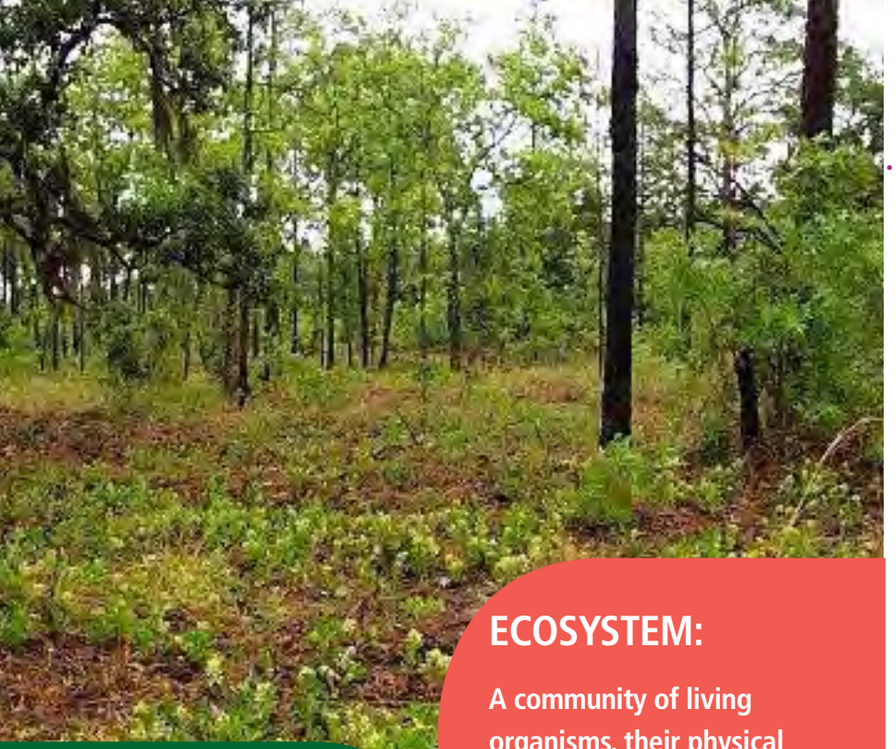
La Florida

–Land of Flowers

Ornamental Horticulture with Florida Native Plants



HORTICULTURE:
The science and art of growing fruits, vegetables, flowers or ornamental plants.

ECOSYSTEM:
A community of living organisms, their physical environment and their interrelationships, functioning as an ecological unit.

Top to bottom: xeric (very dry) upland ecosystem; marsh lake ecosystem; cypress swamp ecosystem; mesic (moist) flatland ecosystem. Photos by Shirley Denton

Florida's unique ecosystems

Florida has a unique and diverse natural landscape. Only two states have more plant diversity than Florida, and 8 percent of Florida's flora and fauna are found nowhere else in the world. Florida is home to more than 700 land-dwelling animals, more than 1,000 fish and many thousands of insects and invertebrates.

However, Florida's ecosystem is also extremely fragile, at risk from threats that include development, pollution, climate change and the spread of invasive species.

Grow easy – grow native

Penny Carnathan, *Tampa Bay Times* garden columnist

I had no luck finding native plants in garden centers and nurseries 15 years ago, and not because I wasn't looking for them.

I wanted to turn my bare backyard into a flowery retreat. Trouble was, I knew next to nothing about growing perennials – in Florida or anywhere else. Most of my first shrubs suffered short, wretched lives soaked in pesticides, fungicides and fertilizers poured on (at great expense) in my desperate attempts to make them flourish.

And then I started reading and writing about Florida gardening. I learned about our special conditions: the pros and cons of sandy soil, extreme heat and humidity, soggy summers. I got it: If I wanted to grow plants in Tampa, I had to plant plants that grow in Tampa.

But first I had to find them, which wasn't easy.

We've come a long way, flora-philes!

Today, we can find beautiful natives like *Gaillardia, Coreopsis* and *Liatris* in the big-box garden centers that used to stock, it seemed, only crotons and geraniums.

We have native plant nurseries, plant fairs, Master Gardener and club sales where local growers sell to-die-for native perennials, trees and edibles.

These plants thumb their pistils at nematodes, blistering sun and drought!

Of course, not all natives will be happy just anywhere. But put them where they want to be and you can say buh-bye to all the money, time and labor required to keep those Michigan peonies happy in your Central Florida garden.

I'm still learning and, in good Southern gardener tradition, passing along. In *Diggin' Florida Dirt*, a column that runs the first and third Sundays each month in the *Tampa Bay Times* HomeLink section, I report on new ideas and tips from Central Florida gardeners and horticulturists. Find friendly fellow gardeners eager to answer your questions on Facebook at *Diggin' Florida Dirt*. And, if you really want to burrow, uncover more on events, gardens and other local news on my blog, digginfloridadirt.com.

Fortunately, we have lots of other resources online, from the Extension Services' excellent, localized websites to garden blogs and Facebook pages run by dedicated gardeners whose fondest wish is to help all of us grow the stuff that grows here.

It's easy to go native today. Go ahead – go wild!

By choosing native plants for your garden, you can create a beautiful landscape that requires less water, fertilizer and pesticides, preserves Florida's botanical heritage and provides habitat for butterflies, bees, hummingbirds and other native wildlife.

Sources: Florida Fish and Wildlife Conservation Commission, Florida Native Plant Society, Florida Wildflower Foundation, University of Florida/IFAS Extension

Native, exotic and invasive species

Native species are those found in Florida before European colonization began in the 16th century.

Exotic, or nonnative, species are those that have been introduced outside of their native area by humans, either intentionally or by accident.

Invasive species are those that are able to spread into and dominate an area due to a lack of natural predators and disease. Invasive species cause ecological damage and harm native ecosystems by displacing native plants, decreasing diversity and even causing the extinction of native species. They also can have negative economic effects and even be harmful to human health.

There are almost 1,400 nonnative plant species in Florida. Many of these are well-managed and beneficial; some, however, become invasive and replace native plants. More than 1.5 million acres of Florida's remaining natural areas have become infested with nonnative plant species. Degradation and destruction of native habitat and the replacement of native plants by invasive species can have disastrous consequences for the environment, the economy, human health and safety.

Sources: Florida Fish and Wildlife Conservation Commission, University of Florida/IFAS Extension, U.S. Fish and Wildlife Service

What you can do

Everyone can play a role in preventing the introduction and spread of invasive species. Here are some tips:

- Learn to identify invasive species found in your area. Remove invasive plants on your property.
- Whenever possible, use only native plants that are appropriate for your region. Use exotic ornamentals only if you cannot find a native alternative and you are sure the ornamental is noninvasive.
- Don't bring animals, plants or agricultural products such as fruits, vegetables or soil into the country illegally.
- Join a local group, such as your local chapter of the Florida Native Plant Society, to learn more about native and exotic species.
- Participate in exotic invasive removal work days at local parks and preserves.

Sources: Florida Native Plant Society, U.S. Fish and Wildlife Service, U.S. National Arboretum

Learning with the *Times*

Invasive species

The National Ocean Service defines an invasive species, also known as an exotic or nuisance species, as "an organism or plant that is introduced into a new environment, where it is not native." Invasive species can be in the form of plants or animals. The nonnative dwellers can be hazardous to an ecosystem. Look for articles in the *Tampa Bay Times* that focus on local ecosystems, and invasive and threatened species. Pay special attention to the information about the effects of human activities and invasive species on ecosystems. In a journal, keep track of the articles you find. Choose one of the topics you have read about to do further research. Write a feature-style newspaper article about what you have discovered. Share this article with your class.

Invasive plants in Tampa Bay

Here are some of the most common invasive plants in the Tampa Bay region.

Air potato vine *(Dioscorea bulbifera)*. Southwest Florida Water Management District

Brazilian pepper tree *(Schinus terebinthifolius)*. University of Florida/IFAS Center for Aquatic and Invasive Plants

Japanese climbing fern *(Lygodium japonicum)*. University of Florida/IFAS Center for Aquatic and Invasive Plants

Air potato vine *(Dioscorea bulbifera)*. University of Florida/IFAS Center for Aquatic and Invasive Plants

Brazilian pepper tree *(Schinus terebinthifolius)*. Photo by Jan Allyn

Old World climbing fern *(Lygodium microphyllum)*. University of Florida/IFAS Center for Aquatic and Invasive Plants

Air potato vine (*Dioscorea bulbifera*)

Native to tropical Asia, the air potato vine was introduced to Florida in the early 20th century. Air potato is an herbaceous vine with heart-shaped leaves, often growing from an underground tuber. It forms dense canopies over native tree communities, overtopping and shading out native trees. Air potato vines spread very quickly.

