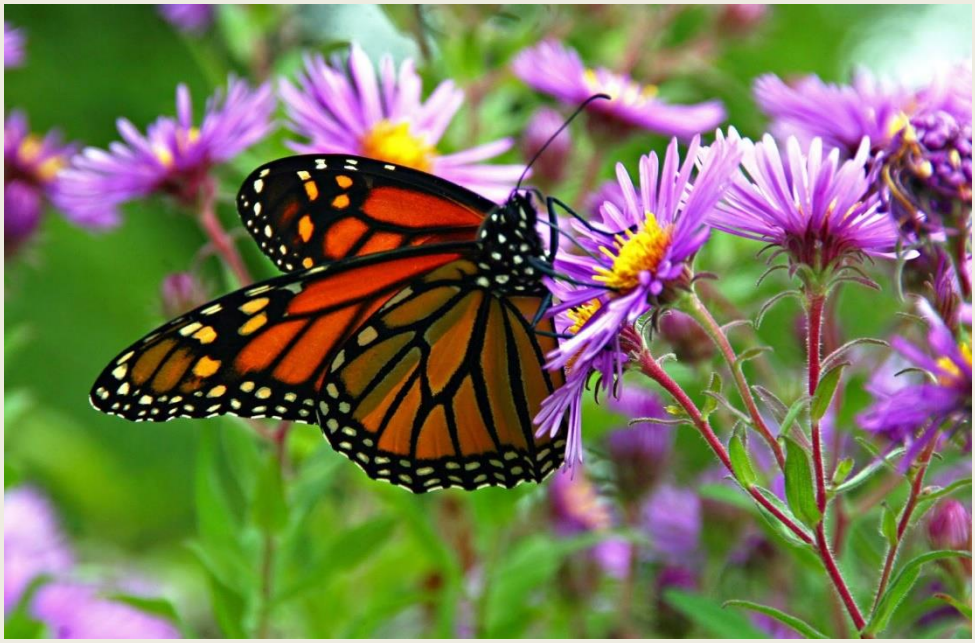
HOUSTON WILDERNESS

It's Our Nature

Texas Monarch Flyway Strategy

Step by Step Guide to Pollinator Habitat Creation in Texas



October 2018

Note: This guide is meant to provide a general guidance for most types of pollinator habitats in Texas. Some habitat locations may not apply.

Contents

Step by Step Guide

1) Identify Site Location:

(Consider these location characteristics)

A. Drainage
B. Quality of area
C. Invasives
D. Type of soil
E. Current conditions of landscape
F. Current and former uses of land
G. Slopes if any

2) Timing of Site Preparation for Pollinator Garden

A. Fall Start - Begin September with fall pollinator (add Milkweed at same time)
B. Spring Stat - Begin in December/January with pollinators (April with Milkweed)
C. Summer Start - Begin with Milkweed
D. Please refer to attached '*Planting Tip Sheet*' for further details

3) Condition of Landscape (Soil)

A. If natives already exist

- No need to add nutrients to the soil
- Slight tilling of the soil but necessarily needed, particularly if pollinator (stems) are added in addition to seeds

B. If Invasives exist – see "Beware" attached.
C. If lawn grasses (St. Augustine/Bermuda), cover the area.
D. If bare soil or major erosion – add soil and use bricks or media that will deter and mitigate erosion

4) Design / Layout of Pollinator Area

A. If located in a large landscape, more rural area - a border around the pollinator area may or may not be desired, and a mowed trail or gravel trail through the pollinator area may also be desired.
B. If located in a urban/suburban area - TBD

5) Choosing native pollinator Plants and Seeds for your ecoregion area

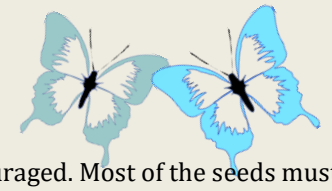
- Texas based native pollinator plants list (see attached two lists: (1) Fall vs. Spring, and (2) larger Texas native plant list)
- Texas native milkweed plant (see attached milkweed list)
- Size of plant: coordinate height and width of adult plant size with desired planting area
- Growth Patterns: growth patterns may vary by specie, make sure to space plants evenly to prevent plant crowding
- Perennials vs. Annuals - it is helpful to pay attention to bloom time for maintenance purposes
- Perennials Definition: Plants that persist for many growing seasons.
- Annuals Definition: Plants that perform their entire life cycle from seed to flower to seed within a single growing season

Planting Tips

6) Pre-Ordering Pollinator Seeds

- Seeds are available from multiple sources (see attached list)
- An estimated budget for plant and seed materials is helpful to complete a pollinator habitat project.
- Depending on the layout of your pollinator area, it is helpful to have an estimated budget for other materials and supplies as well. (See example of a budget for an urban-based pollinator garden that includes a brick border and crushed granite trail)
- Houston Wilderness' facilitation of current Gulf-Houston MFS funds may allow for some funding assistance with the cost of native pollinator plants and milkweed.

7) Watering - See attached *'Planting Tips Sheet'*



8) Seed Propagation

- Do not mow dying wildflowers too early. Seed production for next year should be encouraged. Most of the seeds must be allowed to mature, like... 'on the vine' before mowing.
- Once seeds from dying wildflowers have opened and released from the flowers, most non-woody wildflowers will decompose quickly and do not need to be cutdown or pruned. Woody stem pollinator plants often do need to be pruned (see attached plant information list for more details)
- Milkweed seed also spread and release from pods of dying milkweed. The same approach as native wildflowers applies to native milkweed seeds.

9) Maintenance and On-site Observations

A. Quarterly

- Check pollinator site and document pollinator plants that have sprouted and established. This allows an opportunity to see what types of plants like the area better than others, and where additional plants and seeds need to be supplemented.
  - If unwanted weed or invasives begin to grow up in the area, try to remove as much as possible.
- During the quarterly maintenance, consider whether additional seed distribution for the upcoming season is needed. (refer to 2, 5 and 6 above)

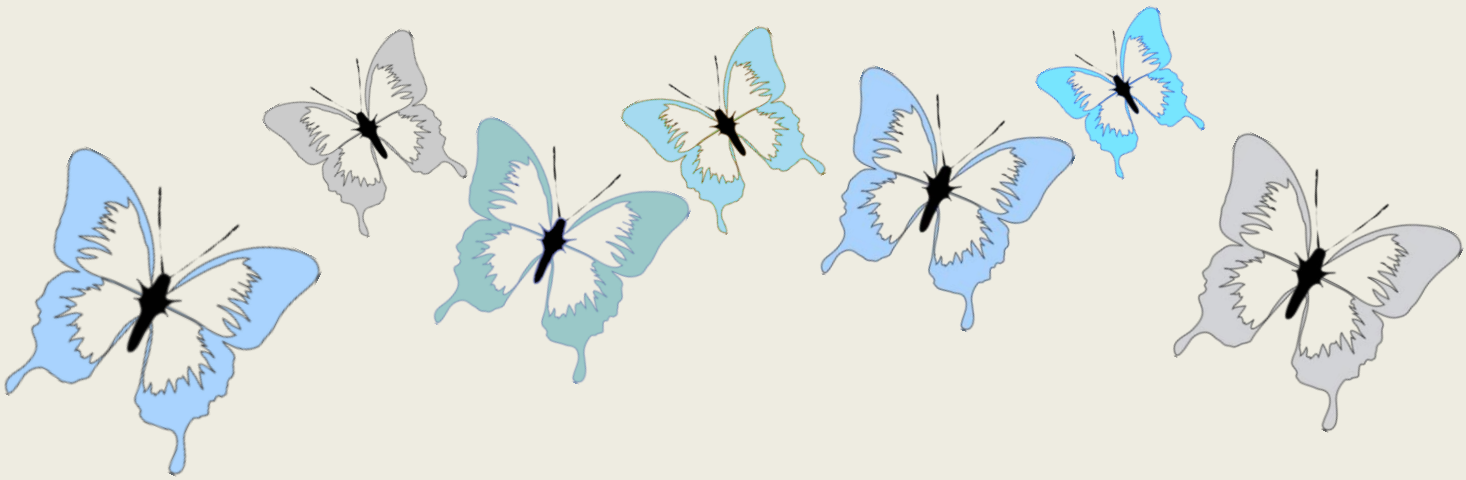
B. Annually by season

- Depending on the number of pollinator plants that establish at the beginning of your habitat creation, consider following steps similar to 5 and 6 above for the upcoming season.
- If weather patterns have been particularly dry for the previous year, see attached '*Planting Tips Sheet*' for additional watering options.

10) Other Helpful Tips

A. Fertilizer / Herbicides

B. Sun vs. Shade Plants



Planting Tips:
Native Milkweed, Wildflowers and Grasses

Ideal Planting Time: Fall (September 1st – November 30th)
Spring (March 20th – June 21st)

Preparing Planting Site Area for Planting

Mow planting area as to have a smooth, clump-free, weeded soil bed.
[1](***Soil samples***: for more information on soil content, you may consult with your local county extension agent to see if your soil needs to be enhanced (amended) with soil additives before planting the seeds.)

If unwanted vegetation is present in the planting site area, a tiller can be used to remove vegetation. Soil should not be worked on if wet conditions are present as to reduce soil clumping. The soil should be tilled to a fine consistency to promote a good soil to seed contact.

Seed to soil contact is the MOST important aspect of this process. If working on a small area, a rake can be used to expose the soil. For larger areas, site preparation can be accomplished with a tractor (discs or harrows).

If Invasives Exist:
After tilling, allow two to three weeks preferably and notice if any dormant weeds or grasses come up again. If this occurs, till area again. If grass growth persists, herbicides may be used. This will allow for native milkweed and native wildflowers to outcompete any weeds that may persist. Higher seeding rates also promotes better establishment of the species you are trying to introduce.
NOTE: ***the least amount of soil disturbance will have the most favorable results.***

Spreading Seeds

[2]Achieve good seed to soil contact. Spread seed by hand over the area. A broadcast spreader or a seed drill is good for larger areas. Mix fluffy or small seeds with a “carrier” for even distribution. Carriers such as coarse sand, perlite, rice hulls or other extenders aid in keeping seeds in suspension. This seed-carrier mix creates a "free flowing" characteristic as needed to broadcast the seed. Take half the seed mixture and spread it evenly over the whole area. Then cross back in opposite directions and spread the rest.

***If possible a roller, packer or a light drag or rake should follow the seeding to press the seed into the soil or lightly cover the soil. Most seeds should never be buried more than twice their diameter. Do not bury small seeds! Water requirements will vary per specie. See soil moisture requirements for every specie.

[1] http://www.seedsource.com/downloads/NAScatalog_Howtogrownativeseed.pdf
[2] http://www.seedsource.com/garden/planting.asp

Watering

[3]Nature allows seeds to lie dormant in the soil until rain falls. If you choose to irrigate, keep up with your watering until plants are established. For germination, water lightly and frequently to prevent top of soil from drying out. Rain gauges placed throughout the seeded areas can help you monitor daily watering. When wildflower seedlings are about 1 inch tall or grass seedlings have 3 to 5 blades per sprout, reduce the frequency of watering to 2 or 3 times weekly.

Increase water per application to achieve greater soaking depths for development of healthy root systems. Alternate soil moisture from good deep soakings to moderately dry in between watering. Roots need a balance of oxygen. Reduce frequency of watering over time as plants become established. Supplemental water may be discontinued as seasonal rains return.

Timing

Most annual spring blooming wildflowers are cool season plants. They sprout and grow during the fall-winter. They bloom, go to seed and then die back in late spring-summer. Plant these types of wildflower seeds in early fall. August through November are the best dates, the earlier the better.

-The perennial wildflowers can be planted in spring or fall. Many perennials develop strong, deep tuberous roots the first year before producing blooms. Exotic cool season grasses and clovers are not compatible with wildflowers.

-Warm season native grass seeds germinate when soil temps are above 65º F. Regarding the best time to plant native grasses, it is true that late spring gives the best chances of success in normal rainfall years. However, successful plantings may be made up until 90 days before frost. The tradeoff is the daily passing of this year's growing season which translates into lighter top growth. Sprouting is triggered by soil temperature, moisture, and daylight hours. And of course there are always exceptions.

