



This book is the cherished work of Galveston County's Master Gardeners.

We invite you to enjoy and celebrate the supreme beauty of our butterflies and the wonderful diversity of plants that nourish them.

If you have any questions or comments, please feel free to call us at 281 534 3413 ext. 1, then 6. Or better yet, visit our lovely demonstration garden. Many butterflies have taken up residence among our lush flowers, shrubs, and plants there — and give us joy every day.

Texas AgriLife Extension Service
Galveston County Office
5115 Highway 3
Dickinson, Texas

The Butterflies of Galveston County

What Every
Gardener
Needs
To Know

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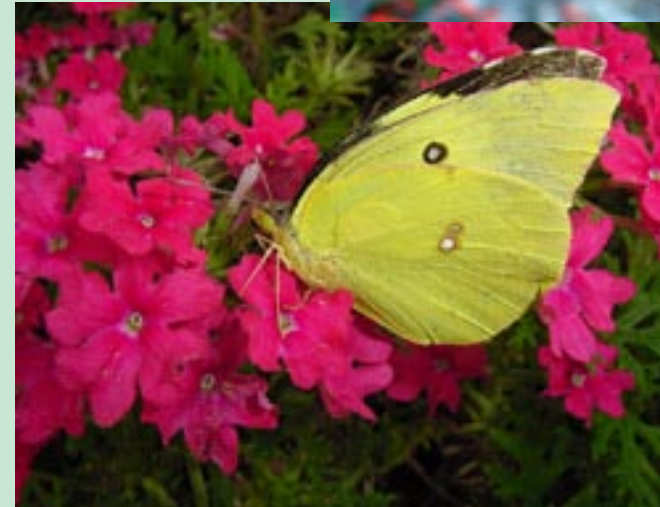
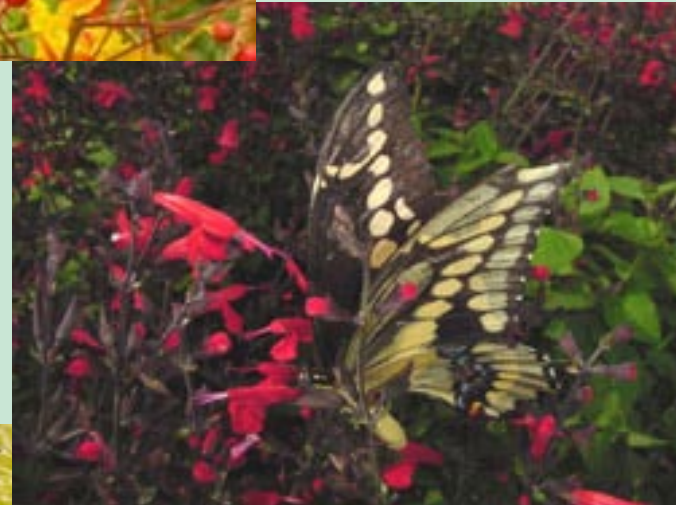


PHOTO CREDIT FOR COVER

Front: GCMGA

Inside: TCE/TAMU

Back: MG & grandchild, monarch after emerging from chrysalis GCMGA

The Butterflies of Galveston County

What Every
Gardener
Needs
To Know



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 AgriLIFE EXTENSION
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by Texas AgriLife Extension Services serve people of all ages
regardless of socioeconomic level, race, color, sex, religion,
disability or national origin.

*Appreciation is extended to Dr. William M. Johnson,
Galveston County Extension Agent–Horticulture,
for his technical advice and review of this publication.*



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PHOTO CREDIT FOR INSIDE TITLE PAGE
Photo 1: Pipevine Swallowtail on Crape Myrtle TCE/TAMU
Photo 2: Common Buckeye TCE/TAMU
Photo 3: Painted Lady on Daisy USFWS



The End

GCMGA



Coral Vine and Black Swallowtail TCE/TAMU

Neck, Raymond. *A Field Guide to Butterflies of Texas. Texas Monthly Field Guide Series.* Gulf Publishing Company, Houston, Texas. 1996. This is a field guide to identifying the hundreds of butterfly species that inhabit or transit through Texas. The book lists the butterflies according to family, with concise description of each butterfly species, its food plants, its life history, its range, and special observations. Only one page is devoted to butterfly gardening.

Ortho. *All About Attracting Hummingbirds and Butterflies.* Meredith Books, Des Moines, Iowa, 2001. Excellent book. Concise, to-the-point, very practical sections on all aspects of butterfly gardening, including the nature of butterflies, garden design, plants, feeding stations, top ten trees, shrubs, and flowers, and more. Though not specific to the butterflies of our region, this book is very practical, a great way for the gardener to “cut to the chase” and not get bogged down in the subject with too much information.

Scott, James A. *The Butterflies of North America: A Natural History and Field Guide.* Stanford University Press, Stanford, California, 1986. An encyclopedic, scholarly, scientific book that goes into all aspects of butterfly history, genetics, ecology, intelligence, behavior, identification, distribution, and variations. Exhaustive discussion of each family, subfamily, species and subspecies of butterfly, including a section of color pictures, and a complete bibliography.

Stokes, Don and Lillian, and Ernest Williams. *The Butterfly Book: An Easy Guide to Butterfly Gardening, Identification, and Behavior.* Little, Brown and Company, Boston, 1991. Mostly designed as a colorful guide to butterfly watching, the 10-page section on gardening and 12-page section on understanding butterflies have some useful information for gardeners.

Tveten, John and Gloria. *Butterflies of Houston & Southeast Texas.* University of Texas Press, Austin, Texas, 1996. Though it has only a short section on butterfly gardening, this is the best book on the butterflies of our immediate area. The book includes terrific color pictures of all our regional butterflies, including many photos of the egg, caterpillar, and pupa stages of these species as well.

Welch, William. *Perennial Garden Color: Perennials, Cottage Gardens, Old Roses, and Companion Plants.* Taylor Publishing, Dallas, Texas, 1989. Wonderful book on creating gardens in our area, along with complete description of flowering trees, shrubs and flowers.

Internet Sites

There are a large number of websites devoted to butterflies on the internet.

For this publication, we obtained information about and pictures of the 83 butterflies of Galveston County at the USGS website:

www.npwrc.usgs.gov/resource/DISTR/LEPID/BFLYUSA/chklist/states/counties/tx_167.htm

www.google.com (Write in the search engine: Butterflies of Galveston County Texas.)

The page will come up immediately.

The Texas A&M website has some fabulous pictures and good information too: <http://aggie-horticulture.tamu.edu/plantanswers/butterfly/>

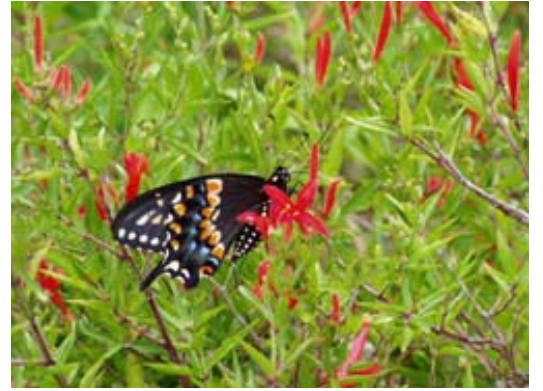
Our very own award-winning Master Gardener website has a section devoted to butterflies and hummingbirds, along with common questions and answers. It is: http://aggie-horticulture.tamu.edu/galveston/butterflies_&_hummingbirds.htm

One can download many beautiful pictures of butterflies free from the National Image Library. It is at: <http://images.fws.gov> Type in the word “butterfly” or “butterflies” in the Search box and 30 beautiful pictures are available for any use.

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Bibliography

These are the bibliographical and internet resources used to prepare this specific document. However, there are many other books and websites devoted to the subject of butterflies and their food plants. People interested in this subject are encouraged to link with the numerous butterfly websites hosted by private organizations, government-affiliated groups, and many others. Also, many books and articles have been written in recent years, worthy of seeking out and using.

Galveston County Extension Publications: (free)

Flutterbyes and Hummers (GC-219) - quick reference for nurturing butterflies

From A to Z: Ornamentals and Perennials for Galveston County (GC-113) - list and descriptions of flowers, including details of planting and cultivation

Native and Adapted Trees for the Galveston-Houston Area (GC-108) - list and descriptions of trees

Plants for Texas Coastal Areas (GC-106) - list of plants

Magazines

Texas Gardener Magazine May/June 1998, Vol. XVII, No. 4: "Seductors in the Garden," by Dorothy Baird Mattiza, pp. 26-29. Article features flowers that attract butterflies, bees, and other insects.

Texas Gardener Magazine May/June 1999, Vol. XVIII No. 4: "Butterfly Gardening/Butterfly Memoirs," by Christine Scheer, pp. 34-36. And : "How to Encourage Butterfly Puddling," by Judy Hominick, pp. 36-37. Two excellent personalized articles on planting for butterflies and creating puddling places in the home garden.

