Putting Nature First on Your Southern Land, 4th Edition
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This edition offers a print book available at Amazon, as well as a free pdf on the website, maypophill.com
The pdf will continue to be updated as information is added and corrections are made.

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Disclaimer

Putting Nature First on Your Southern Yard is a collection of summaries and sources about various land use topics. The author and the publisher shall have neither responsibility nor liability in response to anyone who claims damage or loss from the contents of this book.

The Author

After she retired from teaching English in high schools, Betty Miley found time to pursue her lifelong interest in native plants and their possibilities in home landscapes. She wrote her first book, *My Yard, a Louisiana Gardener's Notebook*, after researching and summarizing information about restoring indigenous plants to replace the lawn-centered styles in Louisiana and adjacent states.

After publishing her next book, *Geaux Native! in Your Louisiana Yard*, Betty expanded its contents to include other states in the South. She also decided to include newest land use ideas -- as opposed to "landscaping" -- in a ready reference form to present methods that protect and restore the land's capacity to sustain native plants and wildlife.

Since Betty's first book was published, a budding interest in preserving nature has flowered, one that favors a more earth-friendly attitude. Environmentally conscious gardeners and landowners are choosing to revamp traditional styles that favor large grass lawns and exotic species such as crepe myrtles. *Putting Nature First* directs these readers to ideas about sources which explore sustainable land use topics.

This book encourages everyone to learn how to work with nature to create interesting home habitats that are manageable, lovely, and protective of our natural resources.

Putting Nature First
is dedicated to the
gentle and humble
Native Bumblebee

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Introduction: Hello, Southerners who want to be good stewards of your land.

Putting Nature First emphasizes native plants in land use designs that enrich the environment.
The term eco-garden, or ecogarden, describes human habitats that emphasize best practices to care for the land's quality of life. The ecogardener will find ways to benefit the ecology of the land, at the same time achieving practical purposes and beautification. The content has been greatly compressed into a *vade mecum*, a small handbook or digital file to be carried and used, not left on a shelf or rarely read. The matter-of-fact tone is geared for busy people who want plainly delivered information, lists, charts, and simple illustrations and photographs.

None of the information gathered here is new or original or in-depth. Most of the ideas have been around for decades, or even centuries, but they are not observable in widespread practice. *Putting Nature First* advocates holistic land use, which combines ethics with aesthetics. Like "whole earth" and "wholesome" and other terms which describe the harmonious relationship between people and the ecosystem, holistic land care is all about sensible methods of co-existing with Nature.

Modern culture has interfered with this relationship to the point that people often view land as a commodity, or even a nuisance. The solution to modern nuisances is, of course, a product, usually a machine or a chemical.

The modern land use style has changed little in the last 50 years. Perhaps now is the time when Southerners, or all Americans, will discover a more satisfying way to care for the land they own or live on. What is the focus, the center of attention of modern land use, by the way?

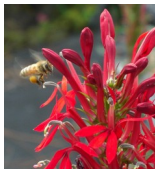
The Lawn, of course. Something most people take for granted, the turf lawn is a fairly recent invention.

The English manor lawn of the 19th century became the ideal of suburban Americans in the 1950s as the standard of respectability.

A new industry has emerged to supply lawn care products: riding lawnmowers, leaf blowers, weed trimmers, lawn sprinklers, weed killers, and other chemicals to eliminate lawn pests.

No matter that the average manicured lawn serves any function other than a green carpet that merely establishes ownership. American yard owners now devote the great majority of their property to alien grasses and other plant species that are neither edible nor ecologically sound.

This little book does not give complete instructions for replacing a high-maintenance landscape with nature-friendly land use. It merely encourages people to become thoughtful caretakers of the land. *Putting Nature First* collects and summarizes ideas which point readers to sources of information that fulfill their goals of being good stewards of their land. With all these ecological considerations in mind, and the desire of readers to put their home grounds to good use, the message of *Putting Nature First* is this: plant flowers. Lots of flowers.



Find a way to put them everywhere.

Gardening by Guessing? Most Americans take for granted that they are expected to keep up their nook in the neighborhood in a traditional style. Landowners who put nature first search for ways to protect and preserve nature in their land care projects.

	Traditional	Natural
GROUND COVER	smooth carpet of turf grass	little if any lawn grass anywhere on property, only plants, mulch, and paths
OVERALL APPEARANCE	preferably manicured; emphasizes straight lines alongside sidewalks and buildings	always looks appropriate, managed, not manicured; interesting to onlookers; displays regional character and the homeowner's personal tastes
PLANT SELECTIONS	**alien** species of lawn grass and other plants; few trees	great variety of **native** trees, shrubs, vines, flowers, edible plants; abundant biodiversity
PLANTING BEDS	Foundation plantings, narrow beds next to house	mulched planting beds and gardens throughout the property
FLOWERS	few: mostly annuals, often purchased in large quantities and planted in masses in spring and fall	plentiful: mostly perennials everywhere; annuals added in high-visibility areas and in containers
YEAR-ROUND INTEREST	a uniform appearance all year, changing only with mass plantings of flowers, the occasional door wreath or Christmas decorations	always something to look at: trees, leaves, trunk bark and picturesque branches, tall bunches of native grasses, pretty even when dormant, evergreen plants, colorful berries in winter; wildflowers of various colors, sizes, forms
MAINTENANCE	frequent mowing, edging of lawn; chemical control of pest insects, diseases, weeds in grass	after proper installation: very little; native plants require little upkeep since they are adapted to climate; organic measures to control problems
EXPENSE	high: riding lawn mower for many homeowners; leaf blowers; chemicals to control pests	low: riding lawn mowers only for acreage, hand tools to prune plants as needed, possibly some electric or battery powered equipment (rather than gas); no synthetic chemicals that can harm the environment
AUTHORITY/ SOURCE OF INFORMATION	lots of guessing; neighbors, garden books, businesses, and speakers who put other interests ahead of nature	sources which have researched best ways of using land to enrich nature, rather than harming soil, water, and wildlife

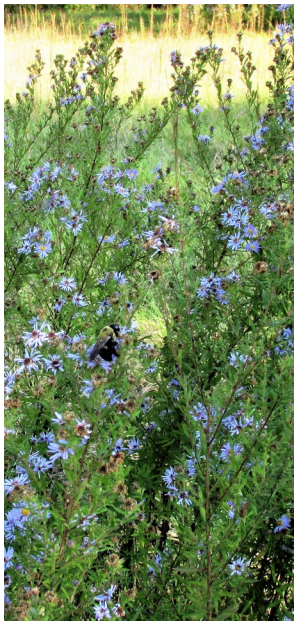
Natural Land Use / Landscaping with Native Plants

Natural landscaping unites native plants with human structures to create a home site in harmony with the environment. A natural landscape is neither wild nor unruly. On the contrary, a manicured yard that has not been kept neat and trimmed will become untidy in appearance in a few weeks of summer. Property that has been designed to work with regional climate and plants will look attractive in all seasons. Homes with natural landscaping often include features that give the home an interesting character and a pleasing atmosphere. Natural landscaping takes advantage of the home site's terrain and climate and gracefully blends human structures with plants native to the region.

