woodpiles, propane tanks, and other combustibles to Zone Two.
- Consider fire-resistant materials for decks, patio furniture, playgrounds, etc.

**ZONE TWO** extends 30-100 feet out from Zone One.

- Leave 30’ between clusters of 2-3 trees and 20’ between individual trees.
- Plant a mixture of evergreen and deciduous trees and shrubs.
- Keep trees pruned up 6-10 feet from the ground.
- Create “fuel breaks” such as driveways, gravel walkways, or well-watered lawns.

**ZONE THREE** extends 100 feet from zone 2 to the property line.

- Thin vegetation in this area.
- Remove small evergreens growing between taller trees.

- Remove woody debris such as fallen branches, pine needles, or deep leaf litter.

- Reduce the density of taller trees so that canopies are not touching.

Additionally, use driveways, walkways, patios, parking areas, constructed of nonflammable materials such as rock, brick, or concrete to create fuel breaks, which are a vital component in Firewise landscape design. Water features, ponds, pools, and naturally occurring waterways can also be used as fuel breaks.

Please note that homes built on a slope require more extensive wildfire safety landscape planning since fire “runs” uphill. Boulders and rocks can become fire reducing elements in the landscape. The prevailing wind direction should also be a consideration in the placement of plants and non-flammable elements when dealing with slopes. Space between plants should be increased in proportion to the steepness of the slope. Firewise landscaping embraces the open spaces between plants and other flammables. ♡

For additional information:

- <http://pbates.org/Files/Resources/FirewiseLandscapingInTexas.pdf>
- <http://www.wildlandfirersg.org/>

# Natives for the Firewise Landscape

*Acer grandidentatum* (Bigtooth Maple) DT 20' \* S  
*Celtis reticulata* (Netleaf Hackberry) DT 20'+ \* S  
*Cercis canadensis mexicana* (Mexican Redbud) DT 15' \* S  
*Chilopsis linearis* (Desert Willow) DT 15' S  
*Crataegus tracyi* (Tracey Hawthorn) DT 12' \* S  
*Forestiera neomexicana* (New Mexico Olive) DT 15'  
*Fraxinus cuspidata* (Fragrant Ash) DT 12' S  
*Fraxinus texensis* (Texas Ash) DT 12' S

*Gleditsia triacanthos* (Honeylocust) DT 20' S  
*Juglans major, minor* (Little Leaf Walnut) DT 20'+ S  
*Populus* sp. (Cottonwood) DT 30'+  
*Prunus mexicana* (Mexican Plum) DT 15' S  
*Prunus serotina* (Chokecherry) DT 15'+ S  
*Quercus gambellii* (Gambel Oak) DT 15'+  
*Salix gooddingii* (Gooddings Black Willow) DT 30'+  
*Sambucus mexicana* (Mexican Elder) ET 20'+ S  
*Aloysia wrightii* (Beebrush) SS 8' Su

*Amelanchier utahensis* (Serviceberry) DS 10' Su  
*Amorpha fruticosa* (Indigo Bush) DS 8' S  
*Aniscanthus quadrifidus* (Desert Honeysuckle) DS 5' Su  
*Atriplex canescens* (Fourwing Saltbush) ES 4' Su  
*Ceanothus fendleri* (Fendlers Ceanothus) SS 3' S  
*Cercocarpus* sp. (Mountain Mahogany) ES 12' S  
*Chrysactinia mexicana* (Damianita) ES 2' S-F  
*Chrysothamnus* sp. (Rabbitbrush) ES 3' F

*Fallugia paradoxa* (Apache Plume) SS 4' S  
*Fendlera rupicola* (Cliff Fendlerbush) SS 4' S  
*Leucophyllum* sp. (Texas Sage) ES 4-8' Su  
*Mahonia trifoliolata* (Algarita) ES 4' \* S  
*Penstemon ambiguous* (Sand Penstemon) DS 3' Su  
*Philadelphus microphyllus* (Mock Orange) DS 4' Su  
*Rhus* sp. (Sumacs) D&ES 8' \* S  
*Rosa woodsii* (Wood's Wild Rose) DS 4' \* S  
*Symphoricarpos* sp. (Snowberry) SS 3' \* S