Air potato has been listed by the Florida Exotic Pest Plant Council as one of Florida's most invasive plant species since 1993. It was added to the Florida Noxious Weed List by the Florida Department of Agriculture and Consumer Services in 1999.

Brazilian pepper tree (*Schinus terebinthifolius*)

The Brazilian pepper tree is one of the most aggressive and widespread invasive plants in the state of Florida. Brazilian pepper is an evergreen, shrub-like tree that produces dense clusters of small berries that change from green to bright red as they ripen.

Brazilian pepper trees can grow to more than 30 feet high and have a dense canopy that shades out all other plants and forms a poor habitat for birds and other native wildlife. The Brazilian pepper produces allergens that can cause respiratory difficulty, and, because it is in the same plant family as poison ivy, poison oak and poison sumac, it can cause skin irritation.

The Brazilian pepper is classified as a Class I Prohibited Aquatic Plant by the Florida Department of Environmental Protection and as Category I on the Florida Exotic Pest Plant Council's list of Invasive Plant Species. The sale or movement of Brazilian pepper is illegal.

Japanese climbing fern (*Lygodium japonicum*) and Old World climbing fern (*Lygodium microphyllum*)

Introduced to Florida in the early 20th century, Japanese climbing ferns and Old World climbing ferns have twining, climbing stems and can ascend and cover vegetation, reaching heights up to 90 feet. These ferns can smother entire habitats, blanketing trees and understory and preventing sunlight from reaching the forest floor.

Both species of climbing ferns are listed as Category I on the Florida Exotic Pest Plant Council's list of Invasive Plant Species and the Florida Noxious Weed List.

Sources: Florida Fish and Wildlife Conservation Commission, University of Florida/IFAS Extension, U.S. Fish and Wildlife Service

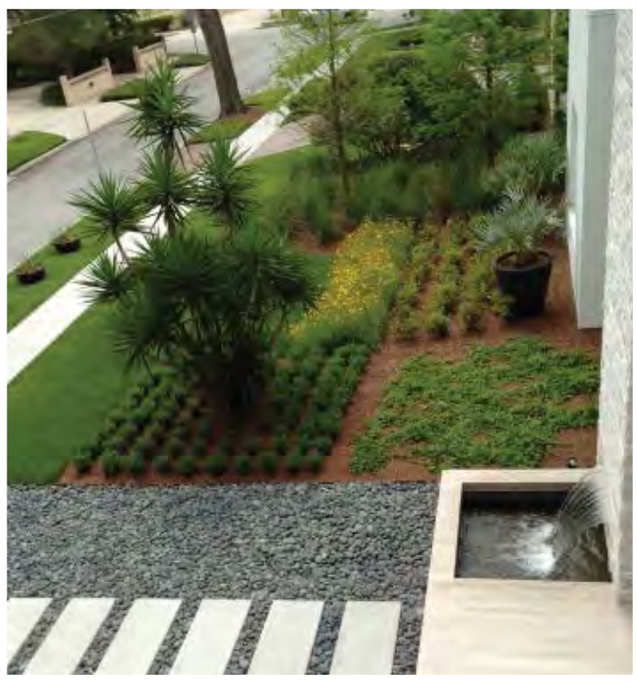
Mapping invasives

EDDMapS – Early Detection and Distribution Mapping System – is an online mapping system for documenting invasive species. Users who observe invasive species in their area document their sightings on a simple online form. EDDMapS uses this data to create interactive maps of invasive species locations. By allowing real time tracking of the spread of invasive species, EDDMapS helps land managers stop or control an invasive species before it becomes an unmanageable problem. Visit eddmaps.org for more information.

Why native?

Plants don't have to be invasive to be undesirable. The nonnative plants and turfgrass so commonly seen in Florida home landscapes often need intensive irrigation and fertilization to grow in the Florida climate. They provide little habitat or food for native wildlife and attract turf-eating insects that require pesticides to control.

There are many benefits to landscaping with native plants. Native plants provide food and shelter for native wildlife. Because they are adapted to local conditions, they thrive with minimum care and little to no irrigation. And using native plants is wise stewardship of our environment, because native species are members of an ecosystem – a community of plants, animals and microorganisms – that have co-evolved and are dependent on each other.



Examples of native gardens. Photos by Kariena Veaudry, NFC Design Build

MULCH SUSTAINABLY

Cypress trees are an essential component of Florida's wetlands. Unfortunately, cypress trees are being harvested at a rate that is faster than they can regrow. According to the University of Florida/IFAS Extension, 20.4 million cubic feet of cypress are cut every year to produce mulch and lumber. Do your part to preserve Florida's iconic cypress trees by choosing sustainable, plant-based mulch made from melaleuca, eucalyptus, pine bark or pine needles.

Sources: Southwest Florida Water Management District, University of Florida/IFAS Extension

WATERING RESTRICTIONS

Many Tampa Bay area municipalities have local restrictions on when and how often you can water. Visit your city's or county's website to see when you are permitted to water.

Photo by Carrie Pratt, *Tampa Bay Times*

Learning with the *Times*

Planning for planting

All trees and plants are not the same, and each has specific needs. Careful planning is necessary before you plant. Using the information on these pages and the information on the web links, create a flora-planting plan for your school. Ask your teacher to split your class into small groups. Be sure to implement all of the parts of the writing process in your plan. Begin by brainstorming some ideas with your classmates. Next, engage in a prewriting activity. The next step will be to create an outline. Once you have all of your ideas together, you can begin writing your plan. Don't forget to edit and proofread before submitting your final draft. Along with your plan, create a blueprint or map to illustrate your ideas. Share your plan and blueprint with your class.

Nine principles for a Florida-Friendly Landscape

Gardening in Florida can be uniquely challenging, especially for first-time gardeners or new residents. By following these nine principles of Florida-Friendly Landscaping from the University of Florida/IFAS Extension, you can create an attractive yard that is ecologically sound, wildlife-friendly and less work than a traditional yard.

Right Plant, Right Place

By selecting plants that match your site's space, soil, light and water conditions, you will reduce the amount of water, fertilizer and pesticides that you'll need to apply, saving you time and money.

Water efficiently

Group plants with similar water needs together, and water only when needed. Water early in the morning and don't water if it's going to rain. If you use a sprinkler system, make sure that it has a rain sensor and that all sprinklers are watering your plants, not your driveway or sidewalk.

Fertilize appropriately

Always fertilize according to UF/IFAS recommendations to prevent leaching (fertilizer leaking down through the soil rather than being absorbed by plant roots). Choose fertilizers with slow-release nitrogen and no phosphorous. Never fertilize within 10 feet of any water body, and don't fertilize before a heavy rain. If you spill fertilizer, sweep it up and put it back in the bag.

Mulch

Organic mulch helps to moderate soil temperature, retain soil moisture, protect plants and slow weed growth. Mulch plant beds with a 2- to 3-inch-deep layer of plant-based mulch, leaving at least 2 inches of space around tree trunks to prevent rot. Be sure to choose sustainably harvested mulch such as melaleuca, eucalyptus or pine – never cypress.

Attract wildlife

Select plants with seeds, fruit, flowers or berries that birds and animals can eat, and plant host plants for butterflies. Supply water with a rain garden or bird bath, and consider buying or building a bird or bat house.

Manage yard pests responsibly

Reducing your use of insecticide is good for both you and the beneficial insects that eat pests and help pollinate your flowers. Select pest-resistant plants, and, if problems do arise, remove the insects or affected plant parts by hand rather than using chemicals. If you must use insecticide, spot-treat only and use a selective, rather than a broad-spectrum, insecticide.

Recycle yard waste

Adding compost to your soil releases nutrients back to the soil in a form that plants can easily use. Converting yard debris, such as grass clippings and pruned branches, to compost is an environmentally friendly way to feed your plants while reducing the amount of solid waste that must be disposed of. Many Tampa Bay area Extension offices offer free composting workshops.

Reduce stormwater runoff

Fertilizers, pesticides and landscape debris harm water quality and the fragile ecosystem. Make sure that downspouts are pointed into your yard or garden, not toward a sidewalk or driveway. Wherever possible, install permeable walkways, driveways and patios made of materials such as brick, gravel or crushed shell, rather than impermeable substances such as concrete or asphalt, to allow rain to soak into the ground.