Botanists consider a plant **native** to the United States if it lived in an area before Columbus opened the New World to settlers from Europe and the rest of the world. Natives are often the best choices for low maintenance landscapes. Many are ornamental and are self-sufficient after they have been properly established in home yards. They defend themselves against scorching heat, torrential rains, and frequent droughts. They have greater resistance to diseases and pests, except those brought to the country inadvertently by humans. Not all **wild**-growing plants are true natives. Some were brought to this country for noble purposes:

- food: apples, asparagus, garlic, mustard
- animal forage: Bahia grass, Johnson grass
- soil stabilization: Kudzu, Autumn Olive (*Elaeagnus umbellata*)
- beautification: Tallowtree, exotic bamboos, Japanese Climbing Fern, Japanese Honeysuckle, many others

These **exotic** plants from other countries or regions have **naturalized** by adapting to American soils and climates. Some exotic plants naturalize so well that they become invasive and spread rapidly, usually by seed dispersal. Thousands of miles of country roads are infested with Chinese privet, *Ligustrum sinense*, and European privet, *Ligustrum vulgare*, both of which form dense thickets that are almost impossible to eradicate. Not all exotic species become invasive. Camellias, Gardenias, and other exotic plants are well-behaved and do not grow outside human cultivation.



Various books and internet sites, including the PLANTS Database and the BONAP North American Plant Atlas, can help you find plants for your own state. This information obviously does not guarantee that a desirable native plant ever grew anywhere near your property. To put nature first in your own landscape, it is helpful to know your soil type and pH, rainfall averages, temperature and humidity averages, and other conditions to find plants that will thrive on your southern lands.

The nature-first gardener will also make many decisions
about which plants,
like a stand of volunteer blue asters,
will be allowed to grow wherever they show up.

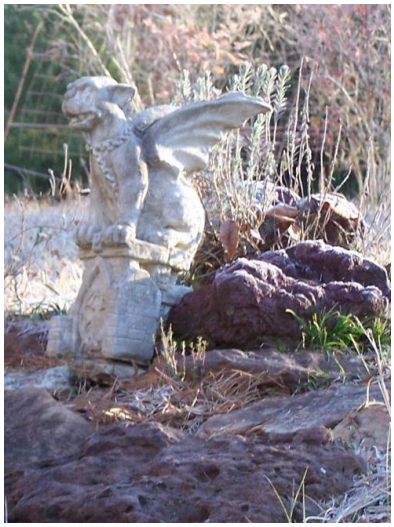
Chapter 1: Planning for Natural Land Use - Wish List

What do you want to do with your property? Write down the features you'd like to include now and in the future.

Think about how you want to learn about and improve your land so you can

- benefit the environment, always putting nature first
- grow, with organic and sustainable methods, fruit, vegetables, ornamental plants
- design a low-maintenance landscape, reduce lawn size, replace diseased and problem-prone plants with easy-care natives, use ground covers and mulches to cut down on weeding, watering, and other chores
- improve soil quality
- attract pollinators and other beneficial wildlife
- provide shade to make the house cooler in summer/block a harsh northern wind or hot sun
- direct traffic, indicate where guests may park cars, provide sidewalks for visitors to use
- establish effective privacy/security
- make a screen or barrier to reduce noise or obscure a view
- use decorative plant pots and practical containers for seasonal flowers, vegetables, herbs, shrubs
- build structures, greenhouse, cold frame, potting table, trellises, arbors, window boxes, garden shed
- beautify/alter the style of one or all portions of the property, heighten curb appeal
- enhance appearance of the front entrance, add a screen porch
- set aside play areas for children or pets
- invite appreciation of outdoor areas, sitting areas, paths and walkways, rock garden, yard art
- attract birds, butterflies, desirable wildlife
- discourage undesirable animals, deer, rodents, neighbors' pets
- include a low-maintenance water feature: fish pond, bog, fountain, birdbath

This gargoyle fountain protects its rock garden from boredom.
Does it belong in the front yard of a home in
a Homeowner Associations development?
Unlikely.
Working with HOAs involves learning how to
incorporate their rules with natural ecosystems.
Neatness and control are the primary goals of these organizations. While their ideals are not incompatible with native plants, it is often the case that many nature-first land stewards move to property where they can fulfill goals, like growing a pocket prairie or vegetable garden, maybe even in the unheard-of location, the front yard.



Ideas, Inspiration, Sources

The internet offers the easiest way to access publications of these organizations.

- Cooperative Extension Office for your area, listed under local government in the phone book or online; staff members are associated with state universities and provide a wide range of services
- National Audubon Society – focuses on birds and wildlife, encourage conservation and restoration of natural ecosystems
- State and local native plant societies, arboretums, parks, preserves
- Butterfly Gardener's Association - promotes butterfly gardens
- National Wildflower Research Center - Lady Bird Johnson's wildflower program in Texas, an excellent source of information and advice
- The Native Plant Conservation Initiative - advocates preservation of native plants, habitats
- NRCS, Natural Resources Conservation Service - provides publications available to the public, such as the excellent booklet on "Backyard Conservation"
- The Nature Conservancy
- Urban Wildlife Resources - newsletters to help people in metropolitan areas preserve wildlife through corridors and other conservation designs
- U. S. Environmental Protection Agency, EPA - advocates "green" landscaping practices, protecting water supplies
- The Xerces Society – a major influence in the movement to preserve butterflies and ecological awareness

Sources of native plants? Try to buy plants that were propagated from indigenous stock in your vicinity. Local ecotypes that are adapted to your geography and climate usually perform better than plants purchased from growers hundreds of miles away.