*Agave* sp. (Agaves) FP 2'+ Su  
*Dasyilirion wheeleri* (Desert Spoon) FP 4'+ Su  
*Hesperaloe parviflora* (Red Yucca) FP 2'+ Su  
*Nolina microcarpa* (Beargrass) FP 4'+ Su  
*Opuntia* sp. (Prickly Pears, Chollas) FP 3'+ Su  
*Yucca* sp. (Yuccas) FP 3'+ Su  
*Achillea* sp. (Yarrow) P 2'x2' \* Su  
*Aquilegia chrysantha* (Columbine) P 3'x3' \* S

*Asclepias tuberosa* (Butterfly Weed) P 3'x2' Su  
*Aster* P 2'x2' F  
*Baileya multiradiata* (Desert Marigold) P 1'x1' Su  
*Calylophus hartwegii* (Fendler's Sundrops) P 1'x1' Su  
*Coreopsis* sp. (Coreopsis) P 1'x1' Su  
*Erigeron* sp. (Fleabane) P 1'x1' S  
*Gaillardia* sp. (Blanket Flower) P 2'x2' Su  
*Gaura* sp. (Gaura) P 3'x2' Su  
*Geranium* (Wild Geranium) P 1'x2' Su

*Helianthus maximiliani* (Maximilian Sunflower) P 4'x4' F  
*Ipomopsis rubra* (Standing Cypress) P 2'x1' \* Su  
*Lesquerella fendleri* (Fendler's Bladderpod) P 1'x1' S  
*Liatris punctata* (Gayfeather) P 2'x1' F  
*Linum lewisii* (Blue Flax) P 1'x1' \* Su  
*Monarda fistulosa* (Beebalm/Bergamot) P 2'x2' \* Su  
*Oenothera* sp. (Primrose) P 1'x2' Su  
*Parthenocissus heptaphylla* (Seven-leaf Creeper) PV 20' \*

*Penstemon* sp. (Penstemons) P 2' \* S&Su  
*Ratibida columnifera* (Prairie Coneflower) P 2'x2' Su  
*Rudbeckia hirta* (Brown-eyed Susan) P 2'x2' Su  
*Salvia* sp. (Salvia/Sage) P 1'-3' \* Su  
*Scutellaria drummondii* (Scullcap) P 1'x1' \* S  
*Solidago canadensis* (Goldenrod) P 2'x2' Su  
*Tradescantia occidentalis* (Spiderwort) P 1'x2' \* Su  
*Zinnia grandiflora* (Prairie Zinnia) P 1'x1' Su

## Botanical Name (Common Name) Type Size Sun (\*) Season

Types: DT (Deciduous Tree), ET (Evergreen Tree), DS (Deciduous Shrub), ES (Evergreen Shrub), SS (Semi-evergreen Shrub), FP (Fibrous Plant), P (Perennial), PV (Perennial Vine)

Seasons: S (Spring), Su (Summer), F (Fall)

# COLLECTING PLANT MATERIAL

by Michael Eason

## for Home Gardens

Here in the Tri-County area, we lack access to local native plant material for home gardens. Because our customer base is small, these plants do not make it into the commercial stream. So it's often up to us to collect seed and root cuttings for ourselves. But where does one start?

First, let's tackle the species question. You have to know your plant. Is it an annual or perennial? What species is it? Does it like limestone or igneous soils? Sun or shade? Without knowledge of the plant and what it requires, collecting seed or cuttings may just be an exercise in futility. *Flowering Plants of the Trans-Pecos*, by Dr. Michael Powell et al, is the newest, best reference for this region. Powell's other books that cover cacti, trees and shrubs, and grasses are highly recommended too. Barton Warnock's 3-book series, from the 1970s is still relevant and helpful. Many online resources such as various Facebook Groups, online herbaria and databases such as USDA Plants and the Biota of North America Program ([www.bonap.net](http://www.bonap.net)) are helpful as well. And of course, my book, *Wildflowers of Texas*, covers approximately 600

species found in the area. From here, once an identification is made, and understanding the phenology of the plant, you can move along to the next step – collecting seed or cuttings.