[3] http://www.seedsource.com/downloads/NAScatalog_Howtogrownativeseed.pdf

Gulf-Houston Region

A: Wildflower Bloom Period

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	**Color Chart- Bloom Color and Time Period of selected species**																		
2	Species	March		April		May		June		July		August		September		Ocotober		November	
3	Bundleflower					White													
4	Black-eyed Susan							Yellow											
5	Bluebonnets	Blue																	
6	Clasping Coneflower					Yellow													
7	Crownseed Coreopsis		Yellow																
8	Englemann Daisy	Yellow																	
9	Evening Primrose			Yellow															
10	Firewheels					Red													
11	Gayfeather						Purple												
12	Greenthread			Yellow															
13	Indian Blanket							Red											
14	Illinois Bundleflower					White													
15	Lemon Mint						Purple												
16	Maximillian Sunflower											Yellow							
17	Mexican Hat					Red/Yellow													
18	Partridge Pea								Yellow										
19	Phiox	Purple																	
20	Plains Coreopsis				Yellow														
21	Prairie Coneflower						Purple												
22	Purple Prairie Clover					Purple													
23	Rose Vervain	Purple																	
24	Standing Cypress							Red											
25	Tahoka Daisy					White													
26	Texas Paintbrush		Red																
27	White Pricklepoppy	White																	
28	Yellow Groundsel	Yellow																	

Source: Texas Parks & Wildlife
https://tpwd.texas.gov/publications/pwdpubs/media/pwd_bk_w7000_1813.pdf

B: Pollinator Plant List

Gulf Coast Prairies and Marshes Native Plant List

Species	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.
Mexican plum (*Prunus mexicana*)		■	■	■								
Chickasaw plum (*Prunus angustifolia*)		■	■	■								
Pink evening primrose (*Oenothera speciosa*)		■	■	■	■	■	■					
Giant spiderwort (*Tradescantia gigantea*)			■	■								
Green hawthorn (*Crataegus viridis*)			■	■								
New Jersey tea (*Ceanothus americanus*)			■	■								
Oklahoma plum (*Prunus gracilis*)			■	■	■							
Possumhaw (*Ilex decidua*)			■	■	■							
Black cherry (*Prunus serotina*)			■	■	■	■						
Gulf Coast penstemon (*Penstemon tenuis*)			■	■	■	■						
Lyreleaf sage (*Salvia lyrata*)			■	■	■	■						
Mexican pricklypoppy (*Argemone mexicana*)			■	■	■	■						
Winecup (*Callirhoe involucrata*)			■	■	■	■						
Ohio spiderwort (*Tradescantia ohiensis*)			■	■	■	■	■	■				
Texas lignum-vitae (*Guajacum angustifolium*)			■	■	■	■	■	■	■			
Zizotes milkweed (*Asclepias oenotheroides*)			■	■	■	■	■	■	■			
Salt heliotrope (*Heliotropium curassavicum*)			■	■	■	■	■	■	■	■		
Spicebush (*Lindera benzoin*)				■								
Prairie penstemon (*Penstemon cobaea*)				■	■							
Berlandier's sundrops (*Calylophus berlandieri* ssp. *pinifolius*)				■	■	■						
Fragrant sumac (*Rhus aromatica*)				■	■	■						
Indigo bush (*Amorpha fruticosa*)				■	■	■						
Plains coreopsis (*Coreopsis tinctoria*)				■	■	■						
Roughleaf dogwood (*Cornus drummondii*)				■	■	■						
White Barbara's-buttons (*Marshallia caespitosa*)				■	■	■						
Clasping coneflower (*Dracopis amplexicaulis*)				■	■	■	■					
Prickly pear (*Opuntia engelmannii* var. *engelmannii*)				■	■	■	■					
Rose gentian (*Sabatia campestris*)				■	■	■	■					
Green milkweed (*Asclepias viridis*)				■	■	■	■	■				
Lindheimer's hoarypea (*Tephrosia lindheimeri*)				■	■	■	■	■	■			
Longleaf milkweed (*Asclepias longifolia*)				■	■	■	■	■	■			
Shore milkweed (*Asclepias perennis*)				■	■	■	■	■	■	■		
Slim milkweed (*Asclepias linearis*)				■	■	■	■	■	■	■		
American basket-flower (*Centaurea americana*)					■	■						
Dwarf palmetto (*Sabal minor*)					■	■						
Purple horsemint (*Monarda citriodora*)					■	■	■					
Firewheel (*Gaillardia pulchella*)					■	■	■	■				
Rattlesnake master (*Eryngium yuccifolium*)					■	■	■	■				
Tenaza (*Havardia pallens*)					■	■	■	■				
Texas thistle (*Cirsium texanum*)					■	■	■	■				
Partridge pea (*Chamaecrista fasciculata* var. *fasciculata*)					■	■	■	■	■			
Mexican hat (*Ratibida columnifera*)					■	■	■	■	■			
Halberdleaf hibiscus (*Hibiscus laevis*)					■	■	■	■	■	■		
Slim milkweed (*Asclepias linearis*)					■	■	■	■	■	■		
Zexmenia (*Wedelia texana*)					■	■	■	■	■	■		
Green milkweek (*Asclepias viridiflora*)						■	■	■	■			
Wooly ironweed (*Vernonia lindheimeri*)						■	■	■	■			
Black-eyed susan (*Rudbeckia hirta*)						■	■	■	■	■		
Sand palafox (*Palafoxia hookeriana*)						■	■	■	■	■		
Compass plant (*Silphium laciniatum*)							■	■	■			
Common sunflower (*Helianthus annuus*)							■	■	■	■		
Narrow-leaf gayfeather (*Liatris mucronata*)								■	■	■		
Pink-scale gayfeather (*Liatris elegans*)								■	■	■		
Prairie blazing star (*Liatris pycnostachya*)								■	■	■		
Maximilian sunflower (*Helianthus maximiliani*)								■	■	■	■	
Silverleaf sunflower (*Helianthus argophyllus*)								■	■	■	■	
Big blue sage (*Salvia azurea*)								■	■	■	■	
Frostweed (*Verbesina virginica*)								■	■	■	■	
White boneset (*Eupatorium serotinum*)								■	■	■	■	
Swamp sunflower (*Helianthus angustifolius*)										■		

Source: Texas Parks & Wildlife

https://tpwd.texas.gov/publications/pwdpubs/media/pwd_bk_w7000_1813.pdf

South Texas Region

Your Guide to Butterfly Gardening in the Lower Rio Grande Valley (LRGV)

Plant three nectar plants and three caterpillar food plants that are native to your region. Your garden will then qualify to join the growing number of NABA Certified Butterfly Gardens[4], helping to promote and increase butterfly habitat across the country.

Nestled between the Chihuahuan Desert on the west and the Gulf of Mexico on the east in the USDA climate zone 9, the Lower Rio Grande Valley is an area of constraining climatic and biotic influences.

Including Starr, hidalgo, Willacy, and Cameron counties, this are experiences annual rainfall ranges from about 26 inches along the Gulf coast to 17 inches on the western edge of the region.

With an average mean temperature of about 72 degrees and nearly 325 days of sun, the Lower Rio Grande Valley enjoys the longest season in the United States. Temperate and tropic climates meet here, as do the major Mississippi and Central bird flyways.

Annual and Perennial Plants of the LRGV

The following table lists the growing group of plants that have been suggested and reviewed by butterfly gardeners in the LRGV.

Check back often, the LRGV Garden Guide[5] is currently under construction. More annuals and perennials will be added to the table below in the coming months.

ENGLISH NAME	SCIENTIFIC NAME	PLANT TYPE	CATERPILLAR FOOD PLANT FOR:
Butterfly Mistflower	*Chromolaena odorata*	perennial	Not a caterpillar food plant
Firewheel	*Gaillarida pulchella*	annual	Not a caterpillar food plant
Heartleaf Hibiscus	*Hibiscus martianus*	perennial	Yojoa Scrub-hairstreak, Mallow Scrub-hairstreak, Gray Hairstreak
Partridge Pe	*Chamaecrista fasciculata*	annual	Cloudless Sulphur, Sleepy Orange, Little Yellow, Ceraunus Blue, Gray Hairstreak
Texas Toadflax	*Nuttallanthus texanus*	perennial	Common Buckeye
Tropical Milkweed	*Asclepias curassavica*	perennial or annual	Monarch, Queen, Soldier
Turkey Tangle Fogfruit	*Phyla nodiflora*	perennial	Common Buckeye, Phaon Crescent, White Peacock

[4] https://www.nationalbutterflycenter.org/butterflies-garden-guide/9-national-butterfly-center/130-naba-s-butterfly-garden-certification-program

[5] https://nationalbutterflycenter.org/butterflies/butterfly-garden-guide/9-national-butterfly-center/121-annual-and-perennial-plants-of-the-lrgv

North Texas Region

"Many years ago this site would have been a breathtaking Texas prairie. Today the park is planted once again with native habitat for birds, butterflies and other wildlife.
Visitors can experience this state's beautiful natural environment in the center of Dallas."

– Mrs. Laura W. Bush

Sideoats grama
Bouteloua curtipendula

Big Bluestem
Andropogon gerardii

Indian Grass
Sorghastrum nutans

Inland Sea Oats
Chasmanthium latifolium

Silver Bluestem
Bothruichloa *saccharoides*

Switchgrass
Panicum virgatum

Bushy Bluestem
Andropogon glomeratus

More plant and Park information can be found in "The Landscapes of the George W. Bush Presidential Center" in the Bookstore

The Park is open 365 days a year, sunrise to sunset; entrance on Bush Avenue. Tours led by Park Docent are Saturdays, Spring and Fall, 10 & 11 am. Group tours are available. For more info contact: Bush43Education@nara.gov

NOTES:

Thank you for visiting the Native Texas Park

For more information, or to schedule a group tour call 214-346-1650 or email: bush43visitors@nara.gov
The Park is open 365 days a year, from sunrise to sunset.

N a t i v e T e x a s P a r k

A native Texas landscape in a 15-acre urban park, the grounds of the Bush Center reflect President George W. Bush and Mrs. Laura Bush's longstanding commitment to environmental conservation and restoration.

Texas Bluebonnet
Lupinus texansis

Scrambled Eggs
Corydalis curvisiliqua

Indian Paintbrush
Castilleja

Pink Evening Primrose
Oenthera speciosa

Information about the ***Monarch Wrangler Program*** *found at texanbynature.org*

Englemann Daisy
Engelmannia peristenia

Clasping Coneflower
Dracopis amplexicaulis

Indian Blanket
Gaillardia

All Photos taken onsite

Welcome to the George W. Bush Presidential Library
The Native Texas Park features:

- Native Blackland Prairie grasses
- Seasonal wildflowers
- Clearings that provide native habitats for butterflies, birds, and other species
- Tree-shaded lawns
- Amphitheater

A one mile network of paths will take you through native Texas environments such as Blackland Prairie, Post Oak Savannah and Cross Timbers Forest.

Map and highlighted stops on next page

North Texas Region


American Basketflower
Centaurea americana drummondii


Antelope Horns
Asclepias asperula


Turks Cap
Malvaviscus


Bush Sunflower
Simsia calva


Widows Tears
Commelina


Butterfly Weed
Ascelpias


Purple Passionvine
Passiflora


Prairie Parsley
Polytaenia

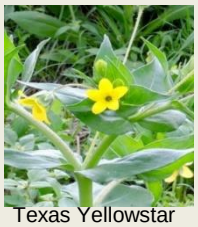

White Prairie Clover
Petalostemon


American Beautyberry
Callicarpa Americana


Prairie Spiderwort
Tradescantia


Foxglove
Penstemon

A few examples of the over 53 varieties of wild-flowers, 36 varieties of grasses, 32 varieties of trees and over 1900 shrubs, trees and plant life in the 22 acres of the Bush Center


Texas Yellowstar
Lindheimera texan


Tall Winecup
Callirhoe leicarpa


Tall Goldenrod
Solidago altissima


Greggs Mistflower
Conclunium


Horsemint
Monarda Citriodora

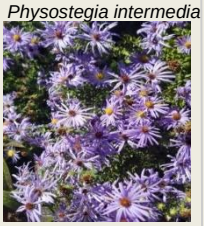

Standing Cypress
Ipomopsis rubra


Maximillian Sunflower
Helianthus maximiliani


Obedient Plant
Physostegia intermedia


Purple Coneflower
Echinacea purpurea


Spider Lily
Hymenocallis liriosme


Fall Aster
Symphyotrichum oblongifolium


Mealy Blue Sage
Salvia farinacea

Entrance to the Park is on Bush Avenue, please stay on pathways and if you bring 4 legged friends, please pick up after them.[6]

[6] https://www.georgewbushlibrary.smu.edu/Home/Visit/Plan-Your-Museum-Visit/-/media/CAAB7EA9A5804214A70587A91F5E6840.ashx

Hill Country Region

THE ANN and O.J WEBER BUTTERFLY GARDEN

Diversity of Plants and Habitats

The Ann and O.J. Weber Butterfly Garden at the Lady Bird Johnson Wildflower Center is designed as a native butterfly habitat to attract and sustain butterflies and other invertebrates. A diversity of plants is used to create a variety of habitat types, including a pond, a marsh, seeps, streambeds, thickets, meadows, woodlands, woodland edges and a rocky knoll.