Books

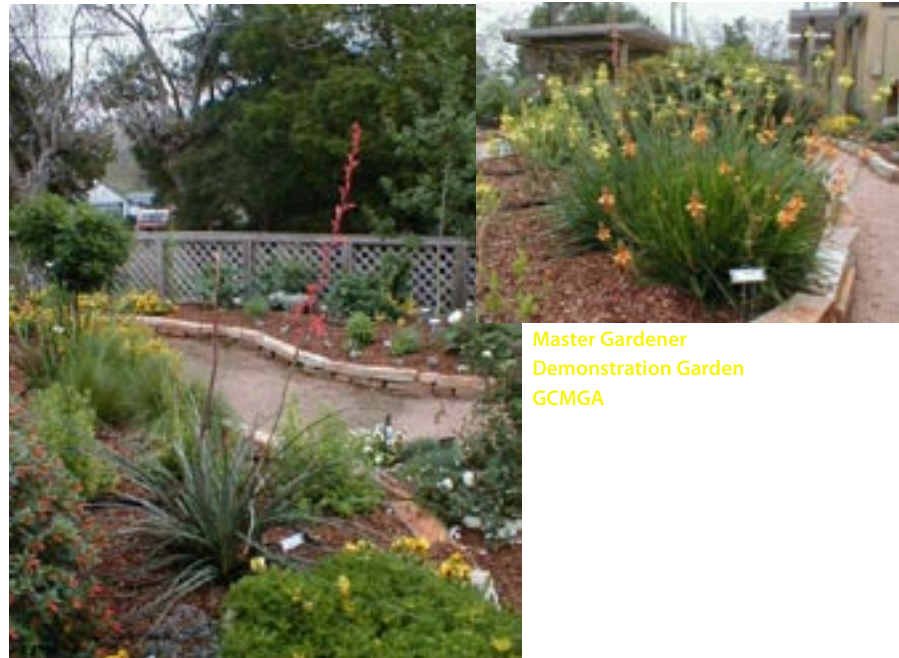
These books are widely available in area libraries.

Ajilvsgi, Geyata. *Butterfly Gardening for the South: Cultivating Plants that Attract Butterflies*. Taylor Publishing Company, Dallas, Texas. 1990. Stupendous, authoritative, comprehensive book on all aspects of butterfly gardening. Appendices discuss seed and plant sources, organizations, events, magazines, newsletters, and habitat preservation efforts. The color pictures are magnificent, and very helpful in identifying our local butterflies.

Bowen, Mark and Mary. *Habitat Gardening for Houston and Southeast Texas*. River Bend Publishing Company, Houston, Texas. 1998. Very good resource for those interested in creating butterfly habitats and using native vegetation for our area.

Harris, Linda. *Gardening for Birds, Hummingbirds & Butterflies*. A Black & Decker Outdoor Home book. Creative Publishing International, Minnetonka, Minnesota. 2002. Easy-to-understand, brief coverage of butterfly nurturing, with some good ideas for homeowners.

National Audubon Society. *Field Guide to Butterflies*. Compiled by Robert Michael Pyle. Alfred A. Knopf, New York. 1981. More of a text for observing and identifying butterflies than gardening for them.



Master Gardener Demonstration Garden Galveston County Ext. Office

Our Master Gardeners maintain a demonstration garden of adapted perennials, many of which serve as host plants for butterfly larvae and sources of nectar for adult butterflies. The garden is open to the public daily during daylight hours.

Armand Bayou

This 1900-acre nature park features forest, bayou, prairie, and marshland habitats, located in Clear Lake. It is the best preserved native setting for butterflies and other wildlife in the region. Natural history tours are available. Admission fee is charged.



Armand Bayou GCMGA

Galveston County Master Gardener Speaker's Bureau

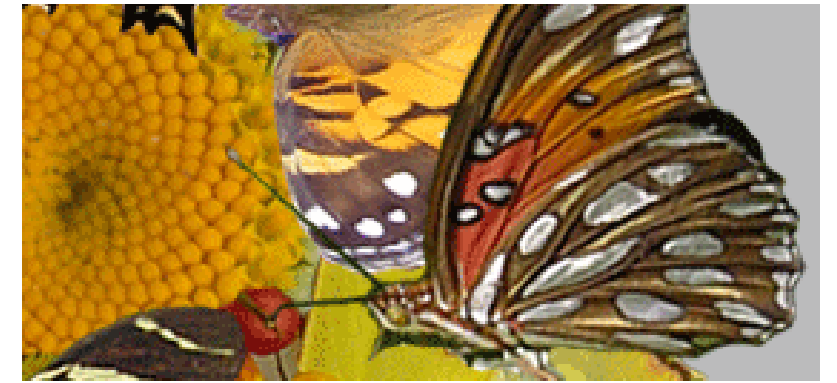
Galveston County Master Gardener Speaker's Bureau offers a great speaker's bureau, including a PowerPoint program on butterflies and butterfly gardening. Civic groups and schools are encouraged to contact the Galveston County Extension Office to arrange for a speaker to present this program (281-534 3413, ext. 6).

Texas A&M Website

Texas A&M University has a fabulous horticultural website which every Texas gardener should have marked as a "favorite." There is a wonderful new section devoted to butterflies with beautiful pictures: <http://aggie-horticulture.tamu.edu/plantanswers/butterfly/>

Galveston County Master Gardener Website

Galveston County maintains a great website too. It has many features including a complete section on butterflies, along with questions and answers about attracting and nurturing them: http://aggie-horticulture.tamu.edu/galveston/butterflies_&_hummingbirds.htm



TCE/TAMU

Introduction

Butterflies are like a living haiku poem...
*their brief, fluttering image captures our souls,
and makes us stop to consider the beauty of the world.*

In ancient Greece, the word for the soul – psyche – was also the word for the butterfly. The butterfly was the symbol for the soul as it passed through the shrouded chrysalis stage of apparent death to resurrection as a beautiful and completely transformed winged creature, a joy to everyone who beholds it.

Butterflies and moths are Lepidoptera, an order of insects whose wings are covered with tiny scales. The butterfly's fragile, scaled-covered wings can vary greatly in size, shape, pattern, and color, and are chiefly a way of attracting mates. Most moths, on the other hand, are night fliers which tend to be dull in color and attract their mates by smell rather than sight. Few birds can catch a butterfly while in flight, and some birds won't bother since butterflies are mainly lots of wing and not much body. Those butterflies with large eyespot patterns on their wings can even scare off predators when they unfold their wings.

There are over 14,500 species of butterflies in the world and they occur on every continent except Antarctica. Six species of butterflies actually live in Greenland along the edges of glaciers. The tropics of the Western Hemisphere provide habitats for 6,000 species – more than anywhere else in the world. Some butterflies migrate thousands of miles like the famous Monarchs while others stay close to a certain range and habitat. Around 700 species live in the USA, and there are over 100 butterfly species in the Galveston/Houston area. The U.S. Geologic Survey lists 83 of these species in Galveston County proper.

Butterflies and their host plants have evolved together over thousands of years. It is impossible to focus on the insect without also understanding the rich horticultural heritage that has sustained the numerous species of Lepidoptera during that time.

There are 12 butterfly "ranges" or geographic areas in Texas. Galveston County lies in the "Coastal Margin," consisting of the whole Gulf Coast of Texas. The butterfly species in our area require the plants of the coastal

marshes and meadows, along with our high humidity and relatively constant warm temperatures. Naturally, some butterflies of the heavily wooded "East Texas" range may occur in our area too, though mainly in places like Dickinson that contain large stands of tall trees.

There are probably fewer butterflies in our area than there were 50 years ago because pastures are being given over to residential development, cutting down on the natural vegetation our indigenous butterflies feed on. Many homeowners use pesticides and non-native vegetation in their landscapes, which also impact butterfly populations. Worst of all, fire ants devour millions of butterflies and caterpillars every year.

Nonetheless, it's easy for Galveston County homeowners to increase local butterfly populations by reducing pesticide use, using bait for fire ant control, and planting some butterfly-friendly plants in their landscapes. Beyond that, butterflies need water and shelter too, which are easily provided in the home landscape. Small backyard butterfly gardens are simple and fun to establish, and can provide butterflies with the plants they need for all stages of their development. Finally, our area is rich in gardens, museums, and resources for those who wish to delight themselves and educate their children on this most wonderful member of our shared natural world: the butterfly.

CHAPTER FIVE

Butterfly Educational Resources in our Area

We have some sensational resources available to Galveston County residents who have an interest in butterflies.

Cockrell Butterfly Museum of Houston

The Cockrell Butterfly Center at the Houston Museum of Natural Science is a stunning, living exhibit that showcases hundreds of live butterflies in a naturalistic rainforest setting. Designed to be an interactive experience, butterflies flutter among — and occasionally land on — the visitors. During a typical visit, one can expect to see approximately 50 or so of the world's largest and most colorful butterfly species. Over 1,500 butterflies live in the Center at various stages of their development. The Butterfly Center also has a large mounted display of butterfly species from all over the world, along with a shop to buy butterfly-related books and items. The museum also offers many special programs on various butterfly topics throughout the year, including travel opportunities to butterfly nature preserves outside our region. It is located at One Hermann Circle Drive, Houston, Texas.

Information/Tickets: (713) 639-4629

Moody Gardens

The Moody Garden complex includes many wonderful tourist attractions including three pyramid-museums. The large Rainforest Pyramid represents rain forests of Asia, Africa, and South America. Butterflies abound among waterfalls, cliffs, caverns, Mayan Colonnade, and an ever-changing array of tropical plants. Ask about programs relating to butterflies. It is located at One Hope Boulevard, Galveston, Texas.