When it comes to seed collection, it's best to collect at natural dispersal. In doing so, you will greatly increase your chances of collecting mature, viable seed. See Jill Noke's book *How to Grow Native Plants of Texas* and the Southwest. While she does not cover every species, many of the tips can be adapted to similar species.

Natural dispersal - when plants release mature seed - may extend for a few day, several weeks or even months. Knowing the plant, and its phenology will benefit the collector. Often timing is everything. Mental notes of roadside plants' locations and when they bloom

is essential. For plants that have dry fruit (legumes, mallows, asters i.e. wildflowers), look for a change in texture (soft to woody), changes in color (green to tan or brown), development of pappus, and/or the fruit may begin to open (dehisce). This is the opportune time to collect seed.

**Permission:** Do not collect from public lands unless you have a permit. Do not collect from private land unless you have permission from land owner. According to TxDOT, collecting seed and cuttings from roadsides is permissible, but do not remove live plants.

**Rare Plants:** Do not collect seed and/or cuttings from rare plants. Please refer to Texas Parks & Wildlife website for a list of rare plants in Texas or use *Rare Plants of Texas* (Poole et al) as a guide.

### Dry Fruits

1. Collect no more than 20% of available seed
2. Use paper bags or envelopes to collect and store dry seed – this allows the seed to breath, reducing the potential for fungus, which can damage the seed
3. Label bag with name, date and location
4. Keep in a cool, dry place. The low humidity here in West Texas will keep the seed dry, but if seed is exposed to high temperatures (e.g. left on dashboard or within a vehicle), it will be damaged and lose viability
5. Once home, spread the seed on a cookie sheet/baking dish, allowing plant material to be exposed to the air and reach ambient humidity -

and it will allow insects to escape

6. Remove excess chaff, leaf and vegetative material; if necessary, remove seed from fruit
7. Sort the seed, removing any obvious damaged or immature seed.
8. Store in a labeled envelope or paper bag in a cool, dry place. When properly collected, cleaned and stored, the seed of many species will remain viable for years to come

### Fleshy Fruits

When collecting fleshy fruits look for a change in color (green to orange, red, blue, black etc) that indicates maturity. The seed will mature first, then the fleshy portion of the fruit will begin to change color and ripen. At this point the fruit is reaching natural dispersal.

This change in color is an indicator to the birds and animals that feed upon these fruits.

1. Collect in plastic bags or buckets – paper bags or envelopes will get wet, and you'll end up with a big mess
2. Keep cool; do not allow to overheat
3. Once home, clean the fruit, remov-

**The pea** (*Fabaceae*) and mallow (*Malvaceae*) families often have insects within the fruit – these insects feed upon seed. Freezing the fruit/seed will reduce damage to the collection. Plants in the sunflower family (*Asteraceae*) typically have low viability.

**Float Test for Seed:** Place the seed in a bucket of water, those that float to the top are not viable and can be tossed.

ing fleshy portion. This is best done by running under cold water and physically removing fleshy portion. Colanders and sieves used in the kitchen can be used to filter the seed

4. Lay seed out on cookie tray or baking dish to dry
5. Remove any excess material once dry
6. Store in labeled envelope and keep in a cool, dry place

### **Seed Maturity**

In most cases the seed will mature prior to fruit maturity. Knowing how to check seed maturity will allow you to collect slightly immature fruit. The fruit can be stored in paper bags until it has dried, releasing the seed. I like to use small scissors, such as those found on utility knives, to test seed maturity. You'll also need a small hand lens or loupe.

Typically, the formation and hardening of the seed coat is the final stage in seed maturity. The interior of the seed, the embryo, develops first. Inspect maturity of seed coat – this usually means a change in color and firmness. If the seed does not have any “give,” it is probably immature or may have insect damage. Cut the seed in half, and, with a hand lens, look at both the interior of the seed and the seed coat. The interior will be full throughout, without any large, obvious cavities, and moist – essentially looking like the interior of a peppermint patty. The seed coat will be obvious, darker than the interior. Even if the seed coat is not fully hardened, but the interior of the seed is fully formed, it is okay to collect the seed. This immature seed will continue to mature, even once removed from the plant.