Paths and Benches

Meandering paths include nine different seating areas where you can sit and quietly observe the activity of pollinators, other invertebrates, birds and occasionally other animals. Additional educational information is available at each bench.

Observing and Learning

Looking for invertebrates can sometimes be easy, as they buzz around the garden. But don't forget to look under leaves, low to the ground, and in pools of water, where many insects are busy aerating soil, nourishing plants with their droppings, or eating dead plant and animal material. Observation can reveal a complex web of life

Pickerelweed	Pontederiaceae	An excellent nectar source for longer-tongued butterflies.
Plane-Tree	Platanaceae	A minor larval food plant for one of the **FLUTED SWALLOWTAILS.**
Plantain	Plantaginaceae	In the larval menu of some **CHECKERSPOTS.**
Plumbago	Plumbaginaceae	In the larval menu of one of our **BLUES.**
Pokeweed	Phytolaccaceae	Not a major nectar source for butterflies.
Purslane	Portulaceae	A common larval food plant for several butterflies and moths. Not a major nectar source for butterflies.
Rose	Rosaceae	Nectar source for larger butterflies. In the larval menu of some **HAIRSTREAKS, FLUTED SWALLOWTAILS, BRUSHFEET** and **ADMIRALS.**
Rush	Juncaceae	Not a nectar source for butterflies.
Sapodilla	Sapotaceae	Nectar source for small butterflies. Larval food for some moths.
Sedge	Cyperaceae	In the larval menu of many **BRANDED SKIPPERS**.
Soapberry	Sapindaceae	Abundant nectar source for many butterflies. Essential larval food for one **HAIRSTREAK.**
Spiderwort	Commelinaceae	Not a great nectar source for butterflies.
Spurge	Euphorbiaceae	Essential larval food for many **EMPERORS, ADMIRALS**, and **HAIRSTREAKS.**
Sumac	Anacardiaceae	In the larval menu of some **HAIRSTREAKS** and **BLUES**.
True Fern	Polypodiaceae	Spoor producer, so doesn't produce nectar. A few **Geometrid Moths** (inch worms) can handle the toxins and feed on the leaves.
Unicorn-Plant	Martyniaceae	Nectar source for long-tongued butterflies and moths.
Verbena	Verbenaceae	In the larval menu of **CHECKERSPOTS** and other **BRUSHFEET**, some **FLATS**, and **HAIRSTREAKS.** Abundant nectar source for all butterflies.
Violet	Violaceae	In the larval menu of some **FRITILLARIES** and other **BRUSHFEET.**
Walnut	Juglandaceae	In the larval menu of some **HAIRSTREAKS.**
Water plantain	Alismataceae	Not a great nectar producer for butterflies.
Waterleaf	Hydrophyllaceae	A seasonal nectar source for small and medium size butterflies.
Willow	Salicaceae	In the larval menu of some **FLUTED SWALLOWTAILS, ADMIRALS, BRUSHFEET** and **HAIRSTREAKS.**
Wood-Sorrel	Oxalidaceae	In the larval menu of one of our **BLUES.**

Hill Country Region

Can Flowers Live Without Pollinators?

Pollination is the process where pollen grains (male sex cells) are moved from one flower to another flower's stigma (female sex cell), where seeds will be produced. Some flowers can actually self-pollinate, but this is not too common. Since plants are not able to move, they have evolved two ways to pollinate. Some plants rely on wind to blow their pollen from flower to flower. Most plants rely on animals, who can carry pollen while travelling from plant to plant. This relationship is mutually beneficial to animal and plant. The animal gets protein from eating pollen and the plant is assured of survival. Without pollination, most plants, as well as many of the pollinating animals, would cease to exist.

The most important pollinators are flies, bees, beetles, butterflies and moths. To a much lesser extent, some birds, mammals and reptiles also pollinate many plant species.
Pollination of flowers is essential to keeping an ecosystem healthy and functioning.

Bees

Leafcutter Bee
(*Coelioxys octodentata)*

There are over 200 species of bees in Travis County. The majority are solitary bees that nest by burrowing into soil.
Some are more communal, with several females sharing a nest. Pollen provides the protein that bees need. Bees supplement pollen with nectar, which they often turn into honey. Some bees collect pollen from a wide range of flowers, while others visit specific host plants. Wild bees are generally lumped into two groups: short tongued and long-tongued. The length of the tongue will have an effect on a bee's choice of flower.

Cactus	Cactaceae	Not a great nectar producer, but visited by many beetles, bees and wasps for pollen.
Caltrop	Zygophyllaceae	Essential larval food for one of our **SULPHURS** and one of our **BLUES**.
Canna	Cannaceae	Essential larval food for some **BRANDED SKIPPERS**.
Caper	Capparidaceae	Essential larval food for some tropical **WHITES**.
Catalpa	Bignoniaceae	Attractive nectar source for larger butterflies.
Citrus	Rutaceae	Essential larval food of some **FLATS** and **FLUTED SWALLOWTAILS**. Nectar source for larger butterflies.
Crowfoot	Ranunculaceae	In the larval menu of one of our common **METALMARKS**.
Cypress	Cupressaceae	Essential larval food for some **HAIRSTREAKS**.
Dogbane	Apocynaceae	Fantastic nectar source for most butterflies. Larval food of some tropical **MILKWEED** butterflies.
Dogwood	Cornaceae	Not a nectar source for butterflies.
Ebony	Ebenaceae	In the larval menu of a few **HAIRSTREAKS** and **BLUES**. Nectar source for small butterflies.
Elm	Ulmaceae	Essential larval food for many **EMPERORS**, all **SNOUTS** and some **BRUSHFEET**.
Evening Primrose	Onagraceae	A minor nectar source mostly for moths at night.
Figwort	Scrophulariaceae	Essential larval food for many **CHECKERSPOTS**. Nectar source for long-tongued butterflies.
Flax	Linaceae	In the larval menu of some **BUCKEYES** and other **BRUSHFEET**.
Gentian	Gentianaceae	A minor nectar source for small butterflies.
Goosefoot	Chenopodiaceae	Larval food for some **FLATS** and **HAIRSTREAKS**.
Gourd	Cucurbitaceae	Not a nectar source for butterflies. Mainly pollinated by beetles.
Grape	Vitaceae	Abundant nectar source for all butterflies. Larval food for some day flying moths.
Grass	Poaceae	Essential larval food for most **BRANDED SKIPPERS** and most of the **SATYRS**.
Holly	Aquifoliaceae	Spring nectar source of small butterflies. In the larval menu of some **FLATS** and moth-like **SKIPPERS** and **HAIRSTREAKS**.
Honeysuckle	Caprifoliaceae	A great nectar source for moths with long tongues and a few **SKIPPERS** and **SWALLOWTAILS**.
Iris	Iridaceae	Not a major nectar source for butterflies. Beetles and wasps eat the pollen.

Hill Country Region

PLANT A BUTTERFLY GARDEN!

By Charles Bartlett, GVST Volunteer

Plant your butterfly garden and help save a butterfly species! A butterfly garden can be a wonderful part of your landscape and will make a meaningful difference by creating habitat for our imperiled butterfly friends. Gardening for butterflies is something anyone who loves growing plants and flowers can do. A garden that is good for butterflies also is good for other pollinators such as bees and hummingbirds who often share the same nectar plants and habitat.

THE FOUR BASIC ELEMENTS OF A BUTTERFLY GARDEN

Monarch butterfly

Butterfly gardening is easy and, like any horticultural endeavor that creates habitat, depends on providing four basic elements.

Flowers and food: Plant a mix of flowers that bloom from the start of spring through fall, and food plants for caterpillars.

Shelter: Leave bare patches of ground, have small brush piles (in unused corners of the yard), and leave the herbaceous plants standing over the winter to protect overwintering eggs and caterpillar pupae waiting to emerge.

Water: A mud puddle is ideal for butterflies providing them with a source of water and salt.

A safe, pesticide-free environment: Don't use chemical insecticides (especially systemic ones), use caution when applying organic pesticides, and use herbicides only for a weed emergency.

A LITTLE BUTTERFLY BIOLOGY

Butterflies and moths have three stages in their life cycles before becoming the flying adult insects we recognize. The mother butterfly lays eggs on preferred food plants.

- The eggs hatch into caterpillars that feed on their food plants. These caterpillars grow to their full size before going dormant as a chrysalis (butterfly) or a cocoon (moth), in preparation for adulthood.
- Then caterpillars go through metamorphosis and emerge as flying adults.
- The adults immediately mate, lay eggs, feed, and die leaving behind the next generation.

Tiger swallowtail, the largest butterfly in North

WHAT'S SO SPECIAL ABOUT MONARCH BUTTERFLIES?

Monarch butterflies (danaus plexippus) populate most of the US and southern Canada. They exist west of the Rocky Mountains, but in smaller numbers. Sightings of Monarchs occur in almost every state.

Monarch caterpillar

A monarch's life is intrinsically woven with the milkweed plant, a once common native perennial plant.

Its life begins when a female lays an egg on the underside of the leaf or other part of a milkweed plant.

In three to five days, a very tiny, hungry caterpillar emerges and begins feasting on the milkweed plant.

As the caterpillar grows to full size, it goes through five molts (stages of life) that are each a large step to becoming a butterfly. Each time the caterpillar literally sheds its skin and reforms a larger one. **At the final molt, in about 10-14 days, the caterpillar is a beautiful yellow-green-black striped color about 1 ¾ inches long**. Now the caterpillar wanders from the milkweed plant and finds just the right spot.

It spins a pad of silk, and attaches itself, hanging upside down. After many hours, its skin will split to reveal **its translucent green chrysalis that is its home for the next 11-15 days as it takes its final form as a monarch butterfly.**

Once emerging, and after drying its beautiful orange wings, it takes flight to find nectar, its new food. **The monarch butterfly will live from two to six weeks,** during which time it will mate, and begin the cycle again. This cycle may happen from four to five times per summer, four to five generations, and **on the final generation of the summer, called the Super Generation, something really amazing happens. These butterflies, with more densely scaled and slightly larger wings, will live from seven to eight months**.

WHAT TO PLANT?

Often the flowering plants that feed the adult moths and butterflies are different from the plants on which their caterpillars feed. For a butterfly garden, the gardener must plant both types of plants. Most flowers that attract moths and butterflies will feed a wide range of species. When it comes to feeding their caterpillars, butterflies and moths can either have a need for very specific food plants, or have a taste for a wider range of host plants. This depends on the species of each moth and butterfly as they will have different requirements.

- To attract and feed adult butterflies, we need a garden that supplies many months of nectar-rich flowers for a wide range of butterflies.
- Flower shapes that attract butterflies are generally either flat-topped flower spikes with lots of tiny flowers, or cone-type flowers.
- Food plans for caterpillars vary, but widely fed-upon plants include oak, willow, cherry, poplar, apple, dandelions, clover, and dill.
- For widespread migrating species of butterflies like the Monarch, various species of milkweed (Asclepias species) provide both larval food and nectar for adults.

SAWS-RECOMMENDED SPECIAL BUTTERFLY PLANTS

1. **Pride of Barbados**. Heat-loving, drought-resistant shrub to 6' fall. Long blooming season April to December. Butterfly favorite. Deer resistant.
2. **Thryallis**. Drought-resistant, deer-resistant, spectacular yellow flowers for many months. Sun or part shade, 8' tall.
3. **Dwarf Firebush.** Loves summer heat, stands dry conditions, a hummingbird favorite.
4. **Blackfoot Daisy.** Loves hot, dry, well-drained locations. Tends to be evergreen, 1' tall, long-blooming season.

Pride of Barbados

5. **Almond Verbena.** Butterfly magnet, sweet, white flower clusters, good fragrance, tolerates dry conditions well, everygreen, 6'-8' tall, very long blooming season March to December.