Information/Tickets: 800-582-4673



Sundance Garden at Texas City GCMGA

Texas City Sundance Garden

The Texas City Dike area has been developed into a wonderful park featuring diverse sections for playgrounds, wind-surfing, fishing, hiking, biking, and appreciating local wildlife. One section of the Texas City Dike Park is devoted to native plants, and features the Sundance Butterfly Garden. Texas City Dike, Texas City, Texas.

No admission fee

Friendswood ISD Nature Center

The rapidly-developing Friendswood suburb has created the ISD Nature Center featuring plants that attract butterflies and other wildlife. The ISD Nature Center is located on the South side of Westwood Elementary School (506 W. Edgewood), Friendswood, TX.

No admission fee

PHOTO CREDIT INFORMATION

The pictures in this book came from three sources.

The source is noted on each photo.

GCMGA – Galveston County Master Gardener Association

TCE/TAMU – Texas AgriLife Extension Service

USFWS – U.S. Fish and Wildlife Service – National Image Library

The Butterfly's Complex Life Cycle



Butterfly laying eggs on parsley TCE/TAMU

Butterflies go through several transformations in their lifetime: from egg to larva/caterpillar to pupa/chrysalis to adult butterfly. After mating, butterflies lay eggs, and the cycle begins again. Gardeners need to recognize the four stages of butterfly development, and realize that the surrounding plants sustain four separate creatures.

It is difficult to generalize about the plant needs of the 83 species of butterfly who inhabit or transit through Galveston County. Some feed broadly, through a wide range of vegetation in their favorite ecosystem – meadow, marsh, forest, or riverside. Others are very picky eaters in both the caterpillar and the adult butterfly stages of life, and require very specific host plants for these stages. For instance, the beautiful iridescent blue/green Pipevine Swallowtail will feed only on plants of the Aristolochia species as a caterpillar — namely, the pipevine family. However, in its adult butterfly state, the Pipevine Swallowtail will gather nectar from several plants including thistles, azaleas, lantana, and others.

Furthermore, the butterflies of our area don't feed on the same plants in our yard. In their caterpillar stages, the Gulf Fritillary will be found to be feasting on passion vines while the Soapberry Hairstreak will insist on soapberry plants, the Giant Swallowtail will be munching the citruses, the Clouded Sulphur will be headed for the peas and clover, and the Black Swallowtail will be devouring the rue, dill, parsley, carrots, and fennel. Other butterflies go for the hackberry, elm, and oak trees in our neighborhoods.

It is important to know that butterflies have many forms and to recognize them, so as not to accidentally destroy them as we work in our yards.

Egg

The female butterfly is always careful to seek a safe place to lay eggs. Usually, this is on the underside of plants on or near the host plant that will feed the young when they hatch into the larva/caterpillar stage. The eggs vary in shape, size, and color. Some butterfly species lay their eggs singly, others in groups or clusters. It takes from four to ten days for the butterfly egg to hatch into a young caterpillar.

Larva or Caterpillar

The young caterpillar's first meal is usually its own eggshell, then the young leaves and flower buds around it. If a cluster of eggs all hatch together, the larvae will often skeletonize the leaf, since they can't chew through the tough veins.

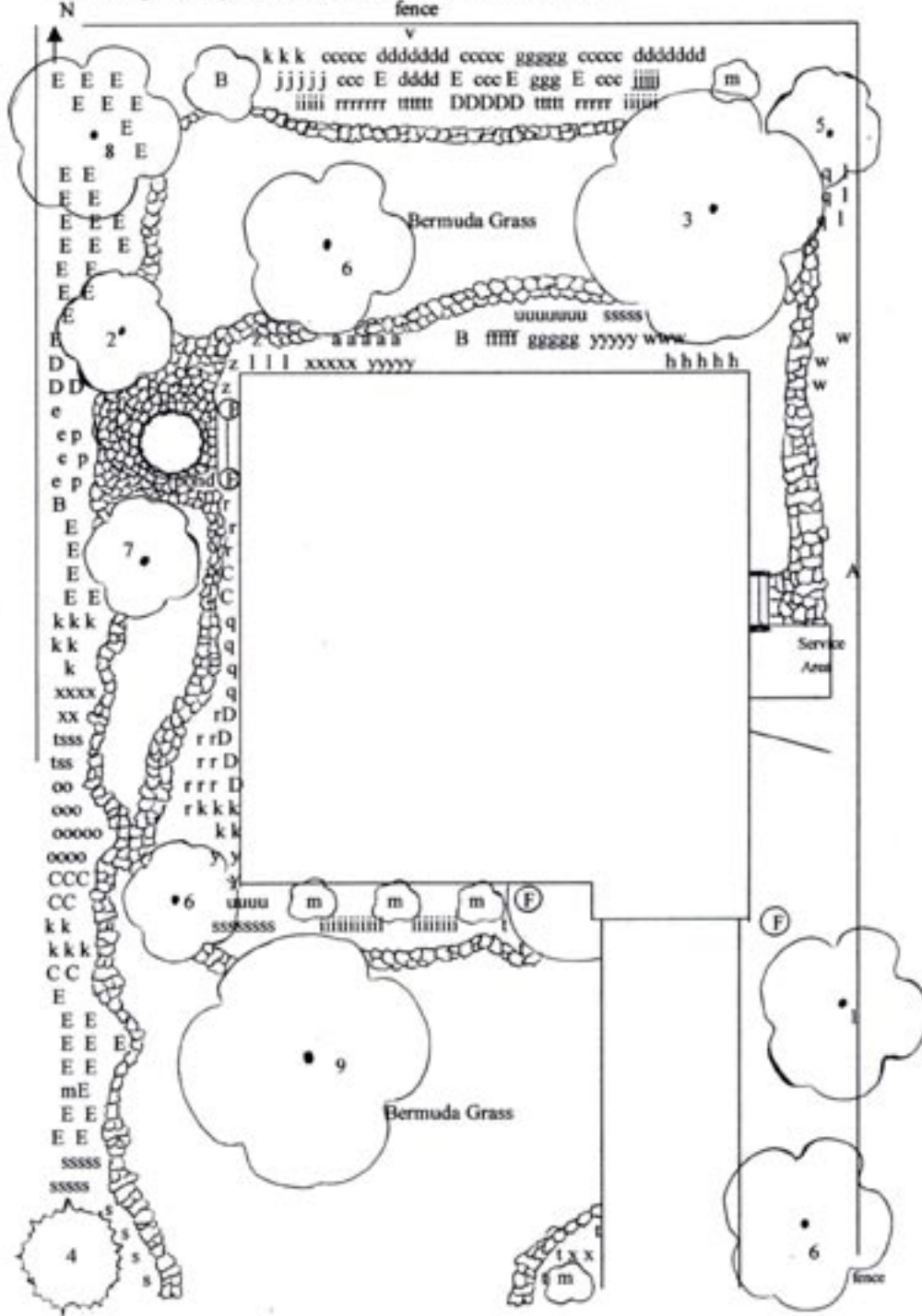
Caterpillars make a juicy meal for birds and other creatures. As a result, caterpillars come in a variety of camouflage colors or they have other defenses, like sharp spines. A few eat food toxic to their predators, and advertise the fact with bright colors. Because caterpillars don't have skins that stretch, they shed their skins as many as five times from egg to pupa, getting larger each time. In the three to four weeks butterflies spend in their caterpillar state, their host plants can begin to look ragged.



Larva or Caterpillar Stage GCMGA

Landscape Design With Native Plants for All Seasons

- a. Bachelor's Button
- b. Bermuda Grass
- c. Brown-eyed Susan
- d. Butterfly Weed
- e. Cardinal Flower
- f. Coneflower
- g. Fall Obedient Plant
- h. False Indigo
- i. Gayfeather
- j. Gulf Coast Penstemon
- k. Gulf Muhly Grass
- l. Goldenrod
- m. Heartleaf Hibiscus
- n. Indian Blanket
- o. Indian Paintbrush
- p. Inland Seaots
- q. Lantana
- r. Lemon Mint
- s. Louisiana Phlox
- u. Mistflower
- v. Passion Vine
- w. Partridge Pea
- x. Pitcher Sage
- y. Scarlet Sage
- z. Swamp Sunflower
- A. Trumpet Vine
- B. Turk's Cap
- C. Violet Ruellia
- D. White Gaura
- E. Woolly Stemodia
- F. Container of seasonal Annuals
- 1. Carolina Buckthorn
- 2. Cedar Elm
- 3. Cottonwood Tree
- 4. Eastern Red Cedar
- 5. Hackberry Tree
- 6. Mexican Buckeye
- 7. Red Bay Tree
- 8. Swamp Chestnut Oak
- 9. Willow Oak





Pupa Chrysalis Stage GCMGA

Pupa or Chrysalis

On the last days of its caterpillar existence, the final caterpillar/larva might change color, move away from the host plant, and find a spot for the next stage of metamorphosis. Some species will head for the leaf litter on the ground, or find a branch on a tree or bush from which to hang. In the chrysalis stage, the creature is inert, defenseless, and very vulnerable. So, it is usually camouflaged in brown or green colors, to hide among its surroundings. Sometimes you can spot a chrysalis in a tree or a bush in your yard, hanging like a small shroud-like ornament. It is important not to touch or disturb the creature. This stage of life can last one to two weeks, depending on the species and the season. Some species spend the winter season in this stage, especially in cold climates, waiting for temperatures and conditions to signal their release to the next stage.