Protect the waterfront

If your landscape includes a body of water, maintain a 10-foot zone around it and do not mow, fertilize or use pesticides in this zone.

For more information about the University of Florida/IFAS Extension's nine principles of Florida-Friendly Landscaping, visit fyn.ifas.ufl.edu/homeowners/nine_principles.htm.

Source: University of Florida/IFAS Extension

Example of a native garden. Photo by Kariena Veaudry, NFC Design Build

Only rain down the storm drain

Even if you do not live on the water, what you do in your home landscape has much further-reaching consequences than you might think. Water that drains down storm drains flows directly to our ponds, lakes and streams and eventually ends up in Tampa Bay and the Gulf of Mexico. Nitrogen and phosphorous from fertilizer that make it into our waterways lower the quality of our water, including our drinking water, and cause harmful algae blooms that lower oxygen levels in the water, harming and even killing wildlife.

Do your part to keep our waters clean:

- Never fertilize or apply chemicals within 10 feet of any water body.
- Don't fertilize before a heavy rain.
- Always clean up excess or spilled fertilizer.

Note: In Manatee County, Pinellas County and the City of Tampa, it is illegal to apply fertilizers containing nitrogen or phosphorous from June through September.

RAIN BARRELS

Rain barrels are a great way to save water and money! You can purchase a rain barrel from a garden center or home improvement center, or build your own. Many Tampa Bay area Extension offices offer free rain harvesting workshops. Check your county's Extension office website to see what programs are available to you.

Designing your garden

Whether you are planning a large landscape project or a small flower garden, the key to a successful design is thorough planning. The design process must consider the environmental conditions of the site and the needs and desires of the users in order to create an aesthetically pleasing, functional and ecologically healthy design.

To find inspiration for your design, visit demonstration gardens, botanical gardens and local nurseries and look through gardening magazines and books. Take a walk around your neighborhood and observe landscapes and gardens in your community. Study those that appeal to you and make a note of features, types of plants and design elements such as color, texture and form that you like.

Use this landscape planning worksheet from the UF/IFAS Extension to design a customized Florida Friendly Landscape plan for your project.

For more information, download the UF/IFAS *Right Plant, Right Place Handbook* at fyn.ifas.ufl.edu/handbook/Right_Plant-Right_Place_vSept09.pdf.

Landscape Planning Worksheet

1. Decide why you want to landscape.

Landscaping is a great way to add beauty and value to your home. Other reasons to landscape can include enhancing or screening a view, attracting wildlife to a yard or creating an area to entertain outdoors.

How will you use your landscape? (A typical landscape has multiple uses.)

_____

_____

_____

_____

2. Obtain a soil analysis.

Soil plays a big part in any landscape project, influencing what plants will thrive in your yard. Determine the soil's texture (sandy to clay), and have it tested to determine the pH (the level of acidity or alkalinity). For a specific area, such as a planting bed, you can take just one sample; for a large area, such as a lawn, you should take samples from multiple locations to get an average reading. This information will help you decide which plants are best suited to the conditions of your yard.

Type of soil in your landscape: _____

pH: _____

3. Inventory your landscape.

Walk around your property, noting the conditions that make your yard unique. For example, does your site call for plants that are tolerant of cold, wind, full sun, shade, drought, occasional flooding or salt spray? Also take note of the locations of more permanent features, including utilities, hardscapes such as your driveway, and water sources such as hoses.

What kinds of conditions does your landscape have?

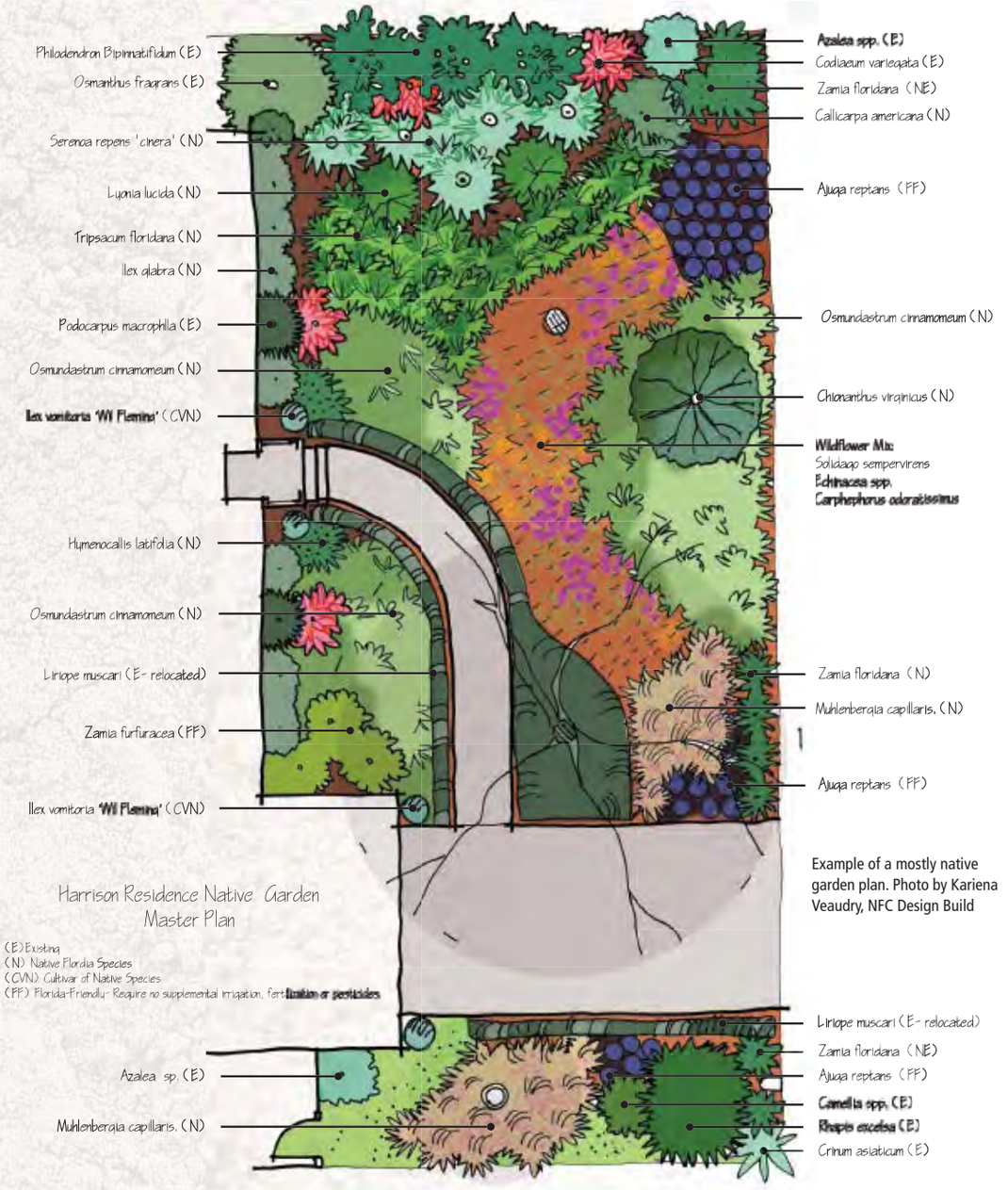
_____

_____

_____

_____

Source: University of Florida/IFAS Extension



Example of a mostly native garden plan. Photo by Kariena Veaudry, NFC Design Build

FLORIDA-FRIENDLY INTERACTIVE YARD

FloridaYards.org offers a free online Interactive Yard tool to help you learn how to build a Florida-Friendly Landscape. Visit floridayards.org to get started!

Learning with the *Times*

Biodiversity

Genetic variety among plants of the same species is common, so that plants from different regions may have some dissimilar characteristics. There is debate among horticulturists and environmentalists about how important it is to use local plant genotypes rather than plants grown from seed that originated far from the planting site. Similarly, some native plant purists discourage the development of cultivated varieties of native species, fearing that these will lack genetic diversity or will cross-pollinate with wild plants. With a partner, research this issue. Below are two websites you may use as references. Look in the *Tampa Bay Times* for articles on this topic. Think about how these horticultural practices might have unanticipated effects on plant populations and ecosystems. Write two newspaper editorials depicting each side of the argument. Use the editorials in the *Times* as models.

- Reference: wildones.org/land/ecotype.html
- Reference: nativeplantwildlifegarden.com/native-cultivars-good-bad-and-ugly

Growing zones for Florida native plants

Florida is divided into three gardening regions: north, central and south. The Tampa Bay area falls into the Central region. Florida native plants for landscape use are commonly recommended for one or more of these three climate zones.