Fall-Blooming Aster

6. **Fall-Blooming Aster**. Low-growing evergreen plants, beautiful, lavender flowers. Very drought-resistant, no insect or disease problems. Good nectar source for many butterflies, deer-resistant with very aromatic foliage. Up to 24" tall, the only Aster variety for Texas and the Southwest. Will live for many years in the garden.
7. **Blue Mist Flower**. A butterfly favorite, blooms March to December. Tolerates all soil types, will slowly spread in the garden, prefers full sun locations, drought resistant. A must-have for every butterfly garden.
8. **Frogfruit**. Low, evergreen spreading groundcover, prefers full sun locations. Small white flowers are an excellent nectar source for many butterflies. Leaves are the host plant for several types of butterflies.

9. **Goldenrod**. A fall butterfly magnet, evergreen foliage, dies down to the ground in winter, with a rosette of green foliage, huge clusters of golden flowers in the fall. Loves wet or dry conditions, will slowly spread in the garden, likes all soil types. Cut back by
   ½ in July to keep plant shorter, with more flowers. Blooms September to December, deer-resistant, a must-have for the butterfly garden. Pollen does not cause allergies.
10. **Damianita**. Loves heat and dry conditions, deer resistant, very long blooming season with tiny yellow flowers, 1 foot tall.
11. **Cowpen Daisy**. Long-blooming yellow composite with beautiful daisy-like flowers, drought-resistant, butterfly nectar source, 4 feet tall, beautiful blue-green foliage.

Tropical milkweed

12. **Milkweeds**. Many long-lasting varieties, deep-rooted plants tolerate dry conditions well, larvae food hosts for monarchs, a great nectar source for many butterflies, 3-4' tall. Will naturalize in the garden.
13. **Salvia.** Many varieties, excellent nectar source for many types of butterflies, tend to be evergreen in the winter months, very long blooming season March to December, tolerates dry conditions well.
14. **Red Yucca**. Great nectar source for hummingbirds, evergreen plant, very drought-resistant, long blooming season June to December, both pink and yellow flowering forms.
15. **Rosemary**. Evergreen, greatest bloom period in cool seasons and winter, good nectar source for many butterflies, fragrant foliage.
16. **Turk's Cap**. Evergreen shrub, good nectar force for hummingbirds, drought-tolerant, edible red fruit, very long blooming season.
17. **Dwarf Barbados Cherry.** Select dwarf form of plant, edible red fruit, extremely drought tolerant, beautiful pink flowers over a very long blooming season from April to December.
18. **Flame Acanthus.** Favorite nectar source for butterflies and hummingbirds, may lose leaves in a severe winter, tolerates very dry conditions well, a must-have plant for the butterfly garden.
19. **Yaupon Holly.** Beautiful evergreen shrub, male and female plants, choose fruiting type such as "Pride of Houston" for excellent fruit set and colorful berries in the fall and winter, showy white flowers in the spring, drought-tolerant, an excellent specimen plant or hedge.

Yaupon Holly

20. **Redbud Tree.** Early spring bloom, drought-resistant, both pink and white blooming types, excellent early nectar source in the spring.
21. **Texas Persimmon.** Male and female trees, edible black fruit in late summer, drought-resistant, evergreen small tree/bush, very deer-resistant.
22. **Anacacho Orchid Tree.** Long blooming season, tolerates drought, white flowers, distinctive leaves, evergreen with some winter protection. A truly beautiful small flowering tree for every garden site and soil type.[7]

[7] https://texasbutterflyranch.com/wp-content/uploads/2018/05/PLANT-A-BUTTERFLY-GARDEN.pdf

STATEWIDE

Suggested Native Texas Plants for

Habitat Gardens

Wildflowers

Cardinal Flower- likes moisture
Coneflowers
Coreopsis (Tickseed & Lanceleaf)
Spiderwort
Gaillardia
Salvia Azurea, S. Coccinea
Sunflowers
Ratibida (Mexican Hat)
Thistles (Centaura)
Turk's Cap

Medium to Large Size Trees

American Holly
American Sycamore
Cherry Laurel
Drummond Red Maple
Eastern Red Cedar
Hackberry or Sugarberry
Live Oak
Loblolly Pine
Native Pecan (small nuts)
Post Oak
Southern Red Oak
Sweetgum
Water Oak
Willow Oak
White Oak
Magnolia

Small Trees

American Hop Hornbeam (Ironwood)
Carolina Buckthorn
Elderberry
Flowering Dogwood
Farkleberry
Fragrant Sumac
Green Hawthorn
Gum Bumelia (Chittamwood)
Mexican Plum
Possumhaw (Deciduous Yaupon Holly)
Parsley Hawthorn
Pignut Hickory
Rough Leaf Dogwood
Southern Wax Myrtle
Shining Sumac
Black Willow
Yaupon Holly

Shrubs

American beautyberry
Blackberry
Rusty Blackhaw Viburnu
Arrowwood Viburnum
Southern Wax Myrtle (dwarf form available)
Yaupon Holly (dwarf form available)

Vines

Coral Honeysuckle
Crossvine- vigorous growth, bright flowers
Mustang Grape
Riverbank Grape
Carolina Jessamine- yellow flowers
Yellow Passionflower
Maypop Passionflower
Trumpet Creeper- vigorous growth, orange flowers
Virginia Creeper

Grasses

Gulf Coast Muhly Grass- beautiful low grass
Buffalo Grass- turf grass, low water requirements
Indian Grass- tall attractive grass
Inland Sea Oats (does well in shade)
Virginia Wildrye (does well in shade)
Brown seed Paspalum
Eastern Gama Grass- wide and tall

These plants provide great food and habitat for birds, butterflies and other wildlife.
www.npsot.org/houston

STATEWIDE

NATIVE HOST PLANTS FOR SOUTHEAST TEXAS

BUTTERFLIES

Butterfly	Plants
Giant Swallowtail…….	Lime Prickley Ash, Hercules Club, Common Hop Tree
Pipevine Swallowtail……...	Aristolochia species (pipevines) A.erecta, A. reticulata, A. tomentosa
Zebra Swallowtail……	Paw Paw (Asimina triloba, A. parviflora)
Black Swallowtail……	Apiaceae (Prairie Parsley)
Tiger Swallowtail…….	Ash species, Black Cherry
Spicebush Swallowtail……	Spicebush, Sassafras, Sweetbay Magnolia
Palamedes Swallowtail……..	Red Bay, Sassafras, Sweetbay Magnolia
Cloudless Sulphur, Sleepy Orange	Senna, Partridge Pea
Little Sulphur……	Senna, Partridge Pea, Powderpuff
Soapberry Hairstreak……	Western Soapberry
Banded Hairstreak……..	Oaks, Hickories, Walnuts
Northern Hairstreak, Horace's Hairstreak	
Red Banded Hairstreak……..	Oak species (Bur, Willow, Water, Swamp Chestnut, Red)
Cedar Hairstreak……	Sumacs, Southern Wax Myrtle, Croton, Oaks
Henry's Elfin……	Eastern Red Cedar
E. Pine Elfin……	Redbud, Vaccinium, Hollies, Viburnum, Mexican Buckeye
Cassius Blue, Marine Blue……	Loblolly Pine, Longleaf Pine
Snout Butterfly…….	Rattlebox, various legumes
Gulf Fritillary and Variegated Fritillary.	Hackberry species
Texas Crescent……...	Passion flower (Passiflora incarnata, P. foetida, P.lutea)
Phaon Crescent……..	Flame Acanthus, Ruellia, Water Willow
American Painted Lady, Pearl Crescent	Frog Fruit (Phyla incisa)
Question Mark…….	Asteraceae: Asters, Sunflowers, Echinacea, Coreopsis, Eupatorium, Liatris, Rudbeckia
Red Admiral…….	Elm, Hackberry species, nettle
Painted Lady……	Nettle (Urtica), False Nettle (Boemeria)
Buckeye……	Thistle, Mallows (Malvaceae), Hibiscus, Sida
Red Spotted Purple……	Toadflax, Plantain (Plantago), Ruellia
Viceroy……..	Black Cherry, Cottonwood, Hawthorns
Hackberry Emperor & Tawny Emporer..	Willows, Cottonwood, Cherry trees
Little Wood Satyr…….	Hackberry species
Monarch and Queen ……..	Various grasses
Long Tailed and Spotted Skippers..	Asclepiadaceae, Milkweed species
Dorantes Longtail……	Legumes (Acacia, Baptisia, Mimosa, Sesbania, Senna, Sophora, Amorpha)
Wild Indigo and Funeral Duskywings.	Legumes (Acacia, Baptisia, Mimosa, Sesbania, Senna, Sophora, Amorpha)
Common Checkered Skipper……	Baptisia, Lupines, Louisiana Vetch, Rattlebush
Swarthy Skipper……..	Sidas, Globe-mallows, other Mallows
Clouded and Fiery Skippers…….	Little Bluestem
Broad Winged (Marsh) Skipper…	Grasses
Dun Skipper (Sedge Skipper)…...	Sedges, Marsh Millet
Eufala and Common Roadside Skippers	Sedges
	Grasses

Native Plant Society of Texas – Houston Chapter www.npsot.org/houston

Prepared by Glenn Olsen from these References: Butterflies of Houston: John & Gloria Tveten, Checklist Of The Vascular Plants Of Texas: Hatch, Gandhi, Brown, Butterflies Of North America: John Feltwell, The Milkweed And Its World Of Animals: Ada and Frank Graham, A Textbook Of Entomology: Herbert H. Ross, Manual of Cultivated Plants: L.H. Bailey *This is a partial list; many more native plants are food sources for butterflies & moths*

STATEWIDE

C: Growing Texas Native Milkweed for the Monarch butterfly

GROWING NATIVE MILKWEED

Arizona Milkweed
Asclepias angustifolia
Riparian areas and canyons.

Planting Time: Late Spring - Fall	**Bloom Time:** Year Round (Evergreen)
Flower Color: Cream Pink,White	**Mature Plant Size:** Up to 36" Tall
Planting Depth: 1/4" to 3/4" hole	**Light Requirements:** Full-Partial Sun, Half Sun / Half Shade
Soil Type: Dry Rocky Soils	**Soil Moisture:** Drought Tolerant, Low-Water
Ideal Regions: AZ	**Advantages:** Attracts Butterflies

TEXAS POPULAR

Antelopehorns Milkweed
Asclepias asperula
Desert and sandy areas.

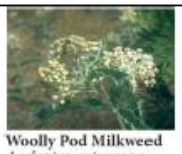
Planting Time: Late Spring - Fall	**Bloom Time:** Early Spring - Late Summer (Perennial)
Flower Color: Green, White	**Mature Plant Size:** Up to 36" Tall
Planting Depth: 1/4" to 3/4" finger hole	**Light Requirements:** Full Sun
Soil Type: Sandy or Rocky Calcareous Soils	**Soil Moisture:** Well-drained Soil (Dry or Moist Soil)
Ideal Regions: AZ, CA, CO, ID, NE, NM, NV, TX, UT	**Advantages:** Attracts Butterflies

California Milkweed
Asclepias californica
Grassy areas.

Planting Time: Late Spring - Fall	**Bloom Time:** Mid Spring-Mid Summer (Perennial)
Flower Color: Lavender, Pink, White	**Mature Plant Size:** Up to 36" Tall
Planting Depth: 1/4" to 3/4" Hole	**Light Requirements:** Full Sun
Soil Type: Light (Sandy) Soils	**Soil Moisture:** Well-drained soil and can grow in nutritionally poor soil
Ideal Regions: CA	**Advantages:** Bee Friendly, Attracts Butterflies & Birds

Heartleaf Milkweed
Asclepias cordifolia
Rocky slopes.

Planting Time: Fall - Winter	**Bloom Time:** Late Spring - Mid summer (Perennial)
Flower Color: Purple, Lavender, Red	**Mature Plant Size:** Up to 36" Tall
Planting Depth: 1/4" to 3/4" Hole	**Light Requirements:** Full Sun, Half Sun / Half Shade
Soil Type: Decomposed Granite, and Rocky Soils	**Soil Moisture:** Drought Tolerant, Low-Water
Ideal Regions: CA, NV, OR	**Advantages:** Deer Resistant, Attracts Butterflies & Birds



Woolly Pod Milkweed
Asclepias eriocarpa
Clay soils and dry areas.

Planting Time: Late summer - Early Winter	**Bloom Time:** Late Spring - Mid Fall (Perennial)
Flower Color: Pink, White, Cream	**Mature Plant Size:** Up to 36" Tall
Planting Depth: 1/4" to 3/4" Hole	**Light Requirements:** Full Sun
Soil Type: Clay Soils	**Soil Moisture:** Drought Tolerant, Low-Water
Ideal Regions: CA	**Advantages:** Attracts Butterflies

Desert Milkweed
Asclepias erosa
Desert regions.