Butterfly emerging from chrysalis TCE/TAMU

Adult Butterfly

The butterfly breaks open the chrysalid casing and clings to the empty shell while it unfolds its wings and gets its body fluid pumping. The wings are very moist and fragile, and can take an hour or more to harden. Then the adult butterfly seeks warmth, sunlight, nectar, and eventually a mate and a place to lay the next generation of eggs. The butterfly has ended its transformations, and will retain this form until its death.

Butterflies no longer have chewing mouthparts, as they did when they were caterpillars. Instead, they consume all nutrients by drinking. They have only a long “proboscis” – a straw-like tongue – that sips sugary nectar from flowers. The butterfly does not gather nectar while in flight. It must stand on something, while it extends its proboscis into the food. As a result, butterflies tend to prefer flowers that offer footholds: daisy-shaped, spikes, and clusters. They also need water and salts, and like sipping at the edges of little puddles. They’re often found feeding on tree saps, rotting fruit, animal dung, and even carrion. Scientists have proven that the more carbohydrates and sugars it imbibes, the longer a butterfly will live, regardless of species. Adult butterflies cannot cause any damage to the garden at this stage, as they can when they are caterpillars.

Butterflies are cold-blooded, so they require warmth and sunlight to keep going. On cool or cloudy days, most butterflies won’t fly at all. At night, they close their wings and roost in some sheltered place.

CHAPTER FOUR

The Ultimate Butterfly Gardens



A MG Butterfly garden in bloom GCMGA

Many county residents are building new houses on blank tracts of ground without a clue how to landscape them. Why not create a haven for butterflies? Why not landscape with our native plants – ones that butterflies and other wildlife have depended on for thousands of years? Or why not landscape with some tried-and-true adapted plants from Galveston County’s own “recommended” list?

In essence, why not create a yard that takes little care to maintain, is beautiful in all seasons, and provides an oasis for our butterflies?

Anna Wygrys, a longtime Galveston County Master Gardener and butterfly enthusiast, has designed a landscape plan for any home that features butterfly-friendly native plants.

Many new and existing homes have just an empty, sunny corner that cries out for some landscaping. Dick Wetling, another veteran Master Gardener with a flair for design, has drawn up a

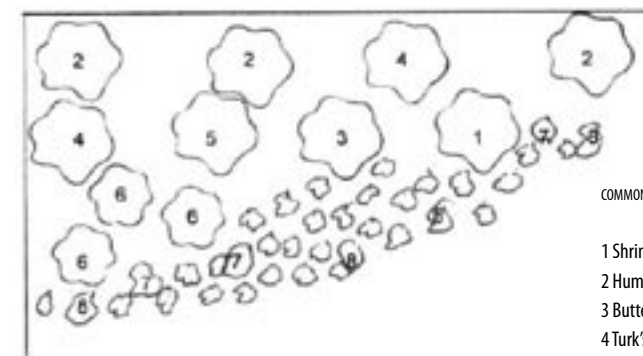
landscape plan for a corner garden, using adapted plants commonly found at our area nurseries and home-improvement stores.

Best of all, these are landscape designs for all seasons, with plants that sustain butterflies throughout the year.

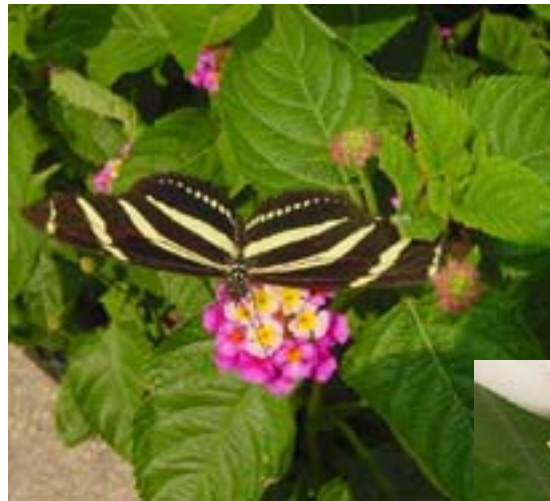
Residents who wish to conserve something of our regional horticultural heritage are encouraged to use and adapt these plans to their own home yards.

Think of these gardens as personal nature preserves, where the 83 species that inhabit or transit through our county can converge, feast, and thank the homeowner’s hospitality in the only way they can: with clouds of their colorful, fluttering beauty dancing in the sunshine.

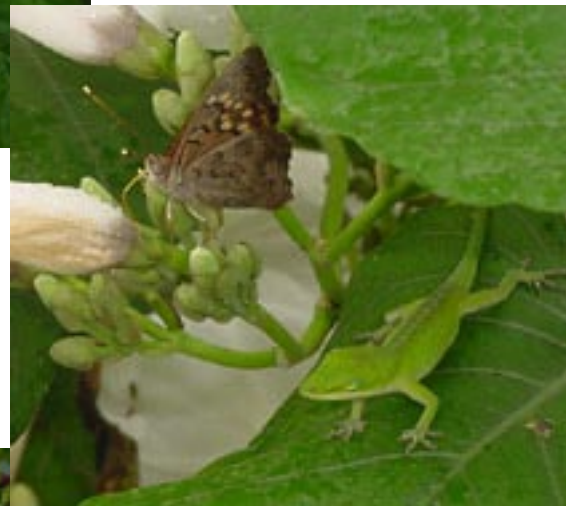
Corner Garden For Butterflies



PLANTS			
COMMON NAME	BOTANICAL NAME	HEIGHT	FLOWER COLOR
-- SHRUBS --			
1 Shrimp Plant	<i>Justica brandegeana</i>	2-3 feet	White/orange
2 Hummingbird Bush	<i>Hamelia patens</i>	6-8 feet	Orange/red
3 Butterfly Bush	<i>Buddleia lochinch</i>	5-6 feet	Lavender
4 Turk’s Cap	<i>Malvaiscus aboreus</i>	4-5 feet	Red
-- ANNUALS AND PERENNIALS --			
5 Butterfly Weed	<i>Asclepias curassavica</i>	3-4 feet	Orange
6 Penta	<i>Penta lanceolata</i>	2-3 feet	Red/orange
7 Aster—annual	<i>Tanacetifolius</i>	2-3 feet	Purple
8 Salvia	<i>Convolvulus tricolor</i>	1 foot	Multiple colors



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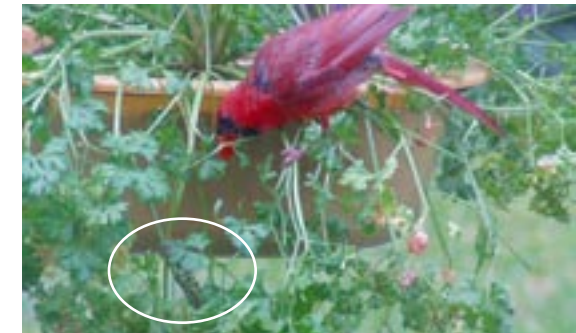
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Migrating Monarchs Massing Together USFWS



Cardinal Stalking Caterpillar TCE/TAMU

Migrations

The famous Monarch butterflies have no ability to endure freezing in any stage of their life cycle, so they do their magnificent migration to Southern California and Mexico every year, to roost in trees they've used for centuries. However, most North American butterfly species survive winter in the egg or pupa form wherever they reside. Others, like our Hackberry Butterflies, have a natural kind of antifreeze in their bodies and spend winter as adults, hiding behind loose bark or in the hollows of trees.

Some of our Galveston County species are "emigrators," which means they are born from populations well south of here and disperse northward into our county and elsewhere to find food. This group of emigrators include the Gulf Fritillary, the Little Yellow Sulphur, and the Great Southern White. Usually they follow habitual routes and arrive predictably in their season. But more uncertain behavior characterizes the Checkered White which can range all over Texas, but not predictably. Sometimes, Checkered Whites will reside here for one breeding season and then not be around again for many years.

Dangers

The greatest danger to butterfly survival is weather. Extreme cold, early freezes, strong winds, and heavy rains can take their toll at all stages of butterfly existence. Gardeners often place host plants along sheltering walls with overhangs, or provide windbreaks or specially stacked woodpiles to give butterflies some shelter.

Birds, rodents, lizards, and some insects feed on butterflies at various stages too. The biggest new problem challenging butterflies in our county are fire ants. While gardeners cannot protect butterflies from all threats to their survival, using a bait method of controlling fire ants can help our local populations.

The other danger is us. We tend to forget that butterflies are insects. So, while we are spraying our yards for other insects, we are destroying butterflies too. It is important to avoid use of pesticides as much as possible and practice integrated plant management with some dedication and energy, in order to encourage butterfly populations growth.

Finally, the destruction of their habitats and their host plants by residential and commercial development can be ameliorated somewhat by the re-introduction of host and nectar plants to our home yards and community gardens.

Homeowners will find a new joy in planting some of the gorgeous host and nectar plants in their yards — and watching the splendor that unfolds when an excited population of butterflies flutters into existence because of it.

Don't Kill These Caterpillars!!!!