Another way to tell where a plant can be grown is to look at its USDA Hardiness Zone, which indicates how much cold tolerance a plant has. Florida's long summers, high humidity and warm nights can affect a plant's ability to survive, even in the appropriate zone.

For a list of plants suitable for your county, visit fnps.org and select "Plants for Your Area." For fact sheets on individual plant species and growing zone information, visit plants.usda.gov.

American beautyberry *(Callicarpa americana)* produces striking magenta or white berries from late summer through winter. The colorful berries are a favorite bird food. Beautyberry is easy to find and easy to grow. Photo by Penny Carnathan, *Tampa Bay Times*

Florida Gardening Regions. University of Florida/IFAS Extension

When to plant

The University of Florida/IFAS Extension has published a series of monthly calendars that gives Florida gardeners a monthly guide for what to plant and do in their gardens. Three different editions of the calendar provide specific tips for each of Florida's climate zones. Visit solutionsforyourlife.ufl.edu/lawn_and_garden/calendar.

SOIL TESTING

County Extension offices can test your soil for a small fee or provide you with a kit to send a soil sample to the University of Florida/IFAS Extension Soil Testing Laboratory. Visit solutionsforyourlife.com/map to find your county Extension office.

Tips for choosing plants

There are many varieties of native and Florida-Friendly plants and trees for you to choose from. The types of plants and trees you choose will determine how much maintenance your landscape will require.

Before planning, learn each plant's needs, including soil type, moisture and light requirements. One way to do that is to find out in what habitat or plant community it is naturally found.

Plant selection resources:

Florida Association of Native Nurseries native plant database • floridanativenurseries.org/plants

Florida Native Plant Society native plant database • fnps.org/plants

FloridaYards.org Florida-Friendly plant database • floridayards.org

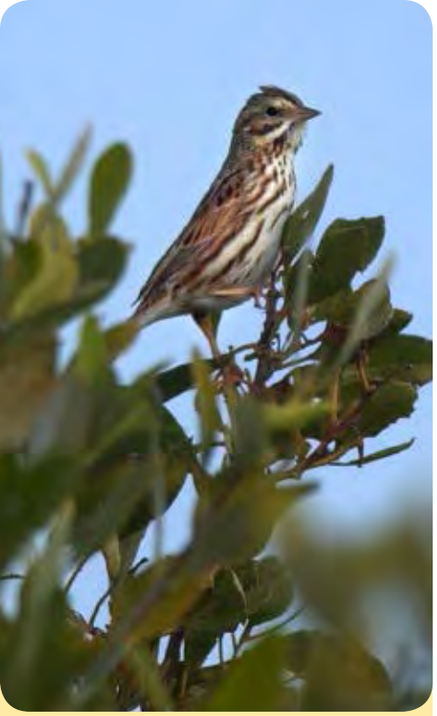
UF/IFAS plant database • gardeningsolutions.ifas.ufl.edu/plants

Zebra longwing on starry rosinweed
Photo by Doreen Damm

Call 8-1-1 before you dig

Before you dig in your yard, it's important that you get your underground utilities marked. Hitting a utility line can cause utility service outages, injuries, environmental contamination and property damage, and can result in your having to pay fines and repair costs.

Two business days before you want to dig, call 8-1-1. Your utility companies will locate any underground utilities in your landscape for free. For more information, visit callsunshine.com.



Savannah sparrow *(Passerculus sandwichensis). Times* file photo

10 TIPS FOR LANDSCAPING FOR WILDLIFE

1. Limit the amount of lawn by replacing some grass with ground cover plants or by creating islands of vegetation.
2. Increase vertical layering by planting a variety of vegetation in different sizes and heights.
3. Provide "snags" (dead trees) and brush piles for nesting and cover.
4. Provide water with a rain garden, fountain, birdbath or small pond.
5. Plant native vegetation that has nectar, fruit or seeds to provide food.
6. Provide bird/bat houses to provide nesting and roosting shelter.
7. Remove invasive exotic plants that can replace native plants needed by native wildlife.
8. Manage pets – both cats and dogs can drastically impact wildlife.
9. Eliminate or reduce pesticide use to avoid harming beneficial insect species and the birds and other animals that eat them.
10. Expand the scale of habitat by encouraging your neighbors to join you in creating wildlife-friendly yards.

Sources: Florida Native Plant Society, University of Florida/IFAS Extension

Cassius blue butterfly *(Leptotes cassius)* on a Spanish needle *(Bidens alba)*. Photo by Penny Carnathan, *Tampa Bay Times*

Coral bean *(Erythrina herbacea)*. Photo by Shirley Denton

Barred Owl *(Strix varia)*. Photo by Shirley Denton

Creating wildlife habitat with native plants

Wildlife needs food, water and cover to live. To create an ideal landscape for wildlife, plant native plants to provide a year-round food supply, offer water and provide cover to allow wildlife to breed, nest, hide, sleep and feed.

Some Florida native shrubs and trees that are especially valuable to wildlife include Simpson's stopper (*Myrcianthes fragrans*), yaupon holly (*Ilex vomitoria*), magnolias (*Magnolia* spp.), wax myrtle (*Myrica cerifera*), beautyberry (*Callicarpa americana*) and cabbage palm (*Sabal palmetto*).

For more suggestions of wildlife-friendly plant species, check your library for the books *Native Plant Landscaping for Florida Wildlife* by Craig N. Huegel and *Landscaping for Florida's Wildlife* by Joe Schaefer and George Tanner.

Butterfly gardening

Planting a butterfly garden is a great way to bring beauty to your yard while attracting wildlife. Butterfly gardens do not require a large land area. You can even plant one in a patio container!

Butterflies belong to the order of insects called Lepidoptera, which means "scaled wings." There are more than 180 butterfly species in Florida. About 40 of these are either unique to the state or occur mostly within its boundaries. Like bees, butterflies are important pollinators of flowering plants.

All butterflies have a life cycle consisting of four stages:

Egg – Female butterflies lay their eggs on a host plant, which not only provides a site for the butterfly to lay her eggs, but also will serve as food for the larvae that will hatch from the eggs within a few days.

Larva (caterpillar) – Butterfly larvae have enormous appetites and grow very quickly. Each larva will molt, or shed its skin, several times.

Pupa (chrysalis) – When fully grown, the larva seeks a sheltered place. It attaches itself with silk to a leaf or twig and transforms itself into a pupa.

Adult – After about 10-15 days, the winged adult butterfly emerges from the chrysalis.

Monarch butterfly *(Danaus plexippus)* egg; larva; chrysalis and adult. Photos by Doreen Damm, *Times* file photo

Gulf fritillary butterfly *(Agraulis vanillae)*. Photo by Doreen Damm

The whole process is called metamorphosis, which means "change of form."

Different butterfly species have different host plants, specific to that butterfly. Once metamorphosis is complete, adult butterflies eat nectar from flowers for food. So, your butterfly garden should appeal to different species of butterflies and also provide food for both adult butterflies and their larvae.

Start by planting a few nectar plants to attract the adult butterflies in your area.

Unlike plants for adult butterflies, larval host plants must be tailored to individual butterfly species, so you will need to be more selective in your plant choice.

For more information about butterfly gardening, check your library for the books *Florida Butterfly Gardening* by Mark Minno and *Your Florida Guide to Butterfly Gardening* by Jaret C. Daniels or visit:

- McGuire Center for Lepidoptera and Biodiversity – flmnh.ufl.edu/mcguire
- North American Butterfly Association – naba.org
- University of Florida/IFAS Extension – edis.ifas.ufl.edu/topic_butterfly_gardening

Sources: Florida Museum of Natural History, University of Florida/IFAS Extension, Your Florida Backyard

DID YOU KNOW?

Zebra longwing butterfly *(Heliconius charitonius)*. *Times* file photo

Northern mockingbird *(Mimus polyglottos)*. Photo by Shirley Denton

The zebra longwing (*Heliconius charitonius*) is Florida's state butterfly. The zebra longwing has long black wings with distinctive thin yellow bands and slow, graceful flight. It has a wide range of habitats, including hardwood hammocks, thickets and gardens.

Source: Florida Department of State

The common mockingbird (*Mimus polyglottos*) is Florida's state bird. The mockingbird is a superb songbird and mimic. Mockingbirds are usually about 10 inches in length, with grayish upper portions, white undersides and white patches on the tail and wings. The mockingbird is helpful to humans because it eats insects and weed seeds in addition to berries.