- Nurseries that specialize in natives
- Community markets, Market Bulletin of state Departments of Agriculture, state and local native plant societies
- Wild: ONLY if plant is common, non-endangered, with landowner's permission
- Mail order/Internet - These retail nurseries were in business as of 2019; this list no doubt neglects others the author is not aware of; do check out internet sites and request paper catalogs if they are available

Elk Mountain Nursery, North Carolina	Mail-Order Natives, Florida
Native American Seed, Texas	Nearly Native Nursery, Georgia
Plant Delights Nursery, North Carolina	Shooting Star Nursery, Kentucky
Prairie Moon Nursery, Minnesota	Sunlight Gardens, Tennessee
Wildseed Farms, Texas	Woodlanders, South Carolina

An online directory of nurseries by state: National Native Plant Nursery Directory

How to find plants native to your state or county—PLANTS Database is a valuable online research tool with search options that generate results for your requests. The learning curve is not too complicated. After check-marking boxes for distribution, growth habit (forb, shrub, tree, etc.), and many other characteristics, you will receive a downloadable list of plants for your state or county.

Site Planning

Take the time to plan on paper. Keep your maps of various stages of landscaping.
They will become an interesting record of the never-ending transformations of your yard.

- **Start with an overhead view.**
  Begin by making a drawing of your home site as it is today. If you want to be as accurate as possible, use graph paper to indicate precise spacing of areas, sizes of structures, tree canopies, other considerations. Sketch in existing trees, sheds, paved areas, utility lines (both overhead and underground), septic tank, drainage lines, buried water pipes, other features. Indicate north-south directions, areas of sun/shade, wet/dry, soil (sandy, clay, loam), grade, (hilly/raised beds, low spots), adjacent features (neighbor's yard, busy road, adjacent empty lot, use of space (children's play areas, vegetable garden, seating, wildlife).

- **Look for ideas.** Observe yards in different parts of town. Visit parks and public places to learn about plants you're interested in. Read books on home landscaping, magazines, Cooperative Extension publications, internet sites. Know what restrictions apply to your property: town ordinances, Homeowner Association regulations, and be mindful of neighborhood expectations. Copy your information and store it in document files or a notebook. Order catalogs and find sources of plants or materials.

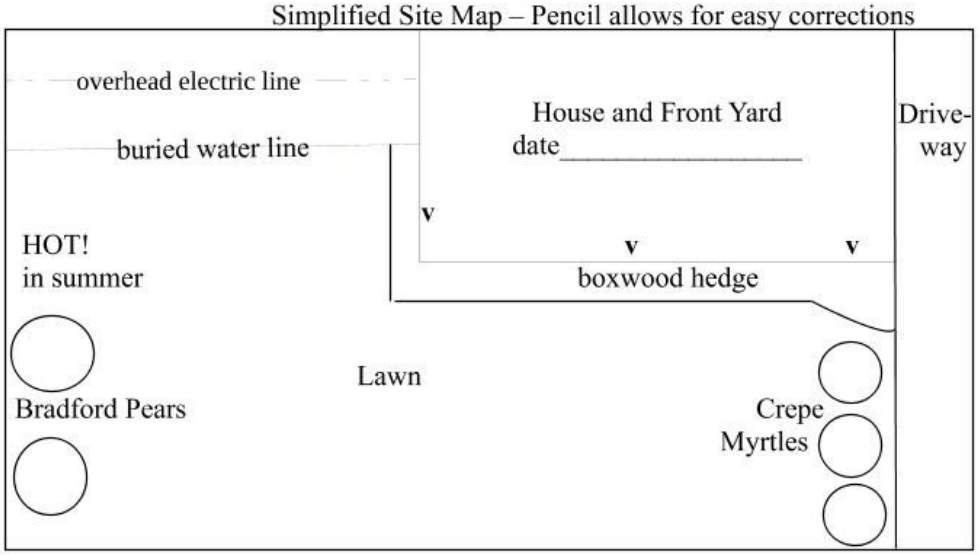
- **Make a new map -** or maps of separate parts of your property.
  Refer to your wish list. Re-draw your site map showing changes you want to make, re-direct traffic flow, provide security or privacy, add shade trees, provide year-round color or interest, native plants that are indigenous to your growing zone which fit your site's soil, light, moisture, and other conditions. Take into account mature sizes of plants and their maintenance needs, watering, spraying, pruning, leaf and fruit drop, Include structures like trellises, artificial ponds, walls and fences, other hardscaping.

  See sample plan on the following page.

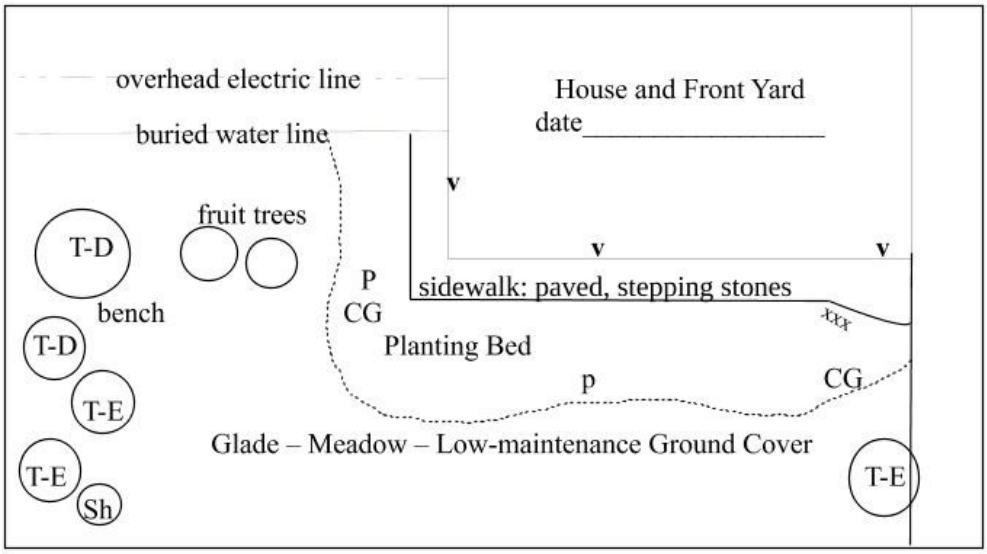
- **Go shopping. B**uy plants, mulch, and building materials only after you have pondered, pored over resources, and planned on paper Avoid impulse purchases of plants. Always check plants for pot tags which indicate if a potentially harmful chemical has been applied. When in doubt, ask employees at nurseries and hardware store chains if pesticides have been applied to their plants. Be especially careful to avoid buying anything with neonicotinoid chemicals which harm bees and other pollinators.