**Milkweeds:** *Fruit can be collected early (do not open fruit), and kept in paper bags until they mature and open. Once they have opened, leave in bag and occasionally shake the bag – the seed will fall off the coma and settle at bottom of bag, making cleaning easy.*

### **Cuttings**

In many cases plants can be propagated via stem cuttings. This takes more time and is best with access to a greenhouse. But you can successfully root cuttings using things you have at home.

Rooting hormone, of various brands, can be purchased online; gels or powders are available – this will increase success with cuttings and promote root development. Additionally, you'll need some high-quality potting soil, pots, a baking dish and large plastic bags (I use the 2.5 gallon Ziploc bags).

#### **Collecting cuttings:**

1. Look for new growth, non-woody material. I've had success with the Globe mallows (*Sphaeralcea* sp), various species found in the Mint family, *Tradescantias* and members of the *Acanthus* family. You'll need about 8-10 inches of stem
2. While collecting, keep in plastic bags, with either a wet paper towel, or add a bit of water to the bag to keep cuttings moist
3. Store in cooler with ice – do not let the cuttings dry out or overheat
4. Once home, the cuttings can remain in the plastic bag, and stored in a refrigerator for a few days prior to planting

#### **Planting cuttings:**

1. Remove any flower buds (ideally collect only vegetative stems), and lower leaves, leaving only a few leaves in the upper portion (upper 1/3rd) of the stem
2. Trim/cut the lower portion of the cutting, about 1 inch will do
3. Dip the cutting in rooting hormone (follow instructions on label).
4. Place in moist potting soil
5. Loosely place plastic bag over pot
6. Keep cuttings moist, do not allow to dry out
7. Indirect sunlight only

When propagating plants from cuttings, use organic potting soil; place the pot in a baking dish with water and soak from the bottom. Quart nursery containers will hold 2-4 stems per pot. You can remove the plastic bags and allow the plants to breathe a bit before replacing the bags. It may take several weeks to a couple of months for the cutting to root out completely. Test by tugging slightly on the plant. Resistance means new roots; you can then plant in separate containers.

**Recalcitrant seed:** *The seed of some plants, such as oaks, pecans and Mexican buckeyes lose viability within one season and need to be planted quickly. Soaking the seed will prompt germination; the seed can then be placed in a pot until it reaches sufficient size.*

### **Propagating seed**

Direct sowing of seed into the garden works best. When I am out collecting seed for growers, I will keep a separate bag for myself, often containing a mixture of seed from a variety of species: mustards, sennas, mints, and many plants found in the sunflower family. Of course, I try to collect mature, clean seed when I do this, and the species are found within the same habitat and have the same needs (water, sunlight etc). Once home, I'll select an area I would like to sow and expose the soil and spread the seed throughout, making sure the seed has soil contact. Cover very lightly with straw or light mulch to keep the birds away and mist them daily until they germinate. Don't over water, but don't let them dry out.

With these tips you can introduce many species that are not available in the nursery trade into a home garden. Of course, things take time – seed may germinate one or two seasons after it's been sown. Be patient, and don't get discouraged if you don't have immediate success; let nature take its course. ☺