Source: Florida Department of State

Plant native milkweed to help to conserve the monarch butterfly

The orange-and-black monarch butterfly (*Danaus plexippus*) is one of the most widely recognized butterfly species in the world. It is also the only butterfly species that carries out an annual long-distance roundtrip migration. Each fall, monarchs in the western United States migrate to spend the winter in California, while monarchs from the eastern U.S. and Canada migrate up to 3,000 miles to winter in Mexico.

Florida is unusual in hosting a permanent population of monarchs because of its warm climate and year-round growing season, which means that host plants for developing and adult butterflies are available all year. Florida also hosts migratory monarchs from northeastern North America on their way to Mexico.

Monarch butterfly *(Danaus plexippus)* on swamp milkweed *(Asclepias incarnata)*. Photo by Peg Urban

The only host plant for monarch eggs and larvae is the milkweed. Recently, the monarch butterfly population has declined due to the loss of milkweed plants throughout the U.S., caused by factors including development, climate change and pesticide use. In the 1990s, an estimated one billion monarchs migrated to Mexico each year. Now, researchers estimate that only about 56.5 million monarchs remain.

You can help conserve this beautiful species by including Florida native milkweed in your garden and avoiding the use of insecticides and herbicides. Find local sources of Florida native milkweed at xerces.org/milkweed-seed-finder.

Sources: The Xerces Society, University of Florida/IFAS Extension

Ruby-throated hummingbird *(Archilochus colubris)*. Photo by Jim Damaske, *Tampa Bay Times*

Hummingbird gardening

It is easy to attract tiny, brightly colored hummingbirds to your garden.

Three different species of hummingbirds live in Florida. By far, the most common is the ruby-throated hummingbird (*Archilochus colubris*), which is primarily seen during its spring and fall migrations. The ruby-throated hummingbird is only about 3 inches long, and weighs as little as a penny. Unlike other birds, hummingbirds can hover in midair and fly backward, upward and upside down. This is made possible by their unique wing design.

To acquire enough energy to support their high-speed flight, hummingbirds need to consume large amounts of high-energy food. Adult hummingbirds feed primarily on nectar by using their long tongues to sip it from flowers.

To attract hummingbirds to your garden, choose plants with brightly-colored, tubular flowers, such as necklacepod (*Sophora tomentosa*), tropical sage (*Salvia coccinea*), coral bean (*Erythrina herbacea*) or coral honeysuckle (*Lonicera sempervirens*). Hummingbirds prefer red, orange and pink flowers. Visit edis.ifas.ufl.edu/uw059 to find a list of nectar plants attractive to hummingbirds.

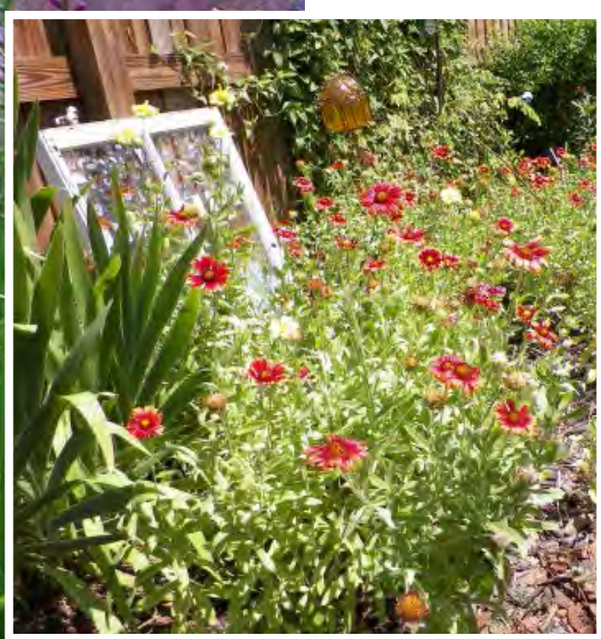
Source: University of Florida/IFAS Extension

Learning with the *Times*

Invasive plants

Sterile, cultivated varieties have been developed for some exotic invasive species. Most do not look markedly different from their invasive ancestors. Sometimes the cultivated varieties revert and produce fertile seeds and berries. And the continued sale of any version of an invasive plant can confuse people and make them think that all forms of the plant are okay. You can find more information on this topic on this website: nativeplantwildlifegarden.com/developing-sterile-invasives-why-bother. Should these cultivated varieties be allowed to be offered for sale, even when the fertile form of the plant is prohibited? Why or why not? Some exotic species are invasive in one geographic region, but are not in another because of differences in soil and climate. Should sale of these species be prohibited everywhere? Why or why not? Based on your stance, create a full-page advertisement for the *Tampa Bay Times* informing residents about this issue. Use the advertisements in the *Times* as models. Your goal is to convey accurate information and catch people's attention. Be creative and persuasive.

Landscaping with wildflowers



Left to right: blazing stars (*Liatris*), photo by Penny Carnathan, *Tampa Bay Times*; blanketflower (*Gaillardia pulchella*), photo by Penny Carnathan, *Tampa Bay Times*; spotted beebalm (*Monarda punctacta*), photo by Shirley Denton; coral honeysuckle (*Lonicera sempervirens*), photo by Shirley Denton

Using Florida native wildflowers in your landscape is one of the best ways to create a beautiful garden that is also environmentally sound and pocketbook friendly.

Because Florida's wildflowers evolved here, they do not need the intensive watering or fertilization that nonnative ornamental plants may require. They also provide food and habitat for bees, butterflies, hummingbirds and other wildlife. Many wildflowers will reseed themselves, ensuring that your garden will look great year after year.

There are hundreds of Florida native wildflowers to choose from, but here are six easy-to-grow Florida native wildflowers recommended by the Florida Wildflower Foundation:

- **Blanketflower** (*Gaillardia pulchella*): Blanketflower, also known as firewheel or Indian blanket, is a brightly colored, drought- and salt-tolerant wildflower that thrives in open, sandy, sunny spots where other plants may struggle. It is an excellent nectar plant for butterflies and bees.
- **Blazing stars** (*Liatris* species): The many Florida native species of blazing star are tall, perennial wildflowers that are excellent nectar plants for butterflies, bees and hummingbirds. *Liatris* prefers full sun and well-drained soil.
- **Spotted beebalm** (*Monarda punctacta*): Spotted beebalm, also known as dotted horsemint, may be the best Florida wildflower for attracting butterflies, bees and hummingbirds. It grows best in sandy, well-drained soil with full sun.
- **Sunflowers** (*Helianthus* species): The Sunshine State has 17 native sunflower species, of which dune or beach sunflower (*Helianthus debilis*) and narrow-leaf sunflower (*Helianthus angustifolius*) are the most commonly cultivated. All of Florida's native sunflowers are excellent nectar plants and thrive in full sun, although different species prefer different soil types.
- **Tickseed** (*Coreopsis* species): *Coreopsis* species are excellent nectar plants for sunny locations. There are two species that are commonly available for landscape use: Leavenworth's tickseed (*Coreopsis leavenworthii*) is endemic to Florida and prefers moist, loamy soil, while lanceleaf tickseed (*Coreopsis lanceolata*) will tolerate drier conditions. *Coreopsis* is Florida's state wildflower.

- **Tropical sage** (*Salvia coccinea*): This perennial is easy to grow, readily reseeds and comes in a variety of colors, including red, pink, salmon and white. It is adaptable to a wide range of conditions, equally happy in full sun or partial shade, and tolerates soil from dry to moist, and sandy to loamy.

Many Florida native wildflowers are available in containers from native nurseries. Visit plantrealflorida.org to find a native nursery near you or visit floridawildflowers.com to purchase Florida native wildflower seeds. Many Florida Native Plant Society chapters also have native plant sales once or twice per year. Never remove plants from parks or wild areas.

The Florida Native Plant Society offers downloadable plant profiles for 24 commonly cultivated species at fnps.org/resources/pubs.

Bee attracted to blanketflowers. Jim Damaske, *Tampa Bay Times*

Tips for gardening with wildflowers

- Select plants grown in and for your region of Florida. Plants that naturally grow in your area are most likely to thrive in your garden.
- Understand Florida wildflower seasons. Knowing when wildflowers bloom in your region will help you to plant at the right time and plan a landscape that works year-round.
- Select your site carefully. Most Florida wildflowers prefer well-drained, sunny sites.
- Start small. Consider starting with a small plot so that you can get a feel for maintaining an evolving garden.
- Prepare your site well. It is essential to start with a turf-free, weed-free planting area.
- Maintain your garden properly. Your wildflower garden will need hand weeding, but shouldn't need watering or fertilizing. Leave the ground bare of mulch in areas where you want your wildflowers to reseed themselves.