Black Swallowtail
caterpillar
GCMGA



Black Swallowtail adult butterfly
GCMGA



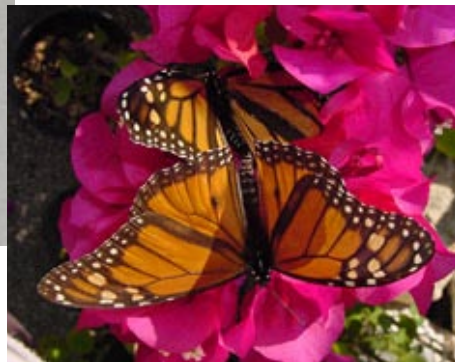
Gulf Fritillary
caterpillar
GCMGA



Gulf Fritillary
adult butterfly
TCE/TAMU



Monarch larva caterpillar
GCMGA



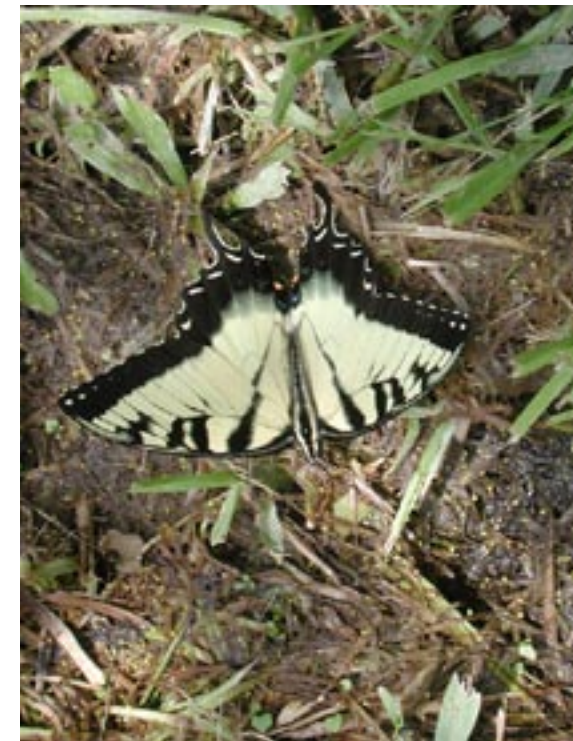
Adult Monarch butterflies
TCE/TAMU



Long-tailed Skipper
caterpillar
GCMGA



Adult Long-tailed Skipper butterfly
TCE/TAMU



Tiger Swallowtail at mudhole GCMGA

Water and Mud

All creatures need water. Butterflies like to drink from the moist edges of streams and from the edges of puddles. If one has a bird-bath in the back yard, a few rocks along the shallow edge would allow butterflies to perch as they sip.

It's not unusual to see a flock of butterflies — especially blues, sulphurs, swallowtails, and some skippers — gathered around a mud puddle. This behavior is called “puddling” and is done by the male butterflies, who need extra salt, amino acids, and minerals for mating. As a result of this mineral need, they can be attracted to carrion, dung of all kinds, septic tanks — the more contaminated, the better. Even puddles on driveways or patios that have little soil collections at the bottom prove useful to butterflies who can use the trace minerals leached from the cement and soil.

To attract puddling, one can create a little puddling “station” as recommended by some authors. This involves constructing a small plastic-lined depression in the ground, isolated from surrounding plants and filled with moist sand, a sprinkling of table salt, and a tiny bit of manure. It's important to keep the area moist.

Rotten Fruit

Butterflies adore over-ripe bananas and peaches, along with rotting plums, pears, melons, and other fruit. Many people put up feeding stands for butterflies — nothing more than a flat piece of board on a stand about four feet high, that will hold a plate of rotten fruit. Set the plate in the sunshine and within a day or so, the butterflies will come calling along with some wasps and other insects. Some experts recommend adding a dash of fruit juice, rum, beer, brown sugar, or yeast to the mound of fruit to give it an extra kick. An effective way to keep ants away is to grease the pole supporting the stand with lots of petroleum jelly or wind sticky tape around it. If a table or chair is used instead of a stand, one can place the bowl of rotten fruit inside a larger bowl of water, to create a kind of moat that will keep the ants out.

Wood Piles

Firewood logs — stacked layer-by-layer (each layer at right angles to one below) in log cabin fashion — make a terrific shelter and butterfly roosting place. Here they can get out of the wind, be safe from predators, be sheltered from rain, and hang their chrysalis.



Gulf Fritillary caterpillar devouring Passion Vine
GCMGA



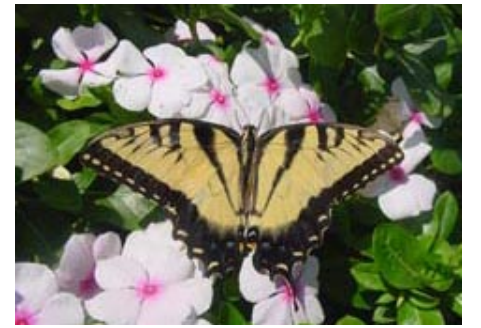
Feasting Monarch caterpillars GCMGA

Host Plants for Caterpillars

Banded Hairstreak	oak, hickory, walnuts
Black Swallowtail	dill, parsley, carrots, anise, fennel, rue
Bordered Patch	sunflowers, cocklebur
Broadwing Skipper	marsh grasses and sedges
Buckeye	snaptagons, toadflax, false foxglove, plantain, Ruellia
Cabbage White	nasturtiums, cabbage, broccoli, cauliflower, turnips, radishes, mustard greens
Carolina Satyr	St. Augustine, bermuda, centipede grasses
Common Checkered Skipper	mallows
Clouded Skipper	grasses
Cloudless Sulphur	senna, partridge pea
Dusky Blue Hairstreak	dry leaves, fruit
Fiery Skipper	lawn grasses
Giant Swallowtail	rue, citrus, money tree, prickly ash
Goatweed Butterfly	goatweed, Coton spp.
Gray Hairstreak	peas, mallows
Gulf Fritillary	passionflower vines
Hackberry Butterfly	hackberry
Large Orange Sulphur	mimosa, senna
Monarch	milkweed, butterfly weed, Asclepias spp.
Neamathla Skipper	Johnson grass, dallis grass
Olive Hairstreak	eastern red cedar
Painted Lady	thistles, mallows
Pearl Crescent v. Phaon	ssters
Pipevine Swallowtail	Dutchman's pipe vine
Purple Hairstreak	mistletoe
Queen	milkweeds
Question Mark	hackberry, elms, nettles
Red Banded Hairstreak	sumac, waxmyrtle, cotton, oak
Red Admiral	nettles
Silver Spotted Skipper	false indigo, black locust, wisteria
Sleepy Sulphur	partridge pea, Cassia, Senna
Snout Butterfly	hackberry
Southern Skipperling	bermudagrass
Spicebush Swallowtail	camphor tree, sweet bay, red bay, sassafras, tulip tree
Tawny Emperor	hackberry
Texas Crescent	Acanthus, Ruellia, shrimp plant, Dicteria, tube-tongue
Viceroy	cottonwood, poplar, willow

CHAPTER TWO

The Butterflies of Galveston County



Periwinkle and Tiger Swallowtail TCE/TAMU

The U.S. Geologic Survey lists 83 species of butterflies that inhabit or transit through Galveston County. More than half of these species are spread out across most of Texas. Dozens more inhabit pockets of East Texas and the coastal counties of Texas. A handful are found in Galveston County and just a few adjacent counties. Four butterfly species have been spotted in Galveston County and not in any of the adjacent counties.

There are six families of butterflies in our county: Swallowtails, Whites and Sulphurs, Gossamer-wing Butterflies, Metalmarks, Brush-footed Butterflies, and Skippers.

Swallowtails (Family Papilionidae)

Swallowtails are the biggest and showiest butterflies, so named because of their shape, the tails on their hind wings. All seven swallowtail species found in Texas can be found in Galveston County. In fact, one species – the Two-tailed Swallowtail – is found only in the Galveston-Harris County area and the Big Bend region. In the caterpillar stage, two species focus on pipevine host plants, two others on citrus trees, two more on magnolia, ash, cottonwood, and willow trees, and one adores the spicebush.

Whites and Sulphurs (Family Pieridae)

This family enjoys almost worldwide distribution. Most members are small, and are white or yellow in color, just like their name. Ten of these species are in Galveston County, half of which are found throughout most of Texas. However, five species are found just in Galveston County and a few adjacent counties. As caterpillars, the

sulphurs tend to eat legumes like peas and alfalfa, while the whites favor the mustard family. The whites can become a problem for cabbage and other garden crops.

Gossamer-wing Butterflies (Family Lycaenidae)

The Gossamer-wing Butterflies consist of nearly 6000 different species in four subfamilies. Most are small and all share a certain distinctive wing structure. They tend to be brilliantly colored with two different types of scales on their wings.

Thirteen species of two subfamilies of Gossamer-wing Butterflies – the Hairstreaks and the Blues – inhabit Galveston County. Most are found in the southern, eastern or coastal portions of Texas. However, four species are restricted to Galveston County and a few adjacent counties, and one – the Soapberry Hairstreak – is found in Galveston County alone in this region.

This group enjoys a wide-ranging list of host foods which include fallen leaves of trees, woody bushes, pea and mallow plants, and many others. The Soapberry Hairstreak loves Western Soapberry – a woody plant. The smallest butterfly in our region – the Western Pygmy-Blue – prefers the rugged native vegetation like pigweed and salt bush.