Planting Time: Late Spring - Fall	**Bloom Time:** Mid Spring - Mid Fall (Perennial)
Flower Color: Cream, White-Yellow	**Mature Plant Size:** Up to 48" Tall
Planting Depth: 1/4" to 3/4" Hole	**Light Requirements:** Full Sun
Soil Type: Dry granite, sand, or clay soils with low organic content	**Soil Moisture:** Drought Tolerant, Low-Water
Ideal Regions: AZ, CA, NV, UT	**Advantages:** Attracts Butterflies

Poke Milkweed
Asclepias exaltata
Woodland areas (except in NE, KS, MO, ND & SD).

Planting Time: Late Spring - Fall	**Bloom Time:** Late Spring - Late Summer (Perennial)
Flower Color: White	**Mature Plant Size:** Up to 72" Tall
Planting Depth: 1/4" to 3/4" Hole	**Light Requirements:** Full Sun, Half Sun / Half Shade
Soil Type: Clay Soil, Drought/Dry Soil, Moist/Wet Soil	**Soil Moisture:** Dry, Average, Moist/Wet, Well Draining
Ideal Regions: AL, CT, DE, GA, IA, IL, IN, KY, MA, MD, ME, MI, MN, MS, NC, NH, NJ, NY, OH, PA, RI, SC, TN, VA, VT, WI, WV	**Advantages:** Deer Resistant, Attract Butterflies, Bee Friendly, Native

Mexican Whorled Milkweed
Asclepias fascicularis
Dry climates and plains.

Planting Time: Late Spring - Fall	**Bloom Time:** Late Spring - Mid Fall (Perennial)
Flower Color: White, Pink, Green, Purple	**Mature Plant Size:** Up to 36" Tall
Planting Depth: 1/4" to 3/4" Hole	**Light Requirements:** Full Sun
Soil Type: Clay Soils	**Soil Moisture:** Dry, Moist (Drought Resistant)
Ideal Regions: CA, ID, NV, OR, UT, WA	**Advantages:** Attracts Butterflies, Bee Friendly

Sandhill/Pinewoods Milkweed
Asclepias humistrata
For use in some regions of FL. Dry sandy areas and soils.

Planting Time: Late Spring - Fall	**Bloom Time:** Mid Spring - Mid Summer (Perennial)
Flower Color: White, Pink	**Mature Plant Size:** Up to 18" Tall
Planting Depth: 1/4" to 3/4" Hole	**Light Requirements:** Full Sun
Soil Type: Dry, Sand Soils	**Soil Moisture:** Dry (Tolerates Hot Temperatures)
Ideal Regions: AL, FL, GA, LA, MS, NC, SC	**Advantages:** Attracts Butterflies, Bee Friendly

TEXAS POPULAR

Swamp Milkweed
Asclepias incarnata
Damp, marshy areas.

Planting Time: Early Spring	**Bloom Time:** Late Spring - Early Fall (Perennial)
Flower Color: Pink	**Mature Plant Size:** Up to 60" Tall
Planting Depth: 1/4" to 3/4" Hole	**Light Requirements:** Full Sun, Half Sun / Half Shade
Soil Type: Clay Soil, Sandy Soil, Loamy Soil, Moist/Wet Soil	**Soil Moisture:** Average, Moist/Wet
Ideal Regions: AL, AR, CO, CT, DE, FL, GA, IA, IL, IN, KS, KY, LA, MA, MD, ME, MI, MN, MO, MT, NC, ND, NE, NH, NJ, NM, NV, NY, OH, OK, PA, SD, TN, TX, UT, VA, VT, WI, WV, WY	**Advantages:** Deer Resistant, Hummingbirds & Butterflies, Native

Zizotes Milkweed
Asclepias oenotheroides
Sandy/rocky prairies and fields.

Planting Time: Late Spring - Fall	**Bloom Time:** Late Winter - Mid Fall (Perennial)
Flower Color: Green	**Mature Plant Size:** Up to 48" Tall
Planting Depth: 1/4" to 3/4" Hole	**Light Requirements:** Full Sun
Soil Type: Sandy, dry soils	**Soil Moisture:** Dry
Ideal Regions: AZ, CO, LA, NM, OK, TX	**Advantages:** Attracts Butterflies

TEXAS POPULAR

Aquatic Milkweed
Asclepias perennis
Hydrated soils.

Planting Time: Late Spring - Fall	**Bloom Time:** Mid Spring - Early Fall (Perennial)
Flower Color: White, Some Cream Pink	**Mature Plant Size:** Up to 24" Tall
Planting Depth: 1/4" to 3/4" Hole	**Light Requirements:** Full Sun, Part Shade
Soil Type: Moist , Wet	**Soil Moisture:** Consistent Moist Soil
Ideal Regions: AL, AR, FL, GA, IL, IN, KY, LA, MO, MS, SC, TN, TX	**Advantages:** Attracts Birds& Butterflies, Bee Friendly,

Showy Milkweed
Asclepias speciosa
Savannahs and prairies.

Planting Time: Late Spring - Fall	**Bloom Time:** Late Spring - Early Fall (Perennial)
Flower Color: Pink, White	**Mature Plant Size:** Up to 48" Tall
Planting Depth: 1/4" to 3/4" Hole	**Light Requirements:** Full Sun
Soil Type: Clay Soil, Sandy Soil, Loamy Soil, Moist/Wet Soil	**Soil Moisture:** Average, Well Draining
Ideal Regions: AZ, CA, CO, IA, ID, IL, KS, MI, MN, MT, ND, NE, NM, NV, OK, OR, SD, TX, UT, WA, WI, WY	**Advantages:** Attract Butterflies, Bee Friendly, Native

Rush Milkweed
Asclepias subulata
Desert areas.

Planting Time: Late Spring - Fall	**Bloom Time:** Year Round (Evergreen)
Flower Color: Cream-White, Cream-Yellow	**Mature Plant Size:** Up to 72" Tall
Planting Depth: 1/4" to 3/4" Hole	**Light Requirements:** Full Sun / Part Sun
Soil Type: Sandy, Rocky and Dry	**Soil Moisture:** Low Water Needs, Drought resistant
Ideal Regions: AZ, CA, NV	**Advantages:** Attracts Butterflies

Common Milkweed
Asclepias syriaca
Well drained soils.

Planting Time: Late Spring - Fall	**Bloom Time:** Early to Late Summer (Perennial)
Flower Color: Pink	**Mature Plant Size:** Up to 72" Tall
Planting Depth: 1/4" to 3/4" Hole	**Light Requirements:** Full Sun
Soil Type: Loamy Soil, Moist/Wet Soil	**Soil Moisture:** Average, Moist/Wet
Ideal Regions: AL, AR, CT, DC, DE GA, IA, IL, IN, KS, KY, LA, MA, MD, ME, MI, MN, MO, MS, MT, NC, ND, NE, NH, NJ, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, VA, VT, WI, WV	**Advantages:** Deer Resistant, Attract Butterflies, Attract Birds, Bee Friendly, Rabbit Resistant, Fragrant, Native, Multiplies / Naturalizes

TEXAS POPULAR

Butterfly Weed
Asclepias tuberosa
Well drained soils.

Planting Time: Late Spring - Early Fall (Perennial)	**Bloom Time:** Mid Spring - Early Fall (Perennial)
Flower Color: Yellow	**Mature Plant Size:** Up to 36" Tall
Planting Depth: 1/4" to 3/4" Hole	**Light Requirements:** Full Sun
Soil Type: Sandy Soil, Loamy Soil, Drought/Dry Soil	**Soil Moisture:** Dry, Average, Well Draining
Ideal Regions: AL, CT, DC, DE, FL, GA, IL, IN, KY, MA, MD, ME, MS, NC, NH, NJ, NY, OH, PA, RI, SC, TN, VA, VT, WV	**Advantages:** Deer Resistant, Attract Butterflies, Attract Hummingbirds, Attract Birds, Bee Friendly, Rabbit Resistant, Native

White Milkweed
Asclepias variegata
Thickets and Woodlands.

Planting Time: Late Spring - Fall	**Bloom Time:** Late Spring - Mid Summer (Perennial)
Flower Color: White, Purple	**Mature Plant Size:** Up to 48" Tall
Planting Depth: 1/4" to 3/4" Hole	**Light Requirements:** Full Sun / Part Shade
Soil Type: Sandy to Rock	**Soil Moisture:** Dry
Ideal Regions: AL, AR, CT, DC, DE GA, IL, IN, KY, LA, MD, MO, MS, NC, NY, OH, OK, PA, SC, TN, TX, VA, WV	**Advantages:** Attracts Butterflies

Whorled Milkweed
Asclepias verticillata
Prairies and open areas.

Planting Time: Late Spring - Fall	**Bloom Time:** Mid Spring - Late Summer (Perennial)
Flower Color: White	**Mature Plant Size:** Up to 36" Tall
Planting Depth: 1/4" to 3/4" Hole	**Light Requirements:** Full Sun, Half Sun / Half Shade
Soil Type: Clay Soil, Drought/Dry Soil	**Soil Moisture:** Dry, Average, Well Draining
Ideal Regions: AL, AR, AZ, CT, DC, DE, FL, GA, IA, IL, IN, KS, KY, LA, MA, MD, MI, MN, MO, MS, MT, NC, ND, NE, NJ, NM, NY, OH, OK, PA, RI, SC, SD, TN, TX, VA, VT, WI, WV, WY	**Advantages:** Deer Resistant, Hummingbirds & Butterflies, Native

Woolly Milkweed
Asclepias vestita
Dry deserts and plains.

Planting Time: Late Spring - Fall	**Bloom Time:** Mid Spring - Mid Summer (Perennial)
Flower Color: Cream, Yellow	**Mature Plant Size:** Up to 36" Tall
Planting Depth: 1/4" to 3/4" Hole	**Light Requirements:** Full Sun
Soil Type: Mountain, Desert, or Valley	**Soil Moisture:** Dry (Summer-Fall), Moist (Winter-Spring)
Ideal Regions: CA	**Advantages:** Bee Friendly, Attracts Butterflies, Deer Resistant

TEXAS POPULAR

Green Antelopehorn Milkweed
Asclepias viridis
Dry areas and prairies. Also known as green milkweed.

Planting Time: Late Spring - Fall	**Bloom Time:** Mid Spring - Late Summer (Perennial)
Flower Color: Pink, Green	**Mature Plant Size:** Up to 24" Tall
Planting Depth: 1/4" to 3/4" Hole	**Light Requirements:** Full Sun, Half Sun / Half Shade
Soil Type: Clay Soil, Drought/Dry Soil, Moist/Wet Soil	**Soil Moisture:** Dry, Average, Moist/Wet, Well Draining
Ideal Regions: AL, AR, FL, GA, IL, IN, KS, KY, LA, MO, MS, NE, OH, OK, SC, TN, TX WV	**Advantages:** Deer Resistant, Attract Butterflies, Bee Friendly, Native

D. *How to Plant Milkweed Guide*

Stems

Butterfly Weed, Whorled Milkweed and Common Milkweed should all be spaced about 18” apart. However, Swamp Milkweed eventually forms clumps up to 3’ across. So, plant Swamp Milkweed and its cultivars between 30” and 36” apart.

Planting Milkweed:

1. Loosen the soil where you will be planting (about two feet in diameter).
2. Make a planting hole that is twice the diameter of the pot.
3. Place your milkweed in the hole without disturbing the roots and tamp soil around the root ball.

Note: Water well.

Seeds

In the wild, milkweed plants scatter their seeds quite late in the season—at a time when the coming cold would kill any seedlings that germinated right away. But the seeds of milkweeds (and other plants that flower late in the season) are cleverly programmed to delay their germination until after they have been exposed to winter’s cold followed by gradually rising temperatures in springtime—an adaptation known as stratification. When Milkweed seed is direct-sown in the fall, stratification will happen naturally over the winter.

Copy this technique at home by scratching your milkweed seed directly into the soil in the fall. Then, next year in early summer, keep a sharp lookout for those newly emerging seedlings and water them regularly until they are well established.
However, if you really need to start your seeds in the spring, first you must break their dormancy by mimicking nature’s stratification. So, before planting, wrap the seeds in a damp paper towel, seal inside a plastic bag, and leave it in the refrigerator for several weeks. Then plant the seeds in regular potting soil.