- **Install plants properly.**
  More information is included in the section on Practical Matters

Simplified Site Map – Pencil allows for easy corrections



Goals: reduce lawn size, remove hedge and trees, make shade on west side,
add plants for bumblebees and butterflies



Goals: Add more pollinator plants, draw attention to front door, increase biodiversity

V = Window view
x x x = trellis with Coral Honeysuckle, Carolina Jessamine, other well-behaved vine
T-D = small tree-deciduous: Sumac, Fringetree, Ironwood, other size-appropriate tree
T-E = small tree-evergreen: Cherry Laurel, Yaupon Holly, other tree for privacy, screening
Sh = shrubs: viburnums, native azaleas, Turk's Cap Mallow, other showy plants for wildlife
P = pollinator plants: native phlox, Stokes Aster, other pretty wildflowers for bees/ butterflies
CG= clumping native grasses: Pink Muhly, Love Grass, other sculptural grasses for year-round interest
Ground covers: pine straw, wood chips, wood chunks, NEVER CYPRESS, other mulch material

Alternatives to Foundation Plantings

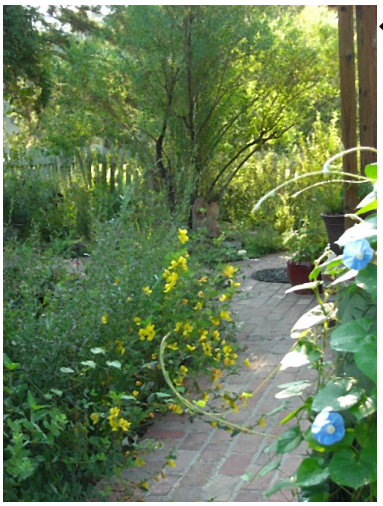
Before World War II many Americans houses were built off the ground, on top of basements or freestanding piers, and homeowners tried to conceal the plain views with shrubs and low-growing plants. Now that wood beams are so expensive, almost all new construction is built on concrete slabs.

Foundation plantings alongside house slabs, though, can create problems:

- Dense foliage can prevent access to or even damage exterior walls and outdoor utilities.
- Overgrown shrubs, trees, and vines, such as English Ivy, can block views and give the house crowded or neglected appearance.
- Moisture buildup from rain runoff often saturates the soil close to buildings; mildew and mold grow readily in such damp conditions and can infiltrate into the home.
- Vegetation can harbor and bring unwanted pests too close to the premises: termites, roaches, ants and other insects, small mammals, the occasional snake.

Options:

- Set plants at least 3 feet from the foundation, more for trees and shrubs.
- Plant well outside the eaves, especially anything that will grow as tall as the roof; know the mature height and spread of young shrubs that may grow taller than you want.
- Avoid planting moisture-loving plants near the foundation; instead, choose drought-tolerant species that do not require frequent watering, pruning, spraying, and fertilizing, especially in hot summer months when rainy weather puts lawnmowers out of commission.
- Avoid the frequent need to mow and edge grass within several feet of the house; messy clippings are a nuisance to dispose of and the equipment's mowing action releases pollen and mold spores into the air; replace lawn grass near the foundation with mulched planting beds. In much of the country, pine straw provides an affordable mulch material and helps preserve wetland forests by saving cypress trees from being harvested as mulch chips
- Use biodiversity to avoid disease and insect problems and to create a natural, informal appearance; imitate Nature's plant communities to match your home site's locale;



←A sidewalk separates a home from exuberant vegetation. A few raised pots add color and texture to relieve the expanse of exterior walls Before it was built, lawn grass grew up to the foundation and called for more maintenance than the homeowner wanted, particularly when it involved a noisy and polluting gas lawnmower.

Low Mow and No Mow

A low maintenance garden path → with flowering shrub and perennials. This mini-woodland sits on property with no lawn grass. The neighbors complimented the owners who said they "played in their yard" while the rest of the neighborhood spent their summers working in theirs - or hiring lawn care crews to mow and blow.

Landscaping Ideas to express your region's character and your personal style

- Organize your yard by how you will use it. This book offers various ideas for transforming a typical southern lawn into areas that provide edibles, wildlife habitat, and outdoor activities.
- Xeriscaping is the grouping of plants by irrigation needs: "xeric" plants tolerate some degree of drought; while "hyrdric" or wetland plants need adequate soil moisture. *Putting Nature First* recommends matching plants with existing conditions. A dry spot far from a water hose would call for upland plants that need little or no supplemental watering. A location that is often or always wet could be converted into a bog or rain garden. It is also true that many "wetland" plants will grow in dryer "upland" soils. Use water wise solutions, such as soaker hoses or micro-irrigation instead of sprinklers. Rain barrels are a great method of harvesting water if the neighborhood does not forbid their use.
- Use a diversity of plants in effective groupings. "Plant people" often want one of everything, but it is wiser to be realistic about the space you have. Start small and don't build large flower beds and other projects if you don't have time to maintain them.
- Colorful annuals attract the eye and can be grown from seed or purchased and planted weeks before their bloom season. You can heighten their impact by planting them in containers near walkways and front entrances. Find creative ways to use them as accents rather than relying on them as the main focus of your landscape. Perennials, including a good number of evergreen plants, should constitute the basis of the landscape.
- Group plants in large numbers for special effects. Masses of wildflowers create a colorful spectacle. In nature they often grow scattered and intermingled with native grasses and shrubs, also an attractive scene you may want to use in a larger area such as a meadow. Always keep in mind the neatness factor: neighbors and homeowner associations may require a specific appearance.
- Curved lines are more pleasing to the eye than straight ones. A long straight row of one species of plant is more a border than a pretty view. A line of sheared hedges in front of a house, once a popular landscape style, nowadays appears unnatural and drab, especially when evergreen shrubs require constant pruning to maintain a desired size or shape. There are many exceptions to this design principle. See the following.
- Straight driveways and sidewalks are preferable to curved ones for safety and simplicity. A well-planned design can also use straight lines and geometric shapes to great effect: an allée of massive live oaks, a labor-intensive medieval knot garden, a cleverly planted narrow pollinator wildflower strip of land next to your house, a screen of diverse types of greenery to hide an unwanted view. In nature, evergreen species often intermingle with deciduous plants.
- Uneven numbers are more appealing than even ones. A grouping of three or five shrubs or tree trunks, for example, looks more natural than two or four.
- Develop a practical system to keep your landscape under control. Keeping a monthly calendar, for example, can remind you when to prune vines to keep them in bounds. Decide which areas need the highest attention to neatness to keep you in your neighbors' good graces.
- Pay attention to design principles used by professional landscapers: scale, balance, accent, specimen plants and objects, color, harmony, unity, simplicity, rhythm, texture, division/transition.
- Be imaginative. Educate yourself about gardening and develop an eye for natural beauty.
  Your new landscape may even inspire the neighbors to follow your lead.

Low Maintenance Pointers

- Keep grass lawn areas as small as possible. If your lawn is just a smooth green monopoly of grass that no one ever uses, you can eventually whittle it down to zero. Children and dogs need places to explore and enjoy. Look for options when planning for their needs. A few examples: low-growing native buffalo grass for some soils, soft ground-covering mulches like wood chips or sand.