Cloudless Sulphur TCE/TAMU



Gray Hairstreak TCE/TAMU



Brush-footed Red Admiral TCE/TAMU

Metalmarks (Family Riodinidae)

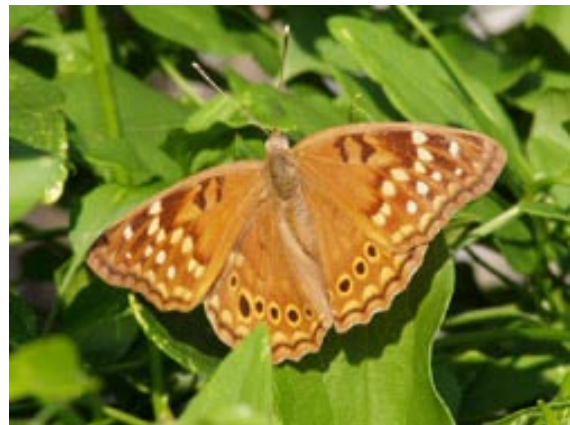
Metalmarks get their name from their wonderful rusty, burnt-orange color, which shines like metal. Though two dozen Metalmark species are found in North America, only one is found in Galveston County – the Little Metalmark. This creature inhabits salt-marsh and meadow areas, feeding on yellow thistle and wild yarrow.



Brush-footed Painted Lady TCE/TAMU

Brush-footed Butterflies (Family Nymphalidae)

Fifteen species of eight subfamilies of Brush-footed butterflies find their way to Galveston County, including the world-favorite Monarchs which amaze us with their lengthy and colorful migrations. These 15 beautiful and diverse species are found all over Texas, and inhabit a large and varied number of ecosystems. The caterpillar food range is broad with this family, but it includes our ubiquitous hackberry trees and our lovely passion vines.



Brush-footed Tawny Emperor TCE/TAMU



Brush-footed Common Buckeye TCE/TAMU



Sundance Butterfly Garden Entrance GCMGA

Creating a Butterfly Garden

Design

If you're interesting in planting a butterfly garden that will sustain the insects in all their stages of development, there are a few design principles to keep in mind.

Location

Full sun is vastly preferable. In wooded areas, some people have opened a little clearing for sunshine in a dense woodland garden – and have achieved great success attracting butterflies.

Also, if the location is windy, it is good to provide a windbreak of trees, shrubs, or trellised vines. Many residential developments include fences or walls. It would be ideal to plant passionflower vine, Dutchman's pipe, wisteria, and trumpet honeysuckle along these to attract butterflies.

Butterflies like to fly over spaces unimpeded. Our Galveston County butterflies are specially adapted to our flat, open meadows, pastures, marshes, and prairies. If one is creating a butterfly garden in a suburban back yard, it's good to imitate nature as much as possible, and have some wide-open spaces and broad pathways, so butterflies can fly unobstructed.

Varied Height

Some of our butterfly species, like the Swallowtails, prefer tall flowers, while others, like the Skippers prefer small plants close to the ground. So a good design principle is to vary the height of the plants in the butterfly garden. Place host and flowering bushes at the back, and then masses of tall flowers, then medium ones, then ground-hugging varieties – in essence, staging them downward, from tall to short.

Seasonal Selection

It's good to select annuals that have long bloom seasons, mixed with perennials that bloom at different times of year.

Host Plants

For a butterfly population to thrive, it's important to include plants that host butterfly eggs and caterpillars too. These plants will be munched on and may look ragged for a few weeks, but the population of butterflies will thrive as a result of feeding on these plants. This is especially true of duranta, passion vine, butterfly weed, lantana, any citrus tree, penta, bronze fennel, dill and parsley.

Precautions

1. Avoid all insecticides, as with nectar plants.
2. Use netting or floating row covers. If some vegetable crops – like cabbage, peas, fennel and dill – require protection from butterfly caterpillars, it's good to use a physical barrier like mesh net row covers to keep egg-laying butterflies from establishing their brood there.
3. Be tolerant. You might have to put up with some imperfect looking plants for a few weeks, but you'll be repaid by clouds of butterflies inhabiting your yard.

Nectar Plants for Butterflies

TREES

Flowering Senna, <i>Cassia corymbosa</i>	Yellow flowers, late Summer-Fall, sun, drought tolerant, good drainage, size: 10'
Hackberry, <i>Celtis</i> spp.	Native, deciduous, Host for Hackberry Emperor larvae. size: 20'
Jatropha, Peregrina, <i>Jatropha integrerrima</i>	Red or pink flowers
Wild Olive, <i>Cordia boissieri</i>	Native: White flowers, Spring-Fall, sun-part shade, tolerates moist soil, size: 15'

SHRUBS

Butterfly Bush, <i>Buddleia davidii</i>	Purple, lavender, white flowers Summer to Fall, sun to part shade, rich, well-drained soil, size: 5'-6'
Buttonbush, <i>Cephalanthus occidentalis</i>	Cream or white flowers, sun to part shade, summer, good drainage, size: 6'-8'
Cape Honeysuckle, <i>Tecomaria capensis</i>	Red flowers, Summer-Fall, full sun, root-hardy, drought tolerant, good drainage, size: 4'-8'
Golden Dewdrop, <i>Duranta repens</i>	Lavender and white flowers, Summer to Fall, sun to part shade, good drainage, size: 5'-6'
Heartleaf Hibiscus, <i>Hibiscus martianus</i>	Native: Red flowers, Spring-Fall, root-hardy, sun-part shade, tolerates moist soils, size: 2'
Lantana spp., <i>L. camara</i> , <i>L. montevidensis</i> , <i>L. horrida</i>	Native: several varieties with pink, lavender and orange flowers, Spring-Fall, sun-part shade, drought tolerant, good drainage, size: 3'-4'
Mexican Heather, <i>Cuphea hyssopifolia</i>	Pink, lavender and white flowers, Summer to Fall, drought tolerant, good drainage, size: 1'-2'
Red Yucca, <i>Hesperaloe parviflora</i>	Red flowers, Summer-Fall, sun-part shade, drought tolerant, good drainage, size: 4'
Texas Sage, <i>Leucophyllum frutescens</i>	Native: Purple flowers, before a rain in the Spring-Fall, sun-part shade, drought tolerant, good drainage, size: 3'-4'
Turk's Cap, <i>Malvastrum coccineum</i> , 'Drummondii'	Native: Red flowers, late Spring-Fall, part shade-shade, root-hardy, drought tolerant, good drainage, size: 4'-5'
Yellow Bells, <i>Tecoma stans</i> , also called <i>Esparanza</i>	Native: Yellow flowers, Spring-Fall, root-hardy, drought tolerant, good drainage, size: 4'-6'

VINES

Coral Honeysuckle, <i>Lonicera sempervirens</i>	Red flowers, sun-part shade, Spring-Fall, root-hardy, drought tolerant, good drainage, size: 18'
Maypop, <i>Passiflora incarnata</i> , also called 'Passionflower'	Native: Purple, red or white, Spring-Fall, sun-shade, good drainage, edible fruit, size: 20'
Morning Glory, <i>Ipomoea purpurea</i>	Red, blue and white flowers, Spring-Summer, full sun, good drainage, size: 10'-15'
Mexican Flame Vine, <i>Senecio confusus</i>	Orange/red flowers, Spring-Fall, sun, root-hardy, good drainage, size: 20'
Mexican Honeysuckle, <i>Justicia spicigera</i>	Red/orange flowers, Spring to Fall, sun-part shade, root-hardy, drought tolerant, good drainage, size: 12'