# Recommended Reading

- Ajilvsugi, G., *Wildflowers of Texas*  
Anderson, E., *The Cactus Family*  
Beck, M. & H. Garrett, *Texas Bug Book*  
Bender, K. & N. Damude, *Texas Wildscapes*  
Bender, S., F. Rushing et al., *Passalong Plants*  
Bennett, J., *Dry Land Gardening*  
Brookbank, G., *Desert Landscaping*  
Campbell, F. C. & R. L. Dubé, *Natural Stonescapes*  
Clebsch, B., *A Book of Salvias*  
Cranshaw, W., *Pests of the West*  
Daniels, S., *The Wild Lawn Handbook*  
Denver Water Staff & R. Proctor, *Xeriscape Plant Guide*  
Denver Water Staff & G. Weinstein, *The Xeriscape Handbook*  
Dirr, M. & B., et al., *Manual of Woody Landscape Plants*  
DiSabato-Aust, T., *The Well-Tended Perennial Garden*  
Drees, B. & J. Jackman, *A Field Guide to Common Texas Insects*  
Duffield, M. R. & W. Jones, *Plants for Dry Climates*  
Eason, M., *Wildflowers of Texas*  
Ellefson, C. & T. L. Stephens, et al., *Xeriscape Gardening*  
Garrett, H., *Landscape Design Texas Style*  
Garrett, H., *Plants for Texas*  
Gehlbach, F. R., *Mountain Islands and Desert Seas*  
Graham, G. L., *Texas Wildlife Viewing Guide*  
Hart, R. & J. Wilson, *Deer Proofing Your Yard and Garden*  
Hart, R., *Bugs, Slugs, and Other Thugs*  
Hatch, S. L. & J. Pluhar, *Texas Range Plants*  
Hodoba, T. B., M. Kamp, et al., *Growing Desert Plants from Windowsill to Garden*  
Irish, M. & G., *Agaves, Yuccas, and Related Plants*  
Johnson, E. A. & S. Millard, *The Low-Water Flower Gardener*  
Jones, W. & C. Sacamano, *Landscape Plants for Dry Regions*  
Knopf, J., *The Xeriscape Flower Gardener: A Waterwise Guide for the Rocky Mountain Region*  
Lancaster, B., *Rainwater Harvesting for Drylands and Beyond*  
LeBlanc, S., *Secret Gardens of Santa Fe*  
Liggio, J. & A. Orto, *Wild Orchids of Texas*  
Loughmiller, C. & L., *Texas Wildflowers*  
Mielke, J., *Native Plants for Southwest Landscapes*  
Millard, S. & C. Crocker, *Gardening in Dry Climates*  
Miller, G. O., *Landscaping with Native Plants of Texas and the Southwest*  
Morey, R., *Little Big Bend*  
Morrow, B. H., *Best Plants for New Mexico Gardens and Landscapes*  
Nelson, K. & P. Mirocha, *A Desert Gardener's Companion*  
Nokes, J. & K. Miller Brown, *How to Grow Native Plants of Texas and the Southwest*  
Nold, R., *High and Dry*  
Nold, R., *Penstemons*  
Nold, R., *The Undaunted Garden*  
Ogden, S., *Gardening Success with Difficult Soils*  
Ogden, S., *Waterwise Plants for Sustainable Gardens*  
Ortho Books, *Ortho's All About Dry Climate Gardening*  
Peace, T., *Sunbelt Gardening*  
Penick, P., *The Water-Saving Garden*  
Phillips, J., *Natural by Design*  
Phillips, J., *Plants for Natural Gardens*  
Phillips, J., *Southwestern Landscaping with Native Plants*  
Poole, J., W. Carr, et al., *Rare Plants of Texas*  
Powell, Dr. A. M., *Cacti of Texas: A Field Guide*  
Powell, Dr. A. M., *Cacti of the Trans-Pecos and Adjacent Areas*  
Powell, Dr. A. M., *Grasses of the Trans-Pecos and Adjacent Areas*  
Powell, Dr. A. M., *Trees and Shrubs of the Trans-Pecos and Adjacent Areas*  
Powell, Dr. A. M. & R. Worthington, *Flowering Plants of the Trans-Pecos & Adjacent Areas*  
Rumary, M., *Xeriscaping: Planning & Planting Low-Water Gardens*  
Steitz, Q., *Grasses, Pods, Vines, Weeds*  
Simpson, B., *A Field Guide to Texas Trees*  
Southern Living, *Southern Living Garden Problem Solver*  
Sunset Books, *Sunset Ideas for Great Patios & Decks*  
Sunset Books, *Sunset National Garden Book*  
Sunset Books, *The New Sunset Western Garden Book*  
Taylor, R. J., *Desert Wildflowers of North America*  
Tull, D. & G. Oxford Miller, *A Field Guide to Wildflowers, Trees, & Shrubs of Texas*  
Warnock, Dr. B., *Wildflowers of the Davis Mountains and Marathon Basin, Texas* (out of print)  
Warnock, Dr. B., *Wildflowers of the Guadalupe Mountains and the Sand Dune Country, Texas*  
Warnock, Dr. B., *Wildflowers of the Big Bend Country, Texas*  
Wasowski, A., D. G. Morrison, et al., *Building Inside Nature's Envelope*  
Wasowski, S., V. Shirvanian, et al., *Requiem for a Lawnmower*  
Wasowski, S. & A., *Native Gardens for Dry Climates*  
Wasowski, S. & A., *Native Texas Gardens*  
Wasowski, S. & A., *Native Texas Plants*  
Wauer, R. & C. Fleming, *Naturalist's Big Bend*  
Weniger, D., *Cacti of Texas and Neighboring States*  
Whitner, J. K., *Stonescaping*  
Whitson, T. D., *Weeds of the West*  
Yarborough, S. & A. M. Powell, *Ferns and Fern Allies of the Trans-Pecos and Adjacent Areas*  
Zak, B., *A Field Guide to Texas Critters*