Planting Milkweed:

1. Seed should be sown as soon as possible in loose soil after shallow cultivation.
2. Lightly cover with soil and water well.
3. Seeds should sprout in 1-2 weeks.

Monarch Watch[8]: Plant List STATEWIDE

Common Name	Latin Name		N	P	A	B	BF	BFh	HB	M-A IN	M-A C	MW	GL	NE
Butterfly Host Plants for small to medium sized landscapes		**Host Plant for**												
Asters	*Aster spp. & Symphyotrichum spp.*	Pearl crescent	✓	✓		✓	✓	✓		✓	✓	✓	✓	✓
Bearberry (Kinnikinnick)	*Arctostaphylos uva-ursi*	Hoary elfin	✓	✓		✓		✓	✓			✓	✓	✓
Bronze fennel	*Foeniculum vulgare*	Black swallowtail		✓				✓		✓	✓	✓	✓	✓
Bulbous bittercress	*Cardamine bulbosa* (Spring cress)	Falcate orange-tip	✓	✓		✓		✓		✓	✓	✓	✓	✓
Butterfly weed	*Asclepias tuberosa*	Monarch	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
Clovers	*Trifolium spp.*	Eastern tailed blue, Gray hairstreak, sulphur spp.		✓		✓	✓	✓		✓	✓	✓	✓	✓
Common milkweed	*Asclepias syriaca*	Monarch	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
False nettle	*Boehmeria cylindrica*	Red admiral	✓	✓				✓		✓	✓	✓	✓	✓
Flat-topped white aster	*Doellingeria umbellata*	Harris' checkerspot	✓	✓		✓	✓	✓		✓		✓	✓	✓
Globe thistle	*Echinops ritro* (not a true thistle)	Painted lady		✓		✓	✓	✓		✓	✓	✓	✓	✓
Golden alexanders	*Zizia aurea*	Black swallowtail	✓	✓		✓		✓		✓	✓	✓	✓	✓
Narrow-leaved plantain	*Plantago lanceolata*	Baltimore checkerspot		✓				✓		✓	✓	✓	✓	✓
Passion vine	*Passiflora incarnata*	Variegated fritillary	✓	✓		✓		✓		✓	✓	✓		
Pearly everlasting	*Anaphalis margaritacea*	American painted lady	✓	✓		✓	✓	✓		✓	✓	✓	✓	✓
Pipevines	*Aristolochia spp.*(incl. VA snakeroot)	Pipevine swallowtail	✓	✓				✓		✓	✓	✓	✓	✓
Prairie milkweed	*Asclepias sullivantii*	Monarch	✓	✓		✓	✓	✓	✓			✓	✓	
Purple false foxglove	*Agalinis purpurea*	Common buckeye	✓	✓		✓		✓		✓	✓	✓	✓	✓
Purple milkweed	*Asclepias purpurascens*	Monarch	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
Pussytoes	*Antennaria spp.*	American painted lady	✓	✓		✓		✓		✓	✓	✓	✓	✓
Saltmarsh false foxglove	*Agalinis maritima* (Seaside gerardia)	Common buckeye	✓	✓				✓			✓			✓
Sheep sorrel	*Rumex acetosella*	American copper		✓				✓		✓	✓	✓	✓	✓
Spicebush	*Lindera benzoin*	Spicebush swallowtail	✓	✓		✓		✓		✓	✓	✓	✓	✓
Sundial lupine	*Lupinus perennis*	Frosted elfin, Karner blue	✓	✓		✓		✓	✓		✓		✓	✓
Swamp milkweed	*Asclepias incarnata*	Monarch	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
Tropical milkweed	*Asclepias curassavica*	Monarch			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Violets	*Viola spp.*	Great spangled fritillary	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓
White turtlehead	*Chelone glabra*	Baltimore checkerspot	✓	✓		✓		✓		✓	✓	✓	✓	✓
Wild blue indigo	*Baptisia australis*	Wild indigo duskywing	✓	✓		✓		✓		✓	✓	✓	✓	✓
Wild senna	*Senna hebecarpa*	Sulphur species (several)	✓	✓		✓		✓		✓	✓		✓	✓
Wingstem	*Verbesina alternifolia*	Summer azure	✓	✓		✓	✓	✓		✓	✓	✓	✓	✓
Woodland sunflower	*Helianthus divaricata*	Silvery checkerspot	✓	✓		✓	✓	✓		✓	✓		✓	✓
Woody Butterfly Host Plants for larger areas		**Host Plant for**												
American holly	*Ilex opaca*	Henry's elfin	✓	✓		✓		✓			✓			
Atlantic white ceda											✓			✓

Key: N=native, P=perennial, A=annual, B=attracts bees, BF=attracts butterflies, BFh=butterfly host, HB=attracts hummingbirds, M-A= Mid-Atlantic region (IN=Inland/C=Coastal Plain), MW=Midwest region, GL=Great Lakes region, NE=New England region. Common plant names that are in **bold type** are "must-haves" for beginner gardeners-- they are easy to find and grow and are all-round good pollinator plants.

Please note: The plants that are considered average garden plants, annuals, or non-native species are generally checked in all regions, even though they may not be native to them, since they will typically grow anywhere if planted in a garden situation.

[8] https://www.monarchwatch.org/garden/plant-list-monarchwatch.pdf

Monarch Watch[9]: Plant List Cont. STATEWIDE

Common Name	Latin Name		N	P	A	B	BF	BFh	HB	M-A		MW	GL	NE
										IN	C			
Beach plum	*Prunus maritima*	Red-spotted purple, Coral hairstreak	✓	✓		✓	✓	✓			✓			✓
Birch	*Betula spp.*	White admiral, Compton's tortoiseshell, Tig. swallowtail	✓	✓				✓				✓	✓	✓
Black Locust	*Robina pseudoacacia*	Silver-spotted skipper	✓	✓		✓		✓		✓	✓	✓	✓	✓
Black willow	*Salix nigra*	Viceroy, Mourning cloak	✓	✓				✓		✓	✓	✓	✓	✓
Blueberry	*Vaccinium spp.*	Brown elfin	✓	✓		✓		✓		✓	✓		✓	✓
Dogwood	*Cornus spp.*	Spring azure, Summer azure	✓	✓		✓		✓		✓	✓	✓	✓	✓
Eastern redbud	*Cercis canadensis*	Henry's elfin	✓	✓		✓		✓		✓		✓	✓	
Eastern red-cedar	*Juniperus virginiana*	Olive Juniper hairstreak	✓	✓				✓		✓	✓	✓	✓	✓
Elm	*Ulmus spp.*	Question marks and Commas	✓	✓				✓		✓	✓	✓	✓	✓
Hackberry	*Celtis occidentalis*	American snout, Tawny and Hackberry emperors	✓	✓				✓		✓	✓	✓	✓	
Pawpaw	*Asimina triloba*	Zebra swallowtail	✓	✓				✓		✓	✓	✓	✓	
Pines	*Pinus strobus, P.taeda, P.virginiana*	Eastern pine elfin	✓	✓				✓		✓	✓			✓
Sassafras	*Sassafras albidum*	Spicebush swallowtail	✓	✓		✓		✓		✓	✓	✓		
Tulip poplar	*Liriodendron tulipifera*	Eastern tiger swallowtail	✓	✓		✓		✓		✓	✓		✓	
Wild black cherry	*Prunus serotina*	Red-spotted purple, Coral hairstreak	✓	✓		✓		✓		✓	✓	✓	✓	✓
Nectar Plants for Butterflies & Other Pollinators														
Spring to early Summer:		**Comments**												
Allegheny monkeyflower	Mimulus ringens		✓	✓		✓			✓	✓	✓	✓	✓	✓
Bride's feathers	*Aruncus dioicus* (Goat's beard)		✓	✓		✓				✓	✓		✓	✓
Candytuft	*Iberis amara, I. umbellata*				✓	✓	✓			✓	✓	✓	✓	✓
Chives	*Allium schoenoprasum*	attracts cabbage whites		✓		✓	✓			✓	✓	✓	✓	✓
Coastal sweet pepperbush	*Clethra alnifolia*		✓	✓		✓	✓		✓		✓			✓
Coral bells	*Heuchera sanguinea*		✓	✓					✓	✓	✓	✓	✓	✓
Cranesbill	*Geranium spp.*	also biennial species	✓	✓	✓	✓				✓	✓	✓	✓	✓
Early saxifrage	*Saxifraga virginiensis*		✓	✓		✓	✓			✓	✓		✓	✓
Eastern red columbine	*Aquilegia canadensis*		✓	✓		✓			✓	✓	✓	✓	✓	✓
Foamflower	*Tiarella cordifolia*		✓	✓		✓	✓			✓	✓		✓	✓
Foxglove beardtongue	*Penstemon digitalis*		✓	✓		✓			✓	✓	✓	✓	✓	✓
Golden Alexanders	*Zizia aurea*		✓	✓		✓				✓	✓	✓	✓	✓
Lilac	*Syringa spp.*	shrub		✓		✓	✓		✓	✓	✓	✓	✓	✓
Lyreleaf sage	*Salvia lyrata*		✓	✓		✓	✓		✓	✓	✓	✓		
Pincushion flower	*Scabiosa spp.*			✓		✓	✓		✓	✓	✓	✓	✓	✓
Pinks (Sweet William)	*Dianthus spp.*	biennial				✓	✓		✓	✓	✓	✓	✓	✓
Siberian wallflower	*Cheiranthus allionii*	also biennial species		✓		✓	✓			✓	✓	✓	✓	✓

[9] https://www.monarchwatch.org/garden/plant-list-monarchwatch.pdf

Monarch Watch[10]: Plant List Cont. STATEWIDE

Common Name	Latin Name		N	P	A	B	BF	BFh	HB	M-A		MW	GL	NE
										IN	C			
Spring beauty	*Claytonia virginica*		✓	✓		✓	✓			✓	✓	✓	✓	✓
Trailing arbutus	*Epigaea repens*		✓	✓		✓	✓			✓	✓		✓	✓
Viburnum	*Viburnum spp.*	shrub	✓	✓		✓				✓	✓	✓	✓	✓
Virginia bluebells	*Mertensia virginica*		✓	✓		✓	✓		✓	✓	✓		✓	✓
White wild indigo	*Baptisia alba*		✓	✓		✓						✓	✓	
Wild bleeding heart	*Dicentra eximia*		✓	✓		✓			✓	✓	✓		✓	
Wild blue phlox	*Phlox divaricata*		✓	✓		✓	✓		✓	✓	✓	✓	✓	✓
Wild petunia	*Ruellia humilis*		✓	✓		✓	✓		✓	✓	✓	✓	✓	
Summer to early Autumn:		**Comments**												
Ageratum	*Ageratum houstonium 'Blue Horizon'*				✓	✓	✓			✓	✓	✓	✓	✓
Anise hyssop	*Agastache rugosa or feniculum*	exceptional bee plant	✓	✓		✓	✓			✓	✓	✓	✓	✓
Azure blue sage	*Salvia azurea*		✓	✓		✓	✓					✓	✓	
Bigfruit Evening Primrose	*Oenothera macrocarpa*		✓	✓		✓			✓			✓		
Blue mistflower	*Conoclinium coelestinum*	spreads quickly	✓	✓		✓	✓			✓	✓	✓	✓	
Blue salvia	*Salvia farinacea*				✓	✓	✓		✓	✓	✓	✓	✓	✓
Blue vervain	*Verbena hastata*	tolerates soggy soil	✓	✓		✓	✓		✓	✓	✓	✓	✓	✓
Borage	*Borago officinalis*	exceptional bee plant			✓					✓	✓	✓	✓	✓
Brazilian verbena	*Verbena bonariensis*	succumbs to powdery mildew			✓	✓	✓			✓	✓	✓	✓	✓
Butterfly bush	*Buddleia davidii Flutterby series –only plant male sterile varieties*	shrub; non-sterile varieties can be invasive		✓		✓	✓		✓	✓	✓	✓	✓	✓
Calico beardtongue	*Penstemon calycosus*		✓	✓		✓			✓			✓	✓	✓
Cardinalflower	*Lobelia cardinalis*		✓	✓			✓		✓	✓	✓	✓	✓	✓
Catmint	*Nepeta siberica*			✓	✓	✓	✓			✓	✓	✓	✓	✓
Cobaea beardtongue	*Penstemon cobaea*		✓	✓		✓			✓			✓		
Common boneset	*Eupatorium perfoliatum*		✓	✓		✓	✓			✓	✓	✓	✓	✓
Common buttonbush	*Cephalanthus occidentalis*	shrub	✓	✓		✓	✓			✓	✓	✓	✓	✓
Cosmos	*Cosmos sulphureus 'Cosmic Red' 'Cosmic orange'*	use single-flowered varieties			✓	✓	✓			✓	✓	✓	✓	✓
Culver's root	*Veronicastrum virginicum*		✓	✓		✓	✓			✓	✓	✓	✓	✓
Egyptian starclusters	*Pentas lanceolata 'Ruby Glow'*	some cultivars lack nectar			✓		✓		✓	✓	✓	✓	✓	✓
Fewleaf sunflower	*Helianthus occidentalis*		✓	✓		✓	✓			✓		✓	✓	
Globe amaranth	*Gomphrena haageana 'QIS Orange'*	orange and hot pink best			✓	✓	✓			✓	✓	✓	✓	✓
Great blue lobelia	*Lobelia siphilitica*		✓			✓			✓	✓	✓	✓	✓	✓
Hairy beardtongue	*Penstemon hirsutus*		✓			✓			✓	✓	✓		✓	✓
Indian blanket	*Gaillardia aristata* (Blanket flower)		✓			✓	✓			✓	✓	✓	✓	✓
Joe-Pye weed	*Eutrochium spp.*	short cultivars have nectar	✓	✓		✓	✓			✓	✓	✓	✓	✓
Lanceleaf Tickseed	*Coreopsis lanceolata*		✓			✓	✓			✓	✓	✓	✓	✓
Lantana	*Lantana camara*	any color works			✓	✓	✓		✓	✓	✓	✓	✓	✓