ANNUALS, BULBS AND PERENNIALS

Asters, <i>Aster</i> spp., Annual - <i>A. tanacetifolius</i> , Perennial - <i>A. frikartii</i>	Pink, purple, lavender, and white flowers through Summer and Fall, full sun, drought tolerant, good drainage, size: 2'-3'
Brown-eyed Susan, <i>Rudbeckia hirta</i>	Native: Yellow flowers, Spring-Fall, sun-part shade, drought tolerant, size: 1'-2'
Butterfly Weed, <i>Asclepias curassavica</i> , also called 'Mexican Oleander'	Native: Orange or Yellow flowers, full sun, root-hardy, drought tolerant, good drainage, size: 4'
Cannas, <i>Canna</i> spp.	Pink, coral, yellow, red and yellow/red flowers, Summer to Fall, sun to shade, moist soils or gravel bog, size: 2'-6'
Coneflower, <i>Echinacea purpurea</i>	Pink, white and lavender flowers, Spring to Fall, full sun to part shade, drought tolerant, good drainage, tolerates alkaline soils, size: 2'-3'
Cosmos, <i>C. bipinnatus</i> , <i>C. sulphureus</i>	Pink, lavender, white, yellow and orange flowers from Summer to Fall, full sun, drought tolerant, good drainage, size: 4'-6'
Dahlberg Daisy, <i>Dyssodia tenuiloba</i> , Also called 'Tiny Tim'	Native: Yellow flowers, full sun, drought tolerant, good drainage, reseeding annual, size: under 1'
Flame Acanthus, <i>Anisacanthus quadrifidus</i>	Red flowers, Spring-Fall, root-hardy, full sun, good drainage, size: 3'-4'
Four Nerve Daisy, <i>Tetaneuris scaposa</i>	Yellow flowers, Spring-Fall, full sun-part shade, good drainage, reseeding annual, size: 1'
Gayfeather, <i>Liatris elegans</i>	Native: Lavender flowers, late Summer-Fall, full sun, drought tolerant, tolerant of moist soils, bulb, size: 2'-3'
Goldenrod, <i>Solidago</i> spp.	Native: yellow flowers late Summer-Fall, full sun to part shade, drought tolerant, tolerant of moist, alkaline soil, size: 5'-6'
Greenthread, <i>Thelesperma filifolium</i>	Yellow flowers, late Spring-Fall, full sun, good drainage, size: 2'
Horsemint, <i>Monarda citriodora</i> , also called 'Lemon Mint'	Native: Lavender flowers, Spring-Summer, sun-part shade, drought tolerant, good drainage, reseeding annual, size: 1'-2'
Indian Blanket, <i>Gaillardia pulchella</i> , also called 'Firewheel'	Native: Orange, red or yellow, Spring to Fall, sun-part shade, drought tolerant, good drainage, reseeding annual, size: 1'-2'
Indian Paintbrush, <i>Castilleja indivisa</i>	Native: Red/Orange flowers, Spring, full sun, drought tolerant, good drainage, size: 1'-2'
Ironweed, <i>Vernonia</i> spp.	Purple and pink flowers
Joe Pye Weed, <i>Eupatorium</i> spp.	Pink, lavender and white flowers, Summer to Fall, tolerates wet soils, size: 6'
Lazy Daisy, <i>Aphanostephus skirrhobasis</i>	White flowers, Spring-Fall, sun-part shade, drought tolerant, good drainage, reseeding annual, size: 1'-2'
Mexican Sunflower, <i>Tithonia rotundifolia</i>	Yellow and orange flowers, Summer to Fall, full sun, drought tolerant, good drainage, reseeding annual, size: 4'
Mistflower, <i>Eupatorium coelestinum</i>	Native: Lavender flowers, Summer-Fall, sun-part shade, root-hardy, drought tolerant, tolerates moist soil, size: 2'-3'
Penta, <i>Penta lanceolata</i>	Red, pink or lavender flowers, full sun-part shade, root-hardy, good drainage, size: 1'-2'
Phlox, <i>Phlox</i> spp.	Pink, lavender and white flowers, late Spring to Fall, sun to part shade, good drainage, size: 12"-18"
Pink Candle Celosia, <i>Celosia cristata</i>	Pink or white flowers, Summer to Fall, Full sun, drought tolerant, good drainage, size: 4'-6'
Porter Weed, <i>Stachytarpheta jamaicensis</i>	Purple, blue, red or coral flowers, Summer to Fall, part shade, good drainage, size: 2'-4'
Salvia, <i>S. greggii</i> , <i>S. farinacea</i> , <i>S. leucantha</i> , <i>S. coccinea</i>	Natives: Red, blue, purple or lavender flowers, full sun-part shade, drought tolerant, good drainage, size: 2'-4'



Clouded Skipper USFWS

Skippers (Family Hesperidae)

Twenty-seven of the 83 butterflies that inhabit Galveston County are Skippers. Skippers get their name by the way they fly — fast, erratic, darting, and changing direction. They are widely scattered across the East Texas. Their larval food is almost exclusively grasses and sedges. Five species inhabit Galveston County and a few counties around it. Three species are found in Galveston County alone, not in any of the adjacent counties: The Mercurial Skipper, the Tailed Aguna, and the False Duskywing.



Swarthy Skipper GCMGA

Information

For more exact information about and pictures of the 83 butterflies of Galveston County, readers should go directly to the USGS website: www.npwrc.usgs.gov/resource/DISTR/LEPID/BFLYUSA/chklist/states/counties/tx_167.htm or www.google.com then type in the search engine: Butterflies Galveston County Texas. The page will come up immediately. One can then click on each individual butterfly on the list to bring up pictures of the egg, the caterpillar, the chrysalis, and the adult butterfly of that species, along with written information about its range, season, eating habits, and behavior.

For those who don't have Internet access, a fabulous book called the Butterflies of Houston & Southeast Texas by John and Gloria Tveten is available in area libraries and bookstores. The book contains very detailed information on each butterfly in our region, along with splendid color pictures of each.

Butterflies of Galveston County, Texas



Swallowtails (Family Papilionidae)

- SWALLOWTAILS
(Subfamily Papilioninae)
Pipevine Swallowtail (*Battus philenor*)
Polydamas Swallowtail (*Battus polydamas*)
Black Swallowtail (*Papilio polyxenes*)
Giant Swallowtail (*Papilio cresphontes*)
Eastern Tiger Swallowtail (*Papilio glaucus*)
Two-tailed Swallowtail (*Papilio multicaudata*)
Spicebush Swallowtail (*Papilio troilus*)

Whites and Sulphurs (Family Pieridae)

- WHITES
(Subfamily Pierinae)
Checkered White (*Pontia protodice*)
Cabbage White (*Pieris rapae*)
Great Southern White (*Ascia monuste*)
Giant White (*Ganyra josephina*)

- SULPHURS
(Subfamily Coliadinae)
Clouded Sulphur (*Colias philodice*)
Orange Sulphur (*Colias eurytheme*)
Yellow Angled Sulphur (*Anteos maerula*)
Cloudless Sulphur (*Phoebis sennae*)
Sleepy Orange (*Eurema nicippe*)
Dainty Sulphur (*Nathalis iole*)

Gossamer-wing Butterflies (Family Lycaenidae)

- HAIRSTREAKS
(Subfamily Theclinae)
Soapberry Hairstreak (*Phaeostrymon alcestis*)
Southern Hairstreak (*Fixsenia favonius*)
Gray Hairstreak (*Strymon melinus*)
Red-banded Hairstreak (*Calycopis cecrops*)
Dusky-blue Groundstreak (*Calycopis isobeon*)

- BLUES
(Subfamily Polyommatainae)
Western Pygmy Blue (*Brephidium exile*)
Eastern Pygmy Blue (*Brephidium isophthalma*)
Marine Blue (*Leptotes marina*)
Ceraunus Blue (*Hemiargus ceraunus*)
Reakirt's Blue (*Hemiargus isola*)
Eastern Tailed Blue (*Everes comyntas*)
Spring Azure (*Celastrina "ladon"*)
Summer Azure (*Celastrina neglecta*)

Giant Swallowtails
GCMGA



Checkered
White
TCE/TAMU



Gulf Fritillary and Orange Sulphur
TCE/TAMU

CHAPTER THREE

Butterfly Plants for Galveston County



Gulf Fritillary GCMGA

Setting up your garden or yard for butterfly activity requires a little understanding of butterfly behavior.

Attracting Adult Butterflies

Butterflies are cold-blooded, and require temperatures above 60 degrees to become active. They need sunshine to keep their body temperature at between 85-100 degrees in order to fly. As a result, placing rocks or evergreens around the yard to catch and absorb early morning sun provides butterflies with a perch — a place they can bask, warm up, and get an early start. During our hot days of summer, butterflies will be earlier risers than during the spring and fall.

At night and on rainy, windy, blustery days, butterflies will find a sheltered roost to conserve their energy. It might be under a leaf or in the hollow of a tree. The roosts are very hard to find. In general, butterflies will spend 14 hours a day roosting, from late afternoon until morning.

Butterfly Preferences

If you want to attract butterflies to your yard, it's important to bear in mind a few important principles:

- 1 Butterflies love sunshine, so it's good to locate nectar plants in a sunlit part of the yard.
- 2 More is better. If nectar flowers are not planted in small scattered clumps, but are massed together to provide a large area of fragrance and color, the more likely butterflies will linger in your yard.
- 3 Butterflies need to cling to a blossom while sucking nectar through its straw-like proboscis, they favor certain nectar plants over others. First, they like plants with clusters of small flowers - lantana, goldenrod, and asters — where many flowers are concentrated in

one place. They also like tubular spiked flowers — pineapple sage and butterfly bush — that offer a long stem of many small flowers; this way, they can visit each tiny flower in succession without flying to another location. Finally, they like certain simple daisy-shaped flowers — Black-eyed Susans, sunflowers, zinnias - which are comprised of numerous tiny, tubular, nectar-bearing flowers.

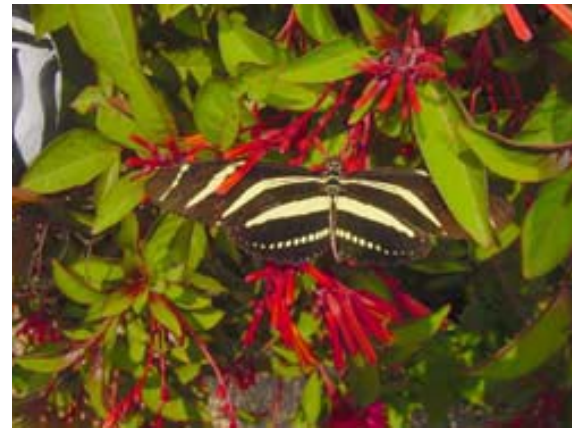
Any homeowner can plant these beautiful nectar-bearing plants in an existing landscape, and attract some butterfly activity to the yard. Purple, pink, yellow, white, blue and red are the most attractive flower colors to butterflies. Plan to do several plantings at monthly intervals to keep the nectar source available throughout our lengthy summer season.