Visit flawildflowers.org/planting.php for more information about these and other recommended Florida native wildflowers and detailed planting instructions.

Source: Florida Native Plant Society, Florida Wildflower Foundation

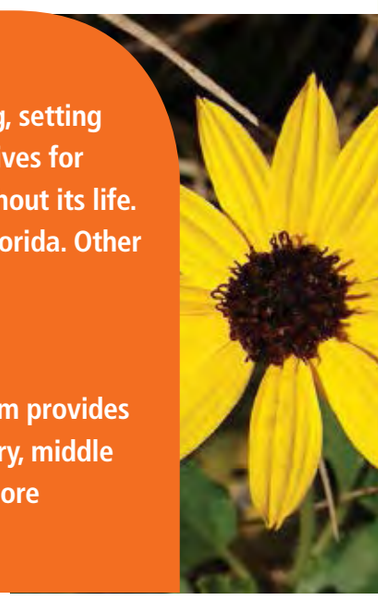
Tropical sage (*Salvia coccinea*)
Photo by Shirley Denton

ANNUALS AND PERENNIALS

An annual is a plant that completes its life cycle (growing, flowering, setting seed and dying) in one growing season. A perennial is a plant that lives for longer than one season and that flowers and produces seed throughout its life. Some plants that are annuals up north may grow as perennials in Florida. Other plants may die back in winter, but return in the spring.

SEEDS FOR SCHOOLS

The Florida Wildflower Foundation's Seeds for Schools grant program provides native wildflower seeds and learning resources to Florida elementary, middle and high schools. Visit flawildflowers.org/seedsforschools.php for more information.



Starting plants from seed

Starting plants from seed can be a fun and economical way to start your gardening adventure. Spring and fall are the best times to sow seeds in central Florida. For most seeds, soil should be kept moist, but not wet. Seed size, time to germination, sowing depth and optimal seed density all vary by species. For this reason, it is important to always follow the directions on the seed packet, and consult your local Extension office for more help.

Source: University of Florida/IFAS Extension

Seed exchanges and libraries

Seed exchanges and libraries are a great way to get free seeds and discover new varieties. Find exchanges online or through local garden clubs. In the Tampa Bay area, the Dunedin Public Library, the Safety Harbor Public Library and the New Port Richey Public Library offer seed libraries to their members.

Tampa Bay area native nurseries

Florida Native Plants Nursery
floridanativeplants.com

Restless Natives Nursery
Facebook.com/restlessnativesnursery

Twigs & Leaves
twigsnleaves.com

Wilcox Nursery & Landscape
wilcoxnursery.com

Learning with the *Times*

Property use rights

Some homeowners' associations try to force homeowners to have turf-dominated landscapes, even though lawn irrigation is a huge consumer of water. Even in areas without such restrictions, neatly maintained natural landscapes still may be perceived as unkempt or undesirable and neighbors may attempt to compel compliance with an aesthetic standard that has no regulatory basis. Should everyone have a right to maintain their property as they wish? When does society have a right to influence what people plant in their yards? Who should decide? Read this article from the *Orlando Sentinel*: articles.orlandosentinel.com/2012-10-05/news/os-neighbors-sue-homeowner-over-xeriscaped-yard-20121006_1_florida-yards-lawns-neighborhood-association. Look for additional articles on this topic in the *Tampa Bay Times*. Create an oral presentation to share with your classmates based on your research, thoughts and what you have learned.

Trees

Top to bottom, left to right: eastern redbud (*Cercis canadensis*); eastern redbud (*Cercis canadensis*); southern magnolia (*Magnolia grandiflora*); chickasaw plum (*Prunus angustifolia*); slash pine (*Pinus elliottii*); southern magnolia (*Magnolia grandiflora*); chickasaw plum (*Prunus angustifolia*); slash pine (*Pinus elliottii*). Photos by Shirley Denton

Including trees in your landscape plan offers many benefits:

- Trees provide shade, reducing the energy needed to cool and heat buildings and cars.
- Trees remove pollutants such as carbon monoxide, nitrogen dioxide, ozone and sulfur dioxide from the atmosphere. Trees sequester, or "lock up," the greenhouse gas carbon dioxide in their tissue for their lifetime.
- Trees improve water quality. Tree roots bind the soil together, reducing erosion and water runoff.
- Trees provide noise reduction by reflecting and absorbing sound energy.
- Trees provide wildlife habitat.
- Trees produce oxygen. In one year, one tree can produce enough oxygen for four people.
- Trees increase property values. Properties with trees are valued up to 19 percent more than properties without trees.

Source: Penn State Cooperative Extension

Chickasaw plum (*Prunus angustifolia*). Photo by Shirley Denton

The right tree in the right place

Trees come in many sizes and shapes, and each has specific needs. Careful planning is necessary before you plant to make sure that your tree will grow well, stay healthy and provide you with the maximum environmental, economic and aesthetic benefits.

The Arbor Day Foundation offers an online quiz at arborday.org/trees/righttreeandplace/quiz.cfm to help you learn how the characteristics of trees influence how and where they should be planted.

As with the other plants in your landscape, Florida native trees are the best choice to thrive with minimal care and to provide food and shelter for native wildlife. Florida native trees to look for include the chickasaw plum, eastern redbud, flowering dogwood, live oak, red maple, slash pine, southern magnolia and sweet acacia.

Sources: Arbor Day Foundation, Penn State Cooperative Extension, University of Florida/IFAS Extension

Palms

Florida has 11 native palms. Palms most suitable for the Tampa Bay area include the dwarf palmetto (*Sabal minor*), needle palm (*Rhapidophyllum hystrix*), sabal palm (*Sabal palmetto*), saw palmetto (*Serenoa repens*) and scrub palmetto (*Sabal etonia*).

The sabal palm, also known as the cabbage palm, is Florida's state tree and

Archbold Biological Station. Photo by Florida Native Plant Society

Archbold Biological Station. Photo by Florida Native Plant Society

appears on the state seal. It grows in almost any soil and light conditions, is salt, wind, flood and freeze tolerant, is fire resistant and provides habitat for wildlife, including birds and honeybees. It is the most common type of palm in the state of Florida.

Did you know that palms are not actually trees at all, but a type of flowering plant called a monocotyledon? Unlike those of trees, the stems and roots of palms cannot grow in thickness. Most palms also have only one growing point, unlike trees.

In general, palms are fairly easy to care for. Unfortunately, many people overprune their palms. Palms should have round, full crowns, not "feather-duster" crowns. Palms do not require pruning at all. Overpruned palms are unattractive, provide little shade and are weaker than full-canopied palms, with reduced photosynthetic ability and diminished resistance to disease and insects.

Sources: *Encyclopedia Britannica*, Florida Association of Native Nurseries, Florida Division of Historical Resources, University of Florida/IFAS Extension

NO HURRICANE CUTS

"Hurricane-cut" palms, which have been severely pruned with the intent of protecting the palm by reducing wind resistance, have been shown instead to be more likely to sustain damage in high winds than palms with fuller crowns.

Learning with the *Times*

Sense of place

The way that Florida is portrayed in the media does not always give an accurate picture of our environment. Review the different types of Florida ecosystems at fnps.org/natives/native-plant-communities.

Then, using the *Tampa Bay Times*, find three to five advertisements or images that portray Florida. What environments or ecosystems do they portray? Do they present a balanced picture of Florida's environment? Why or why not? What might be some of the reasons for the disparity? Write an argument essay based on your thoughts. Be sure to use specific examples to support your claims.

How to plant a container tree

- Dig a hole three to four times wider than the container. The hole should have sloping sides to allow for root growth. The depth of the hole should allow the top of the root ball to protrude a little above the ground.
- Carefully slide the tree from the container, taking care not to yank it.
- Cut any roots that circle the outside of the root ball.
- Set the tree in the center of the hole. Using some soil, secure the tree in a straight position, then firmly pack the hole. Keep backfilling until the soil is just below the root collar.
- Create a water-holding basin around the hole by using soil to make a 3-inch-high berm around the edge of the root ball.
- Water the tree well.
- Spread organic mulch 2 to 4 inches deep in a 3-foot-diameter area around the base of the tree.
- Leave a 2-inch area around the base of the tree mulch free.
- Remove any tags or labels from the tree.
- Prune off any branches that are broken, unhealthy or dead

Newly planted trees need time and care to become established. Depending on the size of your tree, it may take six to nine months of care to ensure that your tree gets off to a good start.