- If you do have grass, plan a design that gives you room to move comfortably around the yard to mow and do other outdoor work. Allow enough space between trees, walkways, and other structures so that your lawnmower can maneuver without having to back up or navigate around impediments.

- Install perennial beds to keep desirable plants and mulch inside—and to keep grass outside. You may want to use landscape edging, which is available at most garden supply businesses and comes in a variety of sizes, lengths, and materials, plastic, metal, brick, stone, fiberglass and other composites,

- Keep a layer of mulch around trees and other plants to keep weeding to a minimum. One to three inches will provide enough protection to conserve moisture and discourage weeds. Don’t bag and dispose of fallen leaves. Use them as mulch or in compost piles. You can shred them to tiny pieces with a lawnmower or leave them on the ground if you don't have to maintain a manicured landscape. Leaves are an important source of humus that your soil needs for good tilth. Use environmentally friendly renewable mulches such as pine straw an other locally produced materials.

- Include a variety of plants to reduce incidences of disease, to attract beneficial wildlife, to fill up empty spaces formerly occupied by unneeded expanses of lawn, and to enhance the beauty of your home landscape. Let friends and family know you are growing an ecogarden.

- Plant small trees, 20-30 feet tall, to provide shade. Deciduous trees on the west and south sides of your house and yard will reduce temperatures in the summer and will allow sunlight to warm those areas in the winter after leaves have fallen.

- Preserve your sunlight; many vegetables and flowering plants and need at least 6 to 8 hours of direct sun every day; as trees grow taller, they cast shade further and further over the years; leave enough room for both to exist; refrain from excess pruning that may harm tree growth.

- Group plants by their environmental needs: those that need frequent watering in one bed, those that need full sun in another area, flowers that need to be deadheaded or replanted within easy reach.

- Keep your tools and equipment in good working condition. Keep a sharp edge on lawnmower blades, hand pruners, garden hoes, and shovels. Wash dirt off, remove rust, and apply oil to hand tools.

- For vegetable gardens and fruit orchards choose varieties that were developed for your growing region and which tolerate your weather and resist pests and diseases.

- Think about using native plants that produce fruit: persimmons, muscadine grapes, mayhaws. blueberries (pictured)

Lawns and Alternatives

Abundant rain and sunshine give southern landowners something to do in summer. In her book, *The Lawn: A History of an American Obsession,* Virginia Scott Jenkins enlightens us about the current landscaping trend which favors manicured lawns. Tending them requires weekly or frequent attention and equipment, often with expensive riding mowers and weed trimmers. Some people find grass-cutting to be a tedious task; others can't wait for the weekend to hop on their mowers and shear every square inch of lawn they can.

Homeowners and businesses wanting to reduce or eliminate lawns have experienced various degrees of success. A friend of the author owned two acres of land in south Baton Rouge. Her quiet city property was covered with trees, wildflowers, and a wetland. And no grass lawn. She had acquired the land before a high scale subdivision removed all the native vegetation and introduced turf and exotic plants.

Replacing an existing lawn is easier said than done. If turf can't be curtailed, it should at least be maintained properly. The biggest mistake people make with lawn maintenance is cutting the grass too low. Scalping grass by cutting more than 1/3 of the blades (leaves of grass) can lead to several issues, including bald spots, erosion, and annoying sticker weeds (sand burs). Recommended mow heights:

St. Augustine – 3 to 4 inches
Centipede – 1.5 to 2 inches
Bermuda - .5 to 2.5 inches (can be an invasive weed)
Zoysia - 1 to 2.5 inches
Fescues - 1.5 to 2.5
Kentucky Bluegrass - 1.5 to 2.5
Buffalograss, 2 to 4 inches, native low-growing for areas with low rainfall
Carpetgrass, 1 to 2 inches, native low growing, suitable for damp or shady areas or erosion control

Lawns, outdoor living rooms or green deserts? Or a non-lawn?

Anyone wishing to reduce or eliminate a lawn will need to study this topic at great length. Alternates are suggested in other sections of this book. Sheet composting (see weed control in the Organic Solution section) is one method to suppress grass. Also consider low-growing ground covers in the plants lists in the back of the book. Non-native ground covers like Liriope or monkey grass can become invasive and hard to control. All mints will spread, including native mints such as beebalm. Most gardeners find the native plants easy to control and will pull up volunteers to plant elsewhere. Dutch white clover is another non-native plant which spreads by seed dispersal, but even strict native plant enthusiasts usually appreciate it since it stays short and is an excellent forage plant for bees. Many vines such as Virginia Creeper cover the ground quickly but must be kept in bounds. Other plants to consider are evergreen or semi-evergreen and are well- behaved or worth the effort of maintaining: wild violets, lyreleaf sage, creeping phlox, Green-and -Gold, and ferns whose heights are acceptable. See Ground Covers in the plant lists in the back of the book.

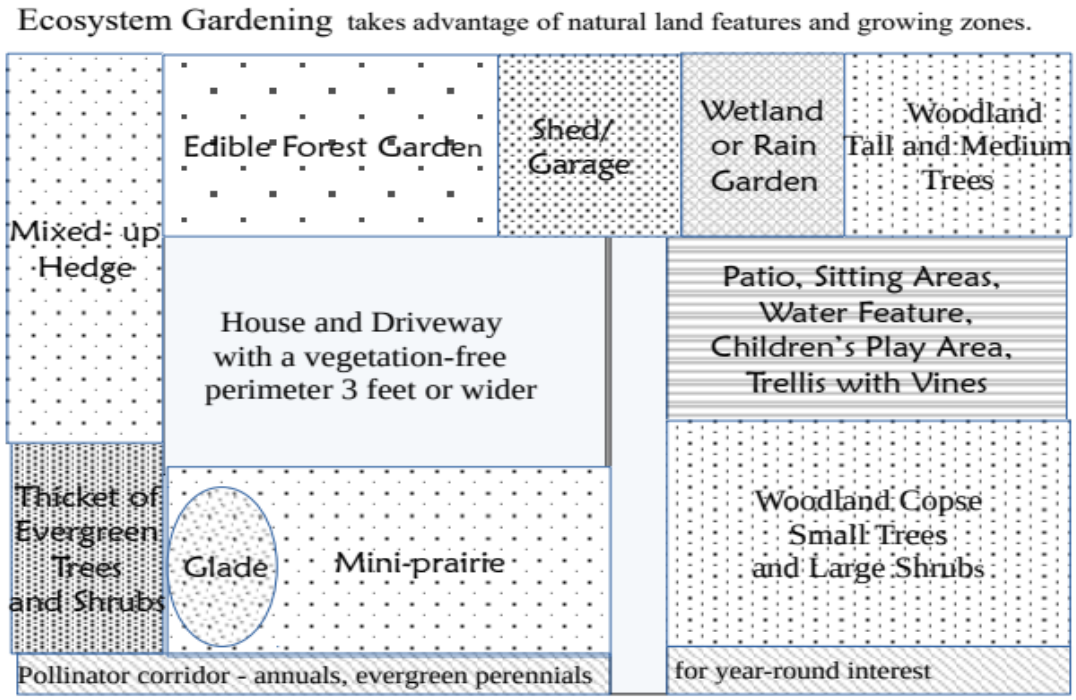
Sources:

Lawn Gone! Low-Maintenance, Sustainable, Attractive Alternatives for Your Yard, by Pam Penick

Beautiful No-Mow Yards: 50 Amazing Lawn Alternatives, by Evelyn J. Hadden

Websites: Many results will appear if you type in "lawn alternatives" or "no mow"

hapter 2 - Land Use Design Ideas – An ecogarden is an alliance of nature and the landowner.



Mixed-up Hedge - an irregular line of mostly evergreen shrubs to screen an unsightly view or to increase privacy: Yaupon holly, Cherry Laurel, Wax Myrtle, Groundsel Bush, Coastal Leucothoe

Thicket - grouping of small trees and shrubs, both evergreen and deciduous: Titi, Leatherwood, Silver-bell, Serviceberry, Huckleberry, Native Azaleas, New Jersey Tea, Palmetto, Yucca

Glade - an open area bounded by structures and plants, sparse or low-growing vegetation; the area may have dense shade or bright sun where soils contain hardpan or other poor quality; an edgeland which allows sunlight to warm buildings or to promote flowering & fruit: low-maintenance grasses such as Buffalo Grass, lyreleaf sage, vines, ferns, in shaded edges, strawberries, clovers, dandelion

Mini-prairie/Meadow – sunny grasslands with taller plants than seen in a glade;
Clumping grasses: Broomsedge, Little Bluestem, Oatgrass, Pink Muhly
Wildflowers: Purple Coneflower, Liatris, Butterflyweed, Bundleflower, Asters, Boneset, Goldenrod, many others listed in the plant lists throughout this book

Woodland - small to large trees grouped for shade, wildlife, year-round interest: oaks, pines, maples, Tulip Poplar, Sourwood, Bay/Magnolia, Fringetree, hollies, River Birch, Carolina Buckthorn, others listed elsewhere

Wetland/Wet Ditches – hardpan below the surface or soils which retain moisture most or all year: Cypress trees, Black Willow, Swamp Red Bay, Arrowhead/Bull-tongue, Buttonbush, Horsetail, Whitetop Sedge, Louisiana Iris, Pitcher Plant, Lizard's Tail, Rushes, Water Lily

Edible Forest Gardening is a long-term landscape design that mimics natural forests.
Its goal is a sustainable landscape that is almost self-maintaining and self-fertilizing.
It emphasizes native plants over exotics. Over time, the area will see a rise in biodiversity and increased levels of organic matter in the soil. Beneficial microorganisms will flourish in soil that is undisturbed by deep tilling.
Many other food plants, annuals especially, are usually planted where they will receive greater sunlight, irrigation, and disruption of the soil at root level: tomatoes, melons, okra, and other annual vegetables. Seeds of seasonal vegetables and herbs, such as mustard greens and salad crops, may be sown if their shallow roots systems don't interfere with those of perennial plants.

Tall Trees	**Medium Trees**	**Small Trees/ Shrubs**	**Vines on arbor, trellis, sprawling on ground**	**Herbaceous mostly perennials**	**Under-ground/ Root Layer**
firewood: oaks, beech, hickory/ pecan, other hardwoods	**Fruit/nuts**: black cherry, beech, persimmon, pawpaw	**fruit**: blueberry/ huckleberry, chokeberry, apple, citrus, crabapple, fig, pear, plum, elderberry, mayhaw, serviceberry	**fruit/vegetables**: blackberry, raspberry, kiwi, grapes, including muscadine and other wild types, hops, mirliton, maypop	**fruit/vegetables**: asparagus, chard, chives, clover, strawberry, fern fiddleheads, strawberry, mushrooms, dandelion, wild "weeds": nettle, poke, dandelion, corn salad, plantain	**Vegetables**: chives, garlic, chives, onion, peanut, potato, radish, Jerusalem artichoke, groundnut
nuts/fruit black walnut, hackberry, pecan, red mulberry	**seasoning**: red bay, white bay	**crafts**: native cane/ bamboo **tea/tisanes:** sumac, black cherry	**crafts**: grapevines for wreaths	**nectar** for bees, other pollinators	**pest repellent**: onion, garlic, mints
leaves provide shade in summer and mulch in autumn: oak leaves, pine straw	**soil enrichment-nitrogen-fixing**: hazel alder **dynamic accumulator** of minerals: redbud	**animal enrichment**: food and habitat for birds and wildlife hollow stems of cane for bee nests	**animal enrichment**: nectar and food for butterflies, birds, bees, other beneficial insects and mammals that pollinate, control pests, plant seeds & aerate the soil	**soil enrichment/ compost material/dynamic accululator:** clover, comfrey, **animal enrichment**: nectar and pollen plants for beneficial insects	**soil enrichment/ nitrogen fixing**: groundnut, bean, other legumes and plants that mine nutrients

Edible Forest Gardens, by Dave Jacke and Eric Toensmeier
Forest Gardening: Cultivating an Edible Landscape, Robert A de J Hart.
Gaia's Garden: A Guide to Home-Scale Permaculture, Toby Hemenway
Permaculture: A Designer's Manual, Bill Mollison
Edible Plants of the Gulf South, by Charles Allen, Andrew Allen, and Harry Winter

Native Plants for the Medicinal Herb Garden

In the pre-colonial Americas, native people used various parts of the wild plants that grew around them: the aerial parts, leaves, flowers, fruit, seeds, bark, roots. The plants listed here were used medicinally first by Native Americans, and then by generations of people well into the 20th century, at which time medical science began research and development of synthetic drugs. The Food and Drug Administration must approve new medications but does not regulate herbs or other products which do not claim to provide health benefits. Warning: handle herbs with care and be very certain about the identification of the plants you choose.