Whenever possible, use heirloom varieties of plants, since these tend to provide more nectar than modern hybrid varieties which may have bigger flowers. This is especially true of zinnias.

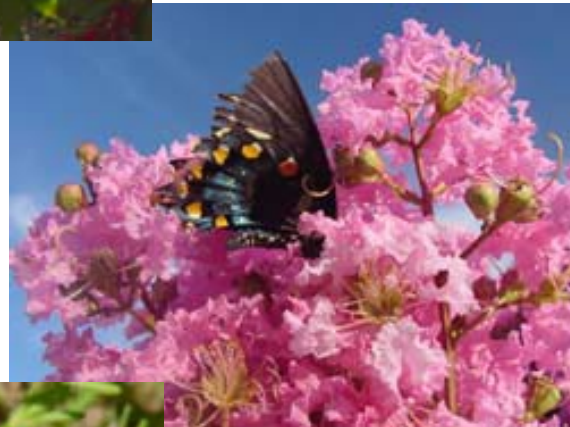
Butterfly No No's

Avoid insecticides. Butterflies are insects, and will be killed by our insecticides. This includes "organic" pesticides like Bt (*Bacillus thuringiensis*), which kill butterfly caterpillars as well as other caterpillars.

Here is a list of nectar-bearing plants (and the butterflies they will attract) for our area.



TCE/TAMU



TCE/TAMU



TCE/TAMU

Metalmarks (Family Riodinidae)

Little Metalmark (*Calephelis virginiensis*)

Brush-footed Butterflies (Family Nymphalidae)

SNOUTS

(Subfamily Libytheinae)

American Snout (*Libytheana carinenta*)

HELICONIANS AND FRITILLARIES

(Subfamily Heliconiinae)

Gulf Fritillary (*Agraulis vanillae*)

Variegated Fritillary (*Euptoieta claudia*)

TRUE BRUSH-FOOTS

(Subfamily Nymphalinae)

Phaon Crescent (*Phyciodes phaon*)

Painted Lady (*Vanessa cardui*)

Red Admiral (*Vanessa atalanta*)

Common Buckeye (*Junonia coenia*)

ADMIRALS AND RELATIVES

(Subfamily Limenitidinae)

'Astyanax' Red-spotted Purple

(*Limenitis arthemis astyanax*)

LEAFWINGS

(Subfamily Charaxinae)

Goatweed Leafwing (*Anaea andria*)

EMPERORS

(Subfamily Apaturinae)

Hackberry Emperor (*Asterocampa celtis*)

Tawny Emperor (*Asterocampa clyton*)

SATYRS

(Subfamily Satyrinae)

Gemmed Satyr (*Cylopsis gemma*)

Carolina Satyr (*Hermeuptychia sosybius*)

Little Wood Satyr (*Megisto cymela*)

MONARCHS

(Subfamily Danainae)

Monarch (*Danaus plexippus*)



Queen Monarch
TCE/TAMU

Skippers (Family Hesperiidae)

SPREAD-WING SKIPPERS

(Subfamily Pyrginae)

Mercurial Skipper (*Proteides mercurius*)

Silver-spotted Skipper

(*Epargyreus clarus* (incl. *huachuca*))

Tailed Aguna (*Aguna metophis*)

Long-tailed Skipper (*Urbanus proteus*)

Southern Cloudywing

(*Thorybes bathyllus* (*daunus*))

False Duskywing (*Gesta invisus*)

Juvenal's Duskywing (*Erynnis juvenalis*)

Horace's Duskywing (*Erynnis horatius*)

Funereal Duskywing (*Erynnis funeralis*)

GRASS SKIPPERS

(Subfamily Hesperinae)

Swarthy Skipper (*Nastra lherminier*)

Julia's Skipper (*Nastra julia*)

Neamathla Skipper (*Nastra neamathla*)

Clouded Skipper (*Lerema accius*)

Southern Skipperling (*Copaeodes minima*)

Fiery Skipper (*Hylephila phyleus*)

Tawny-edged Skipper (*Polites themistocles*)

Whirlabout (*Polites vibex*)

Southern Broken-Dash (*Wallengrenia otho*)

Sachem (*Atalopedes campestris*)

Broad-winged Skipper (*Poanes viator*)

Dun Skipper (*Euphyes vestris* (*Ruricola*))

Celia's Roadside-Skipper (*Amblyscirtes celia*)

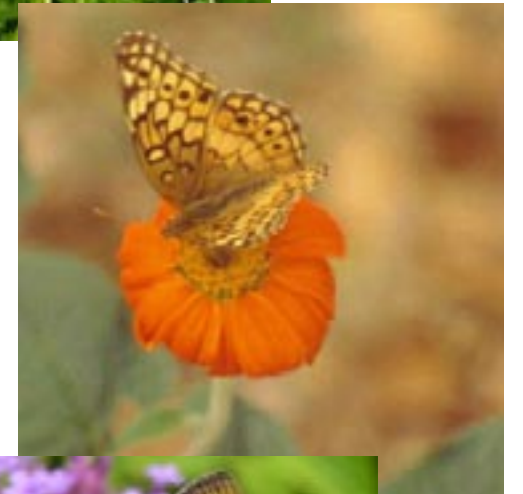
Eufala Skipper (*Lerodea eufala*)

Twin-spot Skipper (*Oligoria maculata*)

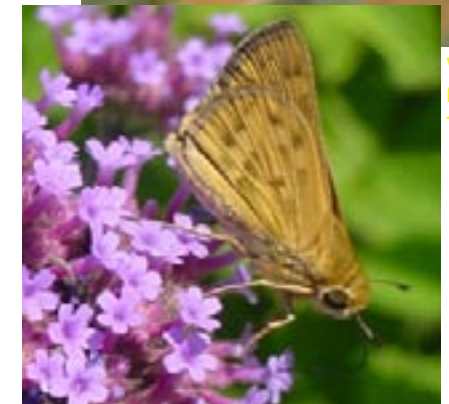
Brazilian Skipper (*Calpodus ethlius*)

Salt Marsh Skipper (*Panoquina panoquin*)

Obscure Skipper (*Panoquina panoquinoides*)



Variegated
Fritillary
TCE/TAMU



Whirlabout Skipper
TCE/TAMU

Gallery of Butterfly Plants and Their Culture



PRIDE OF BARBADOS
— perennial bush, orange, red and yellow, 6' – sun to partial shade, blooms spring through fall, drought tolerant
TCE/TAMU

BUTTERFLY WEED
— perennial flower, many colors, 3' – full sun, good drainage, blooms spring until frost, drought tolerant
TCE/TAMU



MAYPOW PASSION FLOWER – perennial vine, many colors – full sun, good drainage, blooms late spring until frost
GCMGA



MORNING GLORY – re-seeding annual vine, many colors – full sun, good drainage, blooms spring until frost
TCE/TAMU



ESPERANZA — perennial bush, yellow, 4' – full sun, good drainage, blooms spring until frost, drought tolerant
TCE/TAMU



DAISY – re-seeding annual flower, many colors, 3' – full sun, blooms spring through summer, drought tolerant
TCE/TAMU



CONE FLOWER – perennial flower, many colors, 1'-3' – full sun, good drainage drought



MALLOW HIBISCUS – perennial bush, many colors and heights – full sun, good drainage, blooms spring until frost
TCE/TAMU



TURK'S CAP – perennial shrub, red, 3' x 5' – sun to partial shade, good drainage, blooms late spring until frost
TCE/TAMU



ZINNIA – re-seeding annual flower, many colors, 2' – full sun, good drainage, blooms later spring until frost, drought tolerant, use heirloom varieties
GCMGA



LANTANA — perennial bush, many colors, 2'-4' -- full sun to part shade, good drainage, drought tolerant
TCE/TAMU



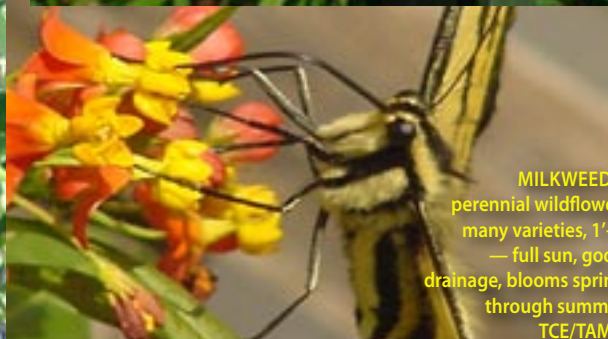
PENTA – perennial bush, many colors, 1'-2' – full sun to partial shade, good drainage, blooms summer until frost
GCMGA



SALVIA (Indigo Spires variety) – perennial flower 3'-4'; many varieties and colors – afternoon shade, good drainage, blooms spring until frost, drought tolerant
GCMGA



PHLOX – perennial bush, many colors, 2' – full sun, good drainage, blooms spring through summer
TCE/TAMU



MILKWEED – perennial wildflower, many varieties, 1'-2' — full sun, good drainage, blooms spring through summer
TCE/TAMU



RUELLIA – sprawling perennial flower, many colors, 2' – semi-shade, blooms spring until frost
TCE/TAMU