During this period, you will need to make sure that the soil stays moist. Water your tree when the soil is dry below the surface of the mulch, or at least once a week. At each watering, your tree should get approximately 2 gallons of water per inch of trunk diameter. Mature trees do not require watering except in drought conditions. Do not use fertilizer or chemicals on your newly planted tree.

Sources: Arbor Day Foundation, International Society of Arboriculture, Penn State Cooperative Extension, University of Florida IFAS/Extension

Southern magnolia (*Magnolia grandiflora*). Photo by Shirley Denton

Tree selection resources:

City of Tampa tree matrix
tampatreemap.usf.edu/TampaTreeMatrix

Florida Native Plant Society
fnps.org/natives/natives

UF/IFAS Tree Selector
lyra.ifas.ufl.edu/FloridaTrees

Violet (*Violaceae*). Photo by Shirley Denton

Edibles

Left to right: Elderberry (*Sambucus nigra* subsp. *canadensis*); Spanish bayonet yucca (*Yucca aloifolia*); spiderwort (*Tradescantia ohiensis*). Photos by Shirley Denton

Many kinds of fruits and vegetables can be grown successfully in the Florida home garden. Growing your own produce can save you money, and homegrown varieties often are tastier than the produce found in grocery stores. By incorporating flowers, herbs, vegetables and fruits into your garden, you can create both a beautiful and an edible landscape.

Before you plant, research plants that grow well in your area. Decide what you want to grow and research which crops do well at different times of the year. In Florida, you can plant vegetables throughout most or all of the year.

- What do you like eating?
- What fruits and vegetables are the most expensive to buy?
- Which vegetables can be easily stored or preserved?
- How much time are you willing to spend?
- How much space can you devote to an edible garden?

Visit gardeningsolutions.ifas.ufl.edu for information on how to plan, design, plant and care for your edible garden.

Source: University of Florida/IFAS Extension

FLORIDA NATIVE EDIBLES:

- **Nuts: black walnut (north Florida), hickories**
- **Berries: blackberries, blueberries, elderberry, grapes, seagrape, red mulberry**
- **Other fruit: cactus, maypop, wild persimmon**
- **Herbs: Florida betony, peppergrass, redbay, wax myrtle**
- **Other: groundnut, wild onion**

Learning with the *Times*

Ecosystems

An ecosystem is a biological community of interacting organisms and their physical environment. In other words, an ecosystem is a community of living and nonliving things that work together. Think about all of the different parts of the ecosystem that make up the Tampa Bay area. Make a list of all of the interacting organisms in what would be in your community. Next, look for articles, photos and advertisements in the *Tampa Bay Times* that illustrate these ideas. Make a list of all of the parts of an ecosystem that you find in the *Times*. Choose some of the most important parts and create a cartoon depicting this ecosystem. Share your cartoon and ideas with your class.

Edible Florida native flowers

Flowers have long been used in cuisines around the world for their taste, color and fragrance.

Edible flowers can be used fresh as a garnish or in salads or stir-fry dishes. They can be candied; frozen into ice cubes; made into jellies and jams; used to make tea, wine, vinegar or marinades; or added to butter or cheese spread.

Edible Florida native flowers include eastern redbud, elderberry, spiderwort, violet and yucca.

Eastern redbud (*Cercis canadensis*): The flowers and young pods of this tree are edible and can be eaten raw or cooked. Raw flowers can be added to salads or used as a garnish. Unopened buds can be pickled. Young seed pods can be stir-fried as a substitute for sugar snap peas.

Elderberry (*Sambucus nigra* subsp. *canadensis*): Elderberry flowers and fruits are edible. The fruit can be used to make wine, jams and jellies, while the flowers can be used in salads or as a garnish. Elderberry flowers also can be used to make syrup.

Spiderwort (*Tradescantia ohiensis*): The flowers, leaves and stems of this plant are edible. The leaves can be used raw in salads or cooked in soup, stews or omelets. The stems can be braised like asparagus. The flowers can be used raw in salads or as a garnish or candied.

Violet (Violaceae): Florida has several species of native violet, and the leaves and flowers of all of them are edible (African violets are not native and not edible). Violet leaves can be used in a salad, cooked like spinach, or dried, crushed and steeped to make tea. The flowers can be can be used raw in salads or as a garnish, candied, jellied or made into vinegar or syrup.

Yucca (Adam's needle/beargrass yucca (*Yucca filamentosa*); Spanish bayonet yucca (*Yucca aloifolia*); Spanish dagger yucca (*Yucca gloriosa*): Yucca flowers can be eaten raw in salads or used as a garnish. The center part of the flower is bitter and should be removed before using. Yucca flowers can also be used in soups or stews, or batter-dipped and fried like squash blossoms.

Photo by Carrie Pratt, *Tampa Bay Times*

BE SAFE

Never eat flowers from florists, nurseries or garden centers, as they most likely have been treated with potentially harmful chemicals. Eat only flowers that you are certain are edible, and that you or someone else has grown specifically for that purpose.

Candied flowers

Ingredients:
1 large egg white
1 tablespoon water
½ cup super-fine sugar
Spiderwort or Florida native violet blossoms, fresh

Directions:
Beat the egg white and water until foamy. Use a small, clean paintbrush to paint the egg white mixture onto both sides of each blossom, then dip the blossom into the sugar. Allow the blossoms to dry overnight on waxed paper. Store in an airtight container and use as a garnish for desserts, salads or entrees.

Violet leaf tea

Ingredients:
2 teaspoons dried violet leaves
1 teaspoon dried Florida native violet blossoms
1½ cups boiling water

Directions:
Pour the boiling water over the violet leaves and blossoms, cover and let steep for 10 minutes.

Elderflower syrup

Ingredients:
2 cups water
2 cups sugar
½ to 1 cup fresh elderflowers
½ lemon, sliced
½ orange, sliced
1½ teaspoons citric acid powder (optional)

Directions:
Bring the water and sugar to a boil over medium heat until the sugar dissolves. Remove from the heat and let cool. Once cooled, add all ingredients to a sealable glass jar, seal and shake. Store in the refrigerator for 24 to 72 hours. (The longer the syrup is allowed to infuse, the stronger the flavor will be.) After the syrup has been allowed to infuse for 24 to 72 hours, strain it through cheesecloth into a sealable glass container, pressing to extract all the liquid. Finished syrup can be stored in a sealed glass container in the refrigerator for up to three months. (If citric acid was omitted, store for no more than three weeks or until syrup appears cloudy.) Serve over fresh fruit, pancakes, crêpes, waffles or ice cream; add a tablespoon or two to seltzer or club soda; or add a teaspoon to heavy cream before whipping.

Pickled redbud blossoms

Ingredients:
2 cups fresh redbud flower buds (not fully opened)
1 cup white wine or distilled white vinegar
1 cup water
1 teaspoon kosher or other non-iodized salt

Directions:
Combine vinegar and water. Add the salt and stir to dissolve. Add the buds to a sealable glass jar and fill with the vinegar mixture to the very top so that all buds are submerged. Leave the jar at room temperature, away from direct sunlight, for three days. A few times per day, open the lid to release pressure. After three days, transfer the jar to the refrigerator. Don't expose pickled redbud blossoms to heat or their texture and color will diminish. Use as you would capers.

Sources: eattheweeds.com, Florida Native Plant Society, University of Florida/IFAS Extension. Edible flowers recipes adapted from the American Violet Society, the *Allegheny County Parks and Penn State Master Gardeners of Allegheny County Annual Edible Flowers Food Fest Cookbook*, Mother Earth News and Serious Eats.