MANY OF THESE BOOKS ARE AVAILABLE THROUGH:

- Big Bend National Park Bookstore**, 432-477-2236,  
[www.nps.gov/bibe/learn/bookstore.htm](http://www.nps.gov/bibe/learn/bookstore.htm)  
**Chihuahua Desert Nature Center & Botanical Gardens**,  
Fort Davis, 432-364-2499, [www.cdri.org](http://www.cdri.org)  
**Front Street Books**, Alpine, 432-837-3360, [www.fsbooks.com](http://www.fsbooks.com)  
Javelinas and Hollyhocks, Fort Davis, 432-426-2236  
**Lady Bird Johnson Wildflower Center**, 4801 La Crosse Avenue,  
Austin, 512-232-0100, [www.wildflower.org](http://www.wildflower.org)  
**Marfa Book Company**, Marfa, 432-729-3700,  
[www.marfabookco.com](http://www.marfabookco.com)

# Contributing ARTISTS & WRITERS

*This guide is the collaboration of many who love this beautiful part of Texas and its native plants. Our thanks to them and to you for joining us in promoting the conservations, research and utilization of the native plants and plant habits of Texas.*

~ Dallas Baxter, Editor

**Lois Balin**, B.S., U. of Arizona; M.S., Texas A&M, is Urban Wildlife Biologist for Texas Parks and Wildlife in El Paso, providing technical guidance on management for urban development, native plant landscaping, and artificial habitat for burrowing owls.  
(915) 227-1988  
lois.balin@tpwd.texas.gov

**Jennifer Baur**, B.S.E., U. of Kansas; M.S., SRSU; Texas Master Nursery Professional, Texas Master Naturalist, and Kansas Certified Arborist. She co-owned a native plant garden store in Kansas until she moved to the Chihuahuan Desert in 1993 where she continues her passion for land-scaping with native plants.  
finelines2@bigbend.net

**Dallas Baxter**, founding publisher and editor of Cenizo Journal, a Master Gardener and former docent at the Wildflower Center in Austin. She has gardened in many climates and zones and here in the Trans-Pecos she is learning all over again!  
bigbendwoman@sbcglobal.net

**Sue Beach** and her late husband Earl retired in Terlingua in 1995 and built their home using new and recycled materials, incorporating water saving technology including a water collection system and a gray water recycling system.

**Bill Carlisle** continues to work with native plants and low water use methods, but he's moved on from his beautiful Marathon garden and now lives in Iowa.  
pearlst@sbcglobal.net

**Michael Eason**, B.S. Texas State University, author of *Wildflowers of Texas*, owner of Texas Flora providing botanical consulting, surveys and native plant landscape designs and installations, works in Rare Plant Conservation at San Antonio Botanical Garden, previously headed the Millennium Seed Bank Project at the Wildflower Center in Austin.  
meason@texasflora.com

**Carol H. Fairlie**, Professor of Art and Program Head, teaches painting drawing and printmaking at SRSU.  
fairlie@sulross.edu  
Catchlightartgallery.com

**Beth Francell**, studied landscape architecture at UT Arlington and is a retired landscape designer. She has a special love for the Chihuahuan Desert natives but her own garden, started by her grandmother in 1930, also includes adapted and pass-a-long plants.