Black Cherry, *Prunus serotina* – inner bark used for cough and whooping cough, asthma, indigestion, diarrhea

Blueberry *Vaccinium ashei* and other species – tasty fruit, fresh or frozen, has antioxidant and anti-inflammatory properties that strengthen blood capillaries; used for intestinal inflammation, hemorrhoids, macular degeneration, eye disorder, night vision, multiple sclerosis, chronic fatigue syndrome, rheumatoid arthritis; concentrated extracts are used for gout and varicose veins

Purple Coneflower, *Echinacea purpurea* – flowers and roots used to strengthen the immune system and purify the blood; supposedly counteracts bacteria and viruses and used widely to treat strep throat, allergies, asthma, and other respiratory problems

Elderberry, *Sambucus nigra* – flowers and berries used for colds, flu, cough, nasal allergies, arthritis; look for recipes for elderberry elixir online and books

Hawthorn, *Crataegus species* – berries of mayhaw and other hawthorns worldwide are used to treat many ailments of urinary, circulatory, blood flow and pressure, and cardiac conditions

Mint: Mountain Mint, *Pycnanthemum species* – leaves and flowers used for colds, cough, fevers, digestive disorders, antiseptic, menstrual regulation; edible, brewed for a refreshing tea; leaves repel insects; Horsemint, *Monarda punctata* – aerial parts used as with mountain mint

Maypop, *Passiflora incarnata* –fruits are used for insomnia and tension, epilepsy, pain

Nettle, *Urtica chamaedryoides* – all parts of this group of plants are used; an edible cooked green; used for arthritis, anemia, hay fever, allergies, kidney function

Slippery Elm, *Ulmus rubra* – bark used for digestive disorders, a nutritious food for convalescents and infants, bronchitis, sore throat, other respiratory problems, urinary conditions such as cystitis, cancer

Wild Yam, Di*oscorea villosa* – roots and tubers used for arthritis, rheumatism, insomnia, digestive problems such as irritable bowel syndrome, pain and muscle cramps

Willow/Black Willow, *Salix nigra* – extracts of bark used for relief of headache and muscle pain, fever, malaria, rheumatism; anti-inflammatory; reduction of night sweat, hot flashes

Witch Hazel, *Hamamelis virginiana* – leaves and bark are used for skin conditions such as eczema, sunburn, varicose veins, dermatitis

Native Plants that Repel Insect Pests

Before insect-deterring chemicals in spray bottles were invented, people would crush leaves of these plants to rub on their skin and their plow mules to keep away biting insects. Fresh leaves can be brewed into a decoction for homemade insect repellent spray

Wax Myrtle, *Morella cerifera/Myrica cerifera* - Semi-evergreen or tardily deciduous shrub/tree, 15 – 20' average, may reach 40'; easily pruned for height; common in most southern states, very useful in landscapes easy to grow, just about anywhere but does best in full sun or part shade; wet or dry sites; often used by birds as habitat and for food when grayish waxy fruit appears; fruit once used by colonists to make candles; avoid heavy mulch around trunk to avoid suckering; prune to maintain size and shape; people once put "myrckle" branches under their beds to repel fleas and other insects; once planted around dog yard to deter fleas and ticks; may also repel pantry moths

American Beautyberry/French Mulberry - *Callicarpa americana*

Deciduous shrub, 3- 8 ft., makes clusters of small pink flower in spring or early summer; bright purple balls of fruit appear all along stems in fall; eaten by bobwhite quail and other birds; farmers who plowed fields with draft animals realized that beautyberry produced insect-repelling scents; they pinned bruised leaves to their hats and the harnesses of plow horses; laboratory tests report excellent results compared to commercial products to protect against mosquitoes, midges, mice, aphids, horseflies, other biting insects.

Elderberry, *Sambucus canadensis* - Small tree or large shrub, 10 – 30 ft.; flat-topped clusters of white flowers around May-June, many dark purple or black berries (drupes); flowers and ripe fruit are used in jellies, pies, medicines; unripe fruits and other plant parts are poisonous; many birds and butterflies are attracted to elderberry; the leaves emit an odor which is said to repel biting insects, mice, and moles.

Elderberry elixir and syrups are reputed to be powerful medicinals to fight colds and viruses.
For syrup,
boil 1 cup fresh or 1/2 cup dried elderberries
in 3 cups of water
Mash berries, strain pulp and compost it.
Cool the liquid, then stir in 1 cup honey.
Elixirs usually call for brandy as a preservative.

Small Trees for Safe Shade

Small deciduous trees, 20 – 30 ft. tall, provide shade in the summer and pose slight damage from wind storms compared to large trees. Even when they do not offer a large enough shade canopy to sit under, their foliage in the growing season breaks harsh sunlight from beating down on windows and walls. Deciduous tree leaves fall off in the winter, allowing welcome sunlight to warm and brighten the home or sitting areas.

Plant the mature height's distance away from buildings, on the west side of your house, or the south side, or wherever hot sun bears down on windows.

Consult the Medium and Small Trees section in the back of the book, Native Plants for the South.

Fringe Tree, *Chioanthus virginicus* →
Carolina Buckthorn, *Frangula caroliniana*
Hop-tree, *Ptelea trifoliata*
Ironwood, *Carpinus caroliniana*
Redbud, *Cercis canadensis*
Silver-bell, *Halesia diptera*
Winged Sumac, *R. copallinium*

Large Trees with High Wind Resistance

Oaks, pines, and other large trees are best sited well away from the house and other structures. Water oaks (*Quercus nigra*), in particular, are extremely susceptible to breakage and should be inspected and pruned regularly to prevent damage from falling heavy limbs. Certified arborists and tree removal services are often expensive but worth the cost to prevent damage to life and property.

In situations where a larger tree is desired at a safe distance, and in areas prone to hurricanes or frequent wind storms, homeowners are advised to study these with resistance to toppling over or dropping heavy branches. These are guesstimates and assume trees are in good health.

Best:
Live Oak, *Quercus virginiana,* 40-80'; wide-spreading
Southern Magnolia, *Magnolia grandiflora,* 40-100'
Pond-cypress, *Taxodium ascendens*, 50 – 80' -- not as prone to making knees as Bald Cypress

Good wind resistance: Bald Cypress, Beech, Black Gum, Ironwood, Sabal Palm/Cabbage Palm, Cow Oak, Shumard Oak, Winged Elm

Trees with low resistance: Cottonwood, Maple, Hickory/Pecan, Pine, Red Cedar

Living on the Land – Homesteading - Survival gardening

Why would anyone want to give up the comfort and convenience of modern life? A few hardy people strive to live like self-reliant pioneers, to get off the grid, to grow healthy food, to get away from society's ills, or just to get back to nature. Survivalists prepare for what they see as civilization's eventual collapse and economic. Even if nature-loving landowners don't take survival gardening to the extreme, they can adopt some of the methods of homesteading. This way of life has largely disappeared, but it is making a comeback, such as in shared community gardens in urban areas.