Eastern redbud (Cercis canadensis). Photo by Shirley Denton

Online resources

American Horticultural Society
ahs.org

American Society of Agronomy
agronomy.org

American Society for Horticultural Science
ashs.org

American Society of Landscape Architects
asla.org

Atlas of Florida Vascular Plants
florida.plantatlas.usf.edu

Bok Tower Gardens Rare Plant Conservation Program
boktowergardens.org/conservation

Center for Plant Conservation
centerforplantconservation.org

Early Detection and Distribution Mapping System
eddmaps.org

Florida Association of Native Nurseries
plantrealflorida.org

Florida Department of Environmental Protection
dep.state.fl.us

Florida Exotic Pest Plant Council
fleppc.org

Florida Fish and Wildlife Conservation Commission
myfwc.com

Florida-Friendly Landscaping
fyn.ifas.ufl.edu

Florida Museum of Natural History
flmnh.ufl.edu

Florida Native Plant Society
fnps.org

Florida Natural Areas Inventory
fnai.org

Florida Nursery, Growers and Landscape Association
fngla.org

Florida State Horticultural Society
fshs.org

Florida Wildflower Foundation
flawildflowers.org

Florida Wildflowers Growers Cooperative
floridawildflowers.com

Horticultural Research Institute
hriresearch.org

Journal of Horticulture
esciencecentral.org/journals/horticulture.php

Lady Bird Johnson Wildflower Center
wildflower.org

National Junior Horticultural Association
njha.org

Native Plant Conservation Initiative
nps.gov/plants/coop.htm

PlantNative
plantnative.org

Southeastern Horticultural Society
sehort.org

University of Florida Institute of Food and Agricultural Sciences (UF/IFAS)
ifas.ufl.edu

UF/IFAS Solutions
solutionsforyourlife.com

Your Florida Backyard
nsis.org

Swamp hibiscus (*Hibiscus coccineus*), a very easy-to-grow plant with a dramatic red flower, can be seen in the foreground of the water garden at the Bette S. Walker Discovery Garden at the Hillsborough County Extension in Seffner. Photo by Lynn Barber. Right, wax myrtle (*Myrica cerifera*). Photo by Shirley Denton

Stanley Smith Horticultural Trust

The Stanley Smith Horticultural Trust was created in 1970 by May Smith in honor of her late husband. The Trust supports education and research in ornamental horticulture, primarily in North and South America.

For more information about the Stanley Smith Horticultural Trust, visit adminitrustllc.com/stanley-smith-horticultural-trust.

Learning with the *Times*

Learning new words

Native, exotic, invasive … Oh, my! When you study new things, you often come up against some tough vocabulary words. This publication has many words with Latin origins, so deciphering their meaning is challenging. While you read this publication, be sure to highlight or circle words you don't know. Try to figure out the words' meanings by looking for clues in the sentences around them. Write down your best guess, and then look up the words in a dictionary. As a group activity, make a list of the words your classmates identified and see which ones stumped the class. Next, use these words for a news scavenger hunt. See if you can find these words in the *Tampa Bay Times*. The group that finds the most words wins the game.

Florida Native Plant Society

The mission of the Florida Native Plant Society is to promote the preservation, conservation and restoration of the native plants and native plant communities of Florida. The Society fulfills this mission through:

- Support for conservation land acquisition
- Land management that enhances habitat suitability for native plants
- Education
- Public policies that protect our native flora, especially rare species
- Research on native plant species
- Encouragement of local landscaping practices and policies that preserve Florida's native plant heritage

For more information about the Florida Native Plant Society, visit fnps.org.

Tampa Bay area FNPS Chapters

Citrus
citrus.fnpschapters.org
352-212-2390
citrusNPS@gmail.com

Hernando
hcfnps.org
352-583-2384
liberton@earthlink.net

Nature Coast (Pasco)
pasconativeplants.org
727-863-1363
naturecoastfnps@gmail.com

Pinellas
pinellas.fnpschapters.org
pinellas@fnpschapters.org

Suncoast (Hillsborough)
suncoastnps.org
813-478-1183
info@suncoastnps.org

Simpson's stopper (*Myrcianthes fragrans*). Photo by Shirley Denton

Newspaper in Education

Tampa Bay Times NIE newspaper in education tampabay.com/nie

The Tampa Bay Times Newspaper in Education program (NIE) is a cooperative effort between schools and the Times Publishing Co. to encourage the use of newspapers in print and electronic form as educational resources – a "living textbook." Our educational resources fall into the category of informational text, a type of nonfiction text. The primary purpose of informational text is to convey information about the natural or social world.

Since the mid-1970s, NIE has provided schools with class sets of the daily newspaper plus award-winning original curriculum supplements, teacher guides, lesson plans, educator workshops and many more resources at no cost to schools, teachers or students. Each year, more than 5 million newspapers and electronic licenses are provided to Tampa Bay area teachers and students free of charge thanks to our generous individual, corporate and foundation sponsors. NIE teaching materials cover a variety of subjects and are correlated to the Florida Standards.

For more information about NIE, visit tampabay.com/nie, call 800-333-7505, ext. 8138 or email ordernie@tampabay.com. Follow us on Twitter at Twitter.com/TBTimesNIE.

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Cover Photos

Main image: Phaon crescent butterfly (*Phyciodes phaon*) on a Spanish needle (*Bidens alba*). Photo by Doreen Damm. Left to right: yaupon holly (*Ilex vomitoria*); tickseed (*Coreopsis floridana*); American beautyberry (*Callicarpa americana*); blanketflower (*Gaillardia pulchella*); live oak (*Quercus virginiana*); red maple (*Acer rubrum*). Photos by Shirley Denton

Florida Standards

This publication and the activities focus on the following Florida Standards for high school: Language Arts: LAFS.910.RI.1.1; LAFS.910.RI.1.2; LAFS.910.RI.1.3; LAFS.910.RI.2.4; LAFS.910.RI.2.5; LAFS.910.RI.2.6; LAFS.910.RI.3.7; LAFS.910.RI.3.8; LAFS.910.W.1.1; LAFS.910.W.1.2; LAFS.910.W.1.3; LAFS.910.W.2.4; LAFS.910.W.2.5; LAFS.910.W.2.6; LAFS.910.W.3.7; LAFS.910.W.3.8, LAFS.910.W.3.9; LAFS.910.W.4.10; LAFS.910.SL.1.1 LAFS.910.SL.1.2; LAFS.910.SL.1.3; LAFS.910.SL.2.4; LAFS.910.SL.2.5; LAFS.910.SL.2.6; LAFS.910.L.1.1; LAFS.910.L.1.2; LAFS.910.L.3.4; LAFS.910.L.3.5; LAFS.910.L.3.6; LAFS.910.RH.1.1; LAFS.910.RH.1.2; LAFS.910.RH.1.3; LAFS.910.RH.2.4; LAFS.910.RH.2.5; LAFS.910.RH.2.6; LAFS.910.RH.3.7; LAFS.910.RH.3.8; LAFS.910.RH.3.9; LAFS.910.RST.1.1; LAFS.910.RST.1.2; LAFS.910.RST.1.3; LAFS.910.RST.2.5; LAFS.910.RST.2.6; LAFS.910.RST.2.7; LAFS.910.RST.2.8; LAFS.910.RST.2.9; LAFS.1112.RI.1.1; LAFS.1112.RI.1.2; LAFS.1112.RI.1.3; LAFS.1112.RI.2.4; LAFS.1112.RI.2.5; LAFS.1112.RI.2.6; LAFS.1112.RI.3.7; LAFS.1112.RI.3.8; LAFS.1112.W.1.1; LAFS.1112.W.1.2; LAFS.1112.W.1.3; LAFS.1112.W.2.4; LAFS.1112.W.2.5; LAFS.1112.W.2.6; LAFS.1112.W.3.7; LAFS.1112.W.3.8, LAFS.1112.W.3.9; LAFS.1112.W.4.10; LAFS.1112.SL.1.1 LAFS.1112.SL.1.2; LAFS.1112.SL.1.3; LAFS.1112.SL.2.4; LAFS.1112.SL.2.5; LAFS.1112.SL.2.6; LAFS.1112.L.1.1; LAFS.1112.L.1.2; LAFS.1112.L.3.4; LAFS.1112.L.3.5; LAFS.1112.L.3.6; LAFS.1112.RH.1.1; LAFS.1112.RH.1.2; LAFS.1112.RH.1.3; LAFS.1112.RH.2.4; LAFS.1112.RH.2.5; LAFS.1112.RH.2.6; LAFS.1112.RH.3.7; LAFS.1112.RH.3.8; LAFS.1112.RH.3.9; LAFS.910.RST.1.1; LAFS.1112.RST.1.2; LAFS.1112.RST.1.3; LAFS.1112.RST.2.5; LAFS.1112.RST.2.6; LAFS.1112.RST.2.7; LAFS.1112.RST.2.8; LAFS.1112.RST.2.9 **Science:** SC.912.L.14.53; SC.912.L.14.8; SC.912.L.17.12; SC.912.L.17.13; SC.912.L.17.15; SC.912.L.17.16; SC.912.L.17.17; SC.912.L.17.20; SC.912.L.17.6; SC.912.N.1.1; SC.912.N.1.6 **Math:** MAFS.K12.MP.1; MAFS.K12.MP.2; MAFS.K12.MP.3; MAFS.K12.MP.7; MAFS.K12.MP.8