**Petei Guth**, artist and naturalist specializes in the Big Bend area. Her note cards, jewelry and drawings focus on the natural world of native plants and animals of Big Bend. She volunteers at the Sul Ross greenhouses and herbarium. She studied at the Dallas Art Institute.  
petei@bigbend.net

**Linda Hedges**, M.S. in biology from SRSU, retired as Regional Interpretive Specialist for Texas Parks and Wildlife. She's a Texas Master Naturalist, avid native plant gardener, and staunch proponent of the use of indigenous species in landscaping.  
linda.k.hedges@gmail.com

**Martha Latta**, BLA from Texas Tech, has been an organic nursery owner, Xeriscape Program manager, campus landscape architect and Keep Alpine Beautiful coordinator. She now considers herself a professional volunteer. She completed the very first Master Naturalist program in Texas in Hays County. Call or text her at (432) 386-2452

**Patricia Manning**, artist and botanist, retired after 18 years managing the Sul Ross Greenhouses. She now works as a contract botanist continuing her seed collecting and propagation of the Trans-Pecos native the nurseries never see. She is the champion of the truly native Trans Pecos plants.  
pmanning@sulross.edu

**Scott May** retired (with a Meteorology degree), loves to garden year round, and grow trees from seeds and nuts he collects around Marfa. He's in love with the Big Sky of West Texas.  
randall359@hotmail.com

**Kate McKenna** has worked as a writer and graphic designer, as well as working in her studio as a painter and illustrator. She has a BA degree in art history from UT Austin, and has done post graduate work in studio art in Austin and at Colorado University in Boulder. She is a Tierra Grande Master Naturalist.  
bigsky@texasmountains.com

**Oscar Mestas**, is retired from the Texas Forest Service. He lives with his family on his grandfather's farm in Las Cruces, N.M. where he is ever experimenting with trees.

**Kathleen Romine** has a B.A. in art from American University. She has loved and drawn Trans Pecos natives since 1975. She has studied botanical illustration at the Atlanta College of Art.

**Ellen Ruggia** co-owns Vast Graphics with her husband Chris; she enjoys illustrating aspects of their garden.  
vastgraphics.com

**Jean Hollingsworth Waterston** is a retired teacher living in the Davis Mountains enjoying quilting, traveling, reading and the wonders of Nature!

Why garden with native plants? The reasons are varied and many. From a practical standpoint, because indigenous species are physiologically in tune with their environment, they require less water, fertilizer, and general care than non-native species. They are naturally resistant to most diseases and to debilitating insect infestations, virtually eliminating the need for pesticides. In our area, native plants are able to withstand prolonged hot, dry conditions in poor soil whereas non-native species often cannot. They are aesthetically pleasing, not only for their natural beauty but also because they are a part of our natural and cultural heritage. Because they become part and parcel of the natural ecosystem - inextricable parts of the larger whole - native plants in landscaping provide an important source of food and shelter for a host of native creatures. When we plant indigenous species in our gardens, we are issuing an invitation that attracts wildlife - from buzzing bees to buoyant butterflies, lazy lizards to ravenous rabbits.

Some of the most memorable experiences I have enjoyed in my garden have arisen from interactions between plant and animal. Will I ever forget that morning not long ago, when, lingering over a cup of coffee, I glanced out the kitchen window to spy a male Lucifer hummingbird, metallic purple gorget ablaze in perfect light, forehead covered in golden pollen, hovering among stalks of orange-red Havard penstemon? Or the sight of a gaudy Painted Bunting on fall migration riding heavily-laden plains bristlegrass seedheads to the ground, pausing there to pluck out the tasty morsels that would fuel him on his way. Or the pulsating butterfly bush, covered with so many gray hairstreaks and tiny blues that it seemed to have sprouted wings in place of leaves? Or, on Easter Sunday morning, the Trans-Pecos cottontail sitting on my patio (surely the Easter Bunny himself), with breakfast in the form of blue flax flowers hanging from the corner of his mouth. Or the Curve-billed Thrasher who not only awakens me most mornings by singing from atop a tall Torrey yucca, but who also has produced multiple broods of young from a well-protected nest deep within the daggerlike clusters of leaves. Or the sight of seven Northern Mockingbirds gorging themselves on prickly pear fruit one frigid fall morning, faces stained brilliant red in sharp contrast to the motley backdrop of frosty green pads.

Why garden with native plants? They are practical. They belong. They create a sense of place. They help us connect with the natural world. By bringing native plants into our gardens and into our lives, we bridge the gap between ourselves and the other organisms with which we share our planet. And that's a wonderful feeling.

*Linda Hedges*