[10] https://www.monarchwatch.org/garden/plant-list-monarchwatch.pdf

Monarch Watch[11]: Plant List Cont. STATEWIDE

Common Name	Latin Name		N	P	A	B	BF	BFh	HB	M-A		MW	GL	NE
										IN	C			
Larkspur	*Delphinium spp.*	both native and non-native	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓
Lavender	*Lavandula spp.*	attracts cabbage whites		✓		✓	✓			✓	✓	✓	✓	✓
Meadowsweet	*Spirea latifolia*	shrub	✓	✓		✓	✓			✓	✓		✓	✓
Mexican blue sage	*Salvia chamaedryoides*				✓	✓	✓		✓	✓	✓	✓	✓	✓
Mexican flame vine	*Senecio confuses 'Sau Paulo'*	tropical vine, long growing season requried for bloom			✓	✓	✓			✓	✓	✓		
Mexican sunflower	*Tithonia rotundifolia 'Torch', 'Fiesta Del Sol'*				✓	✓	✓			✓	✓	✓	✓	✓
Mexican zinnia	*Zinna angustifolia 'Crystal Orange'*	resistant to powdery mildew			✓	✓	✓			✓	✓	✓	✓	✓
Michigan lily	*Lilium michiganense*		✓	✓		✓	✓		✓			✓	✓	
Milkweed	*Asclepias spp.*	a must-have!	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
Mountainmint	*Pycnanthemum spp.*	spreads quickly	✓	✓		✓	✓			✓	✓	✓	✓	✓
New Jersey tea	*Ceanothus americanus*	shrub	✓	✓		✓	✓	✓		✓	✓	✓	✓	✓
New York ironweed	*Vernonia novaboracensis*		✓	✓		✓	✓			✓	✓			✓
Pale purple coneflower	*Echinacea pallida*		✓	✓		✓	✓					✓	✓	
Pinnate prairie coneflower	*Ratibida pinnata*		✓	✓		✓	✓					✓	✓	
Prairie blazing star	*Liatris pycnostachya*		✓	✓		✓	✓					✓	✓	
Prairie Ironweed	*Vernonia fasciculata*		✓	✓		✓	✓					✓	✓	
Purple coneflower	*Echinacea purpurea*		✓	✓		✓	✓			✓	✓	✓	✓	
Red salvia	*Salvia splendens*	also called Scarlet sage			✓				✓	✓	✓	✓	✓	✓
Rose mock vervain	*Glandularia canadensis*		✓	✓		✓	✓					✓	✓	
Saliva 'Indigo spires'	*Saliva longispicata x farinacea*	exceptional bee plant			✓	✓	✓		✓	✓	✓	✓	✓	✓
Scarlet beebalm	*Monarda didyma* (Oswego tea)		✓	✓			✓		✓	✓	✓	✓	✓	✓
Spider flower	*Cleome hassleriana*				✓		✓	✓	✓	✓	✓	✓	✓	✓
Spotted beebalm	*Monarda punctata* (Horsemint)	exceptional bee plant	✓	✓		✓	✓		✓	✓	✓	✓	✓	✓
Stiff goldenrod	*Oligoneuron rigidum*		✓	✓		✓	✓			✓	✓	✓	✓	
Tall blazing star	*Liatris aspera*		✓	✓		✓	✓					✓	✓	
Texas sage	*Salvia coccinea*				✓		✓		✓	✓	✓	✓	✓	✓
Tickseed	*Coreopsis spp.*		✓	✓		✓	✓			✓	✓	✓	✓	✓
Trumpet (coral) honeysuckle	*Lonicera sempervirens*	Not invasive; can train on arbor; can prune to shape	✓	✓					✓	✓	✓	✓	✓	✓
White doll's daisy	*Boltonia asteroides* (False aster)	Gets big; give lots of space	✓	✓		✓	✓			✓	✓	✓	✓	✓
White wood aster	*Eurybia divaricata*		✓	✓		✓	✓			✓	✓			✓
Wild bergamot	*Monarda fistulosa*	spreads quickly	✓	✓		✓	✓		✓	✓	✓	✓	✓	✓
Wild petunia	*Ruellia humilis*		✓			✓	✓		✓	✓	✓	✓	✓	
Wild rose	*Rosa virginiana, R. maritima*	plant native species only; shrub	✓	✓		✓				✓	✓	✓	✓	✓
Zinnia	*Zinna elegans 'Profusion Orange, Fire, Apricot'*	resistant to powdery mildew; use any single-flowered var.			✓	✓	✓			✓	✓	✓	✓	✓
Autumn Plants:		**Comments**												
Autum sage	*Salvia greggii*			✓		✓	✓		✓	✓	✓	✓	✓	✓

[11] https://www.monarchwatch.org/garden/plant-list-monarchwatch.pdf

Monarch Watch[12]: Plant List Cont. STATEWIDE

Common Name	Latin Name		N	P	A	B	BF	BFh	HB	M-A		MW	GL	NE
										IN	C			
Blue mist spirea	*Caryopteris 'Dark Knight'*	shrub		✓		✓			✓	✓	✓	✓	✓	✓
Calamint	*Calamintha grandiflora*	can be invasive		✓		✓	✓			✓	✓	✓	✓	✓
Chrysanthemums	*C. leucanthemum 'Sheffield Pink' and 'Bolero'*	very late-blooming for late migrating monarchs		✓		✓	✓			✓	✓	✓	✓	✓
Cigar plant	*Cuphea ignea*				✓				✓	✓	✓	✓	✓	✓
Climbing hempweed	*Mikania scandens*	vine; coastal migrant monarchs	✓	✓		✓	✓				✓			✓
Common sneezeweed	*Helenium autumnale*		✓	✓		✓	✓			✓	✓	✓	✓	✓
Crowned beggarticks	*Bidens coronata*	any cultivar will work	✓		✓	✓	✓			✓	✓	✓	✓	✓
Eastern baccharis	*Baccharis halimifolia* (Groundsel tree)	shrub; excellent for coastal migrating monarchs	✓	✓		✓	✓				✓			
New England aster	*Symphyotrichum novae-angliae*	good monarch attractant	✓	✓		✓	✓	✓		✓	✓	✓	✓	✓
Purple-stemmed aster	*Symphyotrichum puniceum*		✓	✓		✓	✓	✓		✓	✓	✓	✓	✓
Salt marsh fleabane	*Pluchea purpurascens*	coastal migrant monarchs	✓	✓		✓	✓				✓			
Seaside goldenrod	*Solidago sempervirens*	A must-have; fuels coastal migrant monarchs	✓	✓		✓	✓				✓		✓	✓
Sedum	*Sedum 'Autumn Joy', 'Autumn fire'*			✓		✓	✓			✓	✓	✓	✓	✓
Smooth beggartick	*Bidens laevis*	coastal migrant monarchs	✓		✓	✓	✓			✓	✓	✓	✓	✓
Smooth blue aster	*Symphyotrichum laeve*		✓	✓		✓	✓	✓		✓	✓	✓	✓	✓
Tartarian aster	*Aster tartaricus 'Jindal'*	late bloom for monarchs		✓		✓	✓	✓		✓	✓	✓	✓	✓
White heath aster	*Symphyotrichum ericoides*		✓	✓		✓	✓	✓		✓	✓	✓	✓	✓

I wish to thank Denise Gibbs and Ilse Gebhard (Monarch Conservation Specialists) for providing lists of plants for their regions, and Margarete Johnson (Master Gardener) and Elliott Duemler (Applied Ecological Services) for providing useful insights on the value of these plants to monarchs, other butterflies and pollinators.

[12] https://www.monarchwatch.org/garden/plant-list-monarchwatch.pdf

BEWARE:

There May Be Invasive Plants in Your Backyard

Help Stop the Spread of America's Worst Weeds

The Nature Conservancy is asking Americans to check their yards and gardens for plants that can escape cultivation and cause tremendous damage to the natural environment and the local economy.

Plants such as privet, Japanese honeysuckle, pittosporum, eleagnus, ligustrum, nandina, Chinese tallow, kudzu and Chinese wisteria have been used widely in horticulture and landscaping, and can be found in backyards and business lots across the region. At first glance these plants may look pretty, but their beauty is deceptive. Known as invasive species, plants like these are typically transplants from distant places. Once free from the natural checks and balances in their native habitats, these alieninvaders establish themselves in new areas and quickly spread out of control. They hoard light, water and nutrients, and can alter entire ecosystems by displacing native species, altering fire regimes and changing soil chemistry.

With intentional and unintentional assistance from people, these problematic plants are spreading at an alarming rate, infecting natural areas across the United States.

"Keeping invasive plants out of America's backyards helps the environment and the economy," said Steve McCormick, president of The Nature Conservancy. "Taking the time to remove invasive plants and replace them with non-invasive varieties is a great example of bringing new energy to the old adage: think globally, act locally."

Because many invasive plants are spread by unsuspecting gardeners, it is important to learn about invasives before shopping at local nurseries. Check websites such as www.invasive.org for the latest on invasives. This site lists the worst invasive plants for each region of the country. If you see one of these plants at your local nursery, do not buy it, and talk to the nursery owner about discontinuing its sale. It is important to control invasives and prevent them from destroying natural ecosystems.

Texas has many beautiful native trees and flowers that look stunning in a garden setting and do not add to the invasives problem. Information about many natives can be found at http://aggie-horticulture.tamu.edu/ornamentals/natives/tamuhort.html and www.npsot.org . Native plants are right at home in Texas' soils and climate, so they require less watering and fertilization to thrive.

On the national level, The Nature Conservancy is working with nursery and horticulture groups to identify invasives that might voluntarily be removed from the market. "Nursery growers, landscape designers and others who make their career in horticulture have become increasingly concerned with the problems related to invasive plants," said Wayne Mezitt, board member and past president of the American Nursery & Landscape Association (ANLA), and owner of Weston Nurseries in Massachusetts. "We see our role as educators, helping our customers and the public, as well as fellow nursery folk across the country, understand how invasive plants impact them."

The threat posed by invasive species – both plant and animal – to the survival of native species is exceeded only by the threat of habitat loss. *The cost to the national economy is estimated as high as $137 billion per year, due primarily to losses in agriculture, forestry and fisheries, as well as the cost of clearing invasive- clogged waterways and fighting invasive-fueled fires.*

You can help stop the introduction and spread of invasive species. Help protect native plants and animals by following these six easyguidelines:

1. **Verify** that the plants you are buying for your yard or garden are **not invasive**. Replace invasive plants in your garden with non-invasive alternatives. Nonnative plants that reproduce can become invasive.
2. When boating, **clean** your boat thoroughly before transporting it to a different body of water.
3. Clean your boots before you hike in a new area to get rid of **hitchhiking weed** seeds and pathogens.
4. Don't "**pack a pest**" when traveling. Fruits and vegetables, plants, insects and animals can carry pests or become invasive themselves.
5. **Don't release** aquarium fish and plants, live bait or other exotic animals into the wild.
6. Volunteer at your local park, refuge or other wildlife area to help **remove invasive species**. Help **educate** others about the threat.

This page has been prepared from Nature Conservancy publications and is presented by the Native Plant Society of Texas-Houston Chapter. www.npsot.org\houston

INVASIVES Q&A

Native Plant Society of Texas- Houston Chapter
www.npsot.org
Information from http://www.nature.org/wherewework/northamerica/states/arkansas/files/invasivesqa.pdf

QUESTION: What is an invasive species?
ANSWER: Invasive species are those plants, animals and other organisms that are introduced into new areas, where, free from their natural competitors, they are able to proliferate and persist to the detriment of the native environment. Impacts from invasive species may include widespread harm to the environment, the economy and human health.

QUESTION: What is a non-native plant?
ANSWER: This depends on where you are. In the USA, we usually define non-native plants as those which have arrived since the time of European contact. But on closer inspection, the issue is actually much more complicated. For example, humans may transplant USA species to regions outside of their native range, but which are still within the USA. For example, a California poppy growing in Alabama would be considered a non-native plant.

QUESTION: Are all invasive species non-native?
ANSWER: Not always. Occasionally a native plant may start acting like an invasive species. Usually this is because of some human-caused habitat change. One example would be a change in water quality because of agricultural runoff; another might be the abnormal suppression of fire. In these situations, fixing the underlying environmental problem would be the best solution.

QUESTION: Why not just let them be?
ANSWER: If the weeds do not harm the native biodiversity, we do not expend our precious resources of money, staff, and volunteers in fighting them. But if the non-native plants harm native plants and animals, we are compelled to take action. If we did nothing, we would decrease the effectiveness of our work.

QUESTION: How do weeds harm native plants and animals?
ANSWER: Thick growths of non-native weeds can displace the native plants that once provided food and shelter for the native animals. As weed populations rise, native species populations fall. The worst weeds even change the character of the entire habitat by changing important processes like fire, nutrient flow, flooding, etc.

QUESTION: How do invasive species behave in their native lands?
ANSWER: In their native habitats, these species are quite often found in small, well-behaved populations. This is because they occur with other organisms that keep the plant populations in balance. It is not until the species are removed from their habitat that their invasive characters emerge.

QUESTION: Are all invasive species plants?
ANSWER: No. In fact, some of the worst invasive species are animals. The effects of zebra mussels, feral pigs, and many other non-plant invaders are devastating to native biodiversity.

QUESTION: Why do these invasive plant species explode in population?
ANSWER: Recall that the invaders are usually non-native species. Free from the herbivores and parasites which keep them in check in their native range, they reproduce rapidly. They increase their numbers, unfettered by natural controls. They displace the native plants. When the populations of native plants are reduced, the animals that depend upon them may perish. The functions of the entire ecosystem are disrupted. Invasive species are truly a form of biological pollution.

QUESTION: Doesn't the addition of a non-native species increase biodiversity (i.e. species diversity)? ANSWER: Yes, if you are only concerned about the number of species in the short term. No, if you want to maintain the natural array species unique to an area. Consider, for example, the rosy wolfsnail of the southeastern USA. This was introduced by humans to Hawai'i, Mauritius, and other islands in the Pacific and Indian Oceans.

Global biodiversity did not benefit by this introduction. The rosy wolfsnail began killing native snails. Ultimately, it was responsible for driving to extinction dozens of snail species. Both local and global biodiversity suffered.

Invasive species are usually existing perfectly well in their native lands. Introducing them to new habitats does them no good, and risks the integrity of native ecosystems.

QUESTION: Plants move around naturally---isn't the arrival of new plants a natural process? ANSWER: It is true that plants do change their ranges, usually over periods of thousands of years. We are not concerned with these slow changes. The invasions we are worried about are the ones that humans have caused, and which are resulting in the suffering in our native biodiversity.

QUESTION: What is the solution the problem of invasive plants, particularly those that can be found in yards in gardens?
ANSWER: The solution is a combination of removing invasive plants, preventing new introductions, and restoring native habitats. The survival of native species depends upon our actions.[13]

[13] https://www.wildflower.org/archive/TWC_Brochures/butterfly_booklet.pdf

E. List of Houston-Regional Native Seeds/Plants Suppliers

Locations to Purchase Native Seeds/Plants in the Greater Houston Region

The nurseries listed below carry a variety of plants, including some native species. The availability of native plants will vary from nursery to nursery and by season.

Please call ahead for availability, hours and directions.

***Note**: Some nurseries are willing to order specific plants if requested*

Alspaugh's Ace Hardware 2720 West Lake
Houston Pkwy Kingwood, TX 77339
281-360-2231
http://alspaughs.com/services/

Anderson Landscape
2222 Pech Road - Houston 77055
713-984-1342

The Arbor Gate
15635 FM 2920
Tomball, TX 77375
281-351-8851
www.arborgate.com

Backyard Gardener
5117 N. Main – Houston, TX 713-880-8004
www.backyardgardenerhouston.com

Bamert Seed Company
1897 County Road 1018
Muleshoe, TX 79347
https://www.bamertseed.com/

Bill Bownds Tree Nursery
10519 FM 1464 – Richmond 77469
281-277-2033
http://billbowndsnursery.com/

Browning Seed Inc.
2 miles South of Plainview on I-27 Plainview,
Texas 79073-1836
Office: (806) 293-5271
http://www.browningseed.com/

Buchanan's Native Plants 611 East 11th Street
Houston 77008
713-861-5702
www.buchananplants.com

Caldwell Nursery
2436 Band Rd. Rosenberg 77471
281-342-4016
http://www.caldwellhort.com/

Cornelius Nursery
2233 S. Voss Rd –
Houston corneliusnurseries.com

Doremus Wholesale Nursery
2167-CR 1550 Warren, Texas 77664
409-547-3536 (wholesale only)
edoremus@aol.com

Douglas King Seeds
4627 Emil Street
San Antonio, Texas 78219 210-661-4191
https://www.dkseeds.com/

Enchanted Gardens Nursery
6420 FM 359
Richmond 77469
281-341-1206
http://myenchanted.com

The Enchanted Forest
10611 FM 2759
Richmond 77469
281-937-9449
www.visitourforest.com

Galveston Bay Foundation Cedar Bayou EcoCenter Baytown, Texas
https://www.facebook.com/pages/Nrg- Cedar-Bayou- Ecocenter/429908237112752

Hannah Native Grasses Inc.
Flo Hannah
713 956-6303
fhannah@wt.net
fflhannah@gmail.com

Heep's Native Plant Nursery 1714 S. Palm Court
Drive Harlingen, Texas 78552
956-457-6834 Mobile
http://www.heepsnursery.com/

Houston Audubon's Natives Nursery
440 Wilchester Blvd.
Houston, TX 77079 713-932-1639 (by apt only)
fhannah@houstonaudubon.org-

Joshua's Native Plants 502 West 18th Street
Houston, TX 77008
713-862-7444
www.Joshuasnativeplants.com

Kingwood Garden Center
1216 Stonehollow Dr.
Kingwood, TX 77339
281-358-1805
www.kingwoodgardencenter.com

Maas Nursery
5511 Todville Road
Seabrook, TX 77586
281-474-2488
www.maasnursery.com

Diane Cabiness Native Plant Nursery
16889 Rabon Chapel Road,
Montgomery, TX 77316
936-447-1886
www.gardenstops.com
dianecabinessplants@consolidated.net

Morning Star Prairie Plants
21107 Pecan Bend Damon, TX 77430
713-446-2509 by apt only
morgy@consolidated.net
Native American Seed
Junction, Texas 1-800 728-4043
www.seedsource.com

Native Enhancements
5800 Ranchester Suite 156
Houston, TX 77036
713-988-8911 (wholesale and retail)
www.nativeenhancements.com

Natives of Texas
4256 Medina Hwy
Kerrville, TX 78028
(830) 896-2169 office
http://www.nativesoftexas.com/
Nature's Way Resources
101 Sherbrook Cir,
Conroe, TX 77385
(936) 321- 6990
www.natureswayresources.com

Nelson Water Gardens & Nursery
1502 Katy Fort Bend Road Katy, TX 77493
281-391-4769
www.nelsonwatergardens.com

Newton Nurseries Central
846 West 27th Street Houston 77008
Phone: 713-868-9030
www.newnurseries.com/

New World Botanical
2701 Lone Star Pkwy Montgomery, TX 77356 936-689-8751
martinsimonton@gmail.com

Peckerwood Garden
20559 FM 359 Road
Hempstead, TX 77445
976-826-3232
On open days or by apt only
http://www.peckerwoodgarden.org/

The Pineywoods Nursery 12437 Sleepy Hollow Road Conroe, TX 77385
281-681-2889 jasonmckenzie@flex.net

RCW Nurseries
15809 State Highway 249
Houston 77086
281-440-5161 www.rcwnurseries.com

Spring Nursery & Landscape, Inc.
25252 FM 2978
Tomball, Texas 77375
281-357-1800
SNandL@aol.com
Treesearch Farms
7625 Alabonson Road Houston 77088
713-937-9811 (wholesale only)
http://www.treesearchfarms.com/

Turner Seed
P.O. Box 791, 211 County Road 151 Breckenridge, Texas 76424
(800) 722-8616
https://www.turnerseed.com/home.html

Wasbash Feed & Garden 4537 N. Shepherd Drive
713-863-8322
https://www.wabashfeed.com

SOURCES OF *NATIVE PLANTS* IN THE HOUSTON AREA

The nurseries listed below carry a variety of plants, including some native species. The availability of native plants will vary from nursery to nursery and by season. ***Please call ahead for availability, hours and directions*.** Some nurseries are willing to order specific plants if requested.

Alspaugh's Ace Hardware
2720 West Lake Houston Pkwy – Kingwood, TX 77339
281-360-2231
http://alspaughs.com/services

The Arbor Gate
15635 FM 2920 – Tomball, TX 77375
281-351-8851
www.arborgate.com

Bill Bownds Tree Nursery
10519 FM 1464 – Richmond 77469
281-277-2033
http://billbowndsnursery.com

Buchanan's Native Plants
611 East 11th Street
Houston 77008
713-861-5702
www.buchanansplants.com

Caldwell Nursery
2436 Band Rd. - Rosenberg 77471
281-342-4016 www.caldwellhort.com

Doremus Wholesale Nursery
2167-CR 1550 Warren, Texas 77664
409-547-3536 (wholesale only)
edoremus@aol.com

The Enchanted Forest
10611 FM 2759 – Richmond 77469
281-937-9449 http://myenchanted.com

Enchanted Gardens Nursery
6420 FM 359 Richmond 77469
281-341-1206
http://myenchanted.com

Houston Audubon's Natives Nursery
440 Wilchester Blvd. – Houston, TX 77079
713-932-1639

Joshua's Native Plants
502 West 18th Street Houston 77008
713-869-6911
www.Joshuasnativeplants.com

Kingwood Garden Center
1216 Stonehollow Dr.
Kingwood, TX 77339
281-358-1805
www.kingwoodgardencenter.com

Maas Nursery
5511 Todville Road Seabrook, Texas 77586 281-474-2488
www.maasnursery.c0m

MD Native Plants
713-628-7575
Ktart2001@yahoo.com –
by appointment only

Morning Star Prairie Plants 21107 Pecan Bend - Damon, TX 77430 713-446-2509
morgy@consolidated.net
–by appointment only

Native American Seed Junction, Texas 1-800 728-4043
info@seedsource.com
www.seedsource.com

Nelson Water Gardens & Nursery
281-391-4769
1502 Katy Fort Bend Road – Katy 77493
www.nelsonwatergardens.com

New World Botanical
2701 Lone Star Pkwy
Montgomery, Tx 77356
936-689-8751
martinsimonton@gmail.com

Peckerwood Garden
20559 FM 359 Road – Hempstead, TX 77445
976-826-3232 – on open days or by apt only
www.peckerwoodgarden.org

RCW Nurseries
15809 State Highway 249
Houston 77086
281-440-5161
www.rcwnurseries.com

Treesearch Farms
(wholesale only) 7625 Alabonson Road
Houston 77088 713-937-9811
www.treesearchfarms.com

This information sheet was prepared by the Native Plant Society of Texas – Houston Chapter. The nurseries listed above are provided for your information only. The list does not imply endorsement by the Native Plant Society of Texas. If you would like more information about Texas natives, we offer monthly speaker/slide programs, field trips, member newsletter, and books. We meet on the third Thursday of most months.

Contact DKnowlesPE@aol.com for corrections, additions, deletions.

www.npsot.org\Houston