People who own a few acres can achieve a self-sufficient existence if they're willing to learn and labor. Hard-core survivalists and other rugged individualists manage without electricity or powered equipment. A self-sustaining homestead consists of some of the elements in this sketch.

Woodlot
for firewood, building materials, fenceposts, wildlife habitat

Livestock pasture with good fences
Native grass pastures replace traditional reliance on exotic species, fertilizers and other chemicals, tractors and hay balers. Herd sizes are halved compared to conventional ranch systems.

stocking rates depend on size of animal:
one cow per acre
one bull per 2 acres
sheep: 5 to 8 per acre
goats: 4 to 12 per acre

Cropland
silage for livestock, corn, wheat, seeds from non-patented or heirloom species

Truck farm, growing vegetables or other plants to sell at markets

orchard, fruit trees, grapes, kitchen garden, potherbs (table greens such as mustard, kale, perennial spinach), beans, peas

Barn, Storage, Poultry, Rabbits

greenhouse, cold frame, hotbed, manure, compost

water source preferably potable (river, stream, spring, well)

Clothesline

Home, often with a root cellar or cool spaces to store canned food, bulk foods (dried beans, rice, grains) and saved non-hybrid seeds

cottage garden with herbs, insectary, vegetables

Sources: Various books and websites, including the Foxfire Book series, a project of high school students who collected and published practical farmstead skills and lore of their South Appalachian ancestors; available at online vendors and free ebooks; Magazines: *Mother Earth News, Grit, Countryside & Small Stock Journal*, *The Progressive Farmer*

Chapter 3 – Practical Matters

"We do not inherit this land from our ancestors; we borrow it from our children."
~ Native American proverb

Sustainable Practices

make efficient use of human culture, knowledge, and wisdom to protect natural resources for the benefit of future generations.

To protect the environment

- reduce or eliminate pesticides (insecticides & herbicides; use least toxic products (see approved materials & information on websites for OMRI and AATRA)
- conserve water in the home, in gardens, and in ornamental landscapes
- replace overhead sprinklers with drip irrigation, soaker hoses, other systems
- control drainage with rain gardens, bogs, swales, berms, ponds
- harvest rainwater with buckets, barrels, buried tanks, cisterns, other systems; use gray water from kitchen sink, bathwater; use rain harvest for watering plants
- enhance biodiversity to guard against disease and pest problems and to preserve habitat for wildlife

To update land use

- replace wasteful and high-maintenance lawns with useful and attractive plants:
  edible vegetables, fruit trees and vines, herbs
  practical trees, shrubs, vines, and other plants to create shade, privacy, mulch, wildlife habitat e
  ornamentals to add beauty & year-round interest, especially native plants for your region
- create home landscapes that express individuality and regional character
- use eco-friendly methods: mulch (with newspaper, cardboard, pine straw, etc.); compost-in-place; reduce reliance on gas-powered equipment & synthetic chemicals; find natural solutions to damaging insects, diseases, other problems; keep in mind that some products which are "biodegradable" may contain chemicals that can take years to detox metallic or other substances

To improve the soil

- add organic matter (fallen leaves, vegetable peelings, newspaper, coffee grounds, grass clippings, eggshells, and all sorts of disease-free composable material) to
  create humus, the fine-textured result of decomposition (compost);
  healthy productive soil is at least 5% humus;
  loose-textured humusy soil buffers pH problems (too acid or too alkaline soil) and makes weeding an easier task
  enrich soil fertility naturally, eliminating the need for synthetic fertilizers
  build soil by incorporating animal manure, green manure cover crops such as legumes (peas, beans, alfalfa, clover) and non-legumes (ryegrass, wheat, weeds)
- minimize soil disturbance, using sheet mulches to prevent weeds rather than turning the soil over; preserves soil moisture; encourages growth of earthworms and beneficial microorganisms; avoids introducing excess oxygen, which rapidly decomposes organic matter reduces erosion, flooding, and siltation of reservoirs, preserves quality of groundwater in aquifers

Sources: too many to point out an individual book or website; organic and nature-first ecogardeners have a wealth of information to pick from; titles have been mentioned in other sections; online instructional videos are especially interesting when you search for specific topics: the permaculture orchard, straw bale gardening, how to grow your own soil, how to grow organic peaches

Choosing Plants that match your conditions

Plant Health and Ease of Culture

Look into a plant's desirability before deciding to add it to your landscape. What is its ability to

- withstand adverse conditions: extreme temperatures, high summer humidity, flooding, pollution of air or water? To find what temperatures it will probably tolerate, check the online page for the USDA Plant Hardiness Zone Map, which displays a national map and allows you to see a state map and find your growing zone by typing in your zip code.
- resist disease, insects, other pests, environmental conditions?

Soil Suitability

Although native plants may have lived in an area for thousands of years, human practices, agriculture, industry, urban-to-suburban residential sprawl, have degraded the soil in many areas so badly that almost nothing can survive there. Your local Cooperative Extension Service, listed in the phone book under local government, can help you analyze your soil's health.

The soil is composed of minerals, organic matter, air, water, and microorganisms.

A healthy mixture of all these components nourish plants' roots so that they can produce their own food by photosynthesis. Gardeners and growers who call themselves "organic" say that they feed the soil, not the plants.

Plant Longevity

Homeowners are understandably dismayed when a plant dies. Often, though, a plant's death is not the result of disease or disaster. It may simply have died of old age. So, before planting a tree that you think your grandchildren will play in, investigate its longevity. When you design your yards, account for the expected life span of the plants you like.

- Perennials are not necessarily long-lived. Short-lived perennial flowers may survive only a few years. Some require division or other methods to promote healthy growing conditions and to allow for natural development of baby plants.
- Annuals have to be replanted every year, but many of them reproduce easily if you observe their seeding habits and take advantage of this trait. Collect ripe seeds to sow or preserve with a label containing the species and date.
- Some small trees and shrubs are considered short-lived. Fruit trees usually die after 20 years.

Safety

- Before you make final decisions about choosing and installing plants, check your plan maps to prevent design flaws that may become hazards.
- Avoid planting tall plants *under or near* power lines. Know mature tree heights.
- Check your home site map for buried pipes, septic systems, gas and water lines; request utility companies to mark underground electric, phone, and TV cable lines before you dig. These lines should be drawn on you home site map for future reference.
- Visualize full-grown sizes of trees and other plants before you install them so that they don't obstruct views for safety reasons: traffic visibility, uneven walking surfaces, ability to inspect home's exterior conditions
  - so that overgrown roots don't cause damage to pipes and paved areas
  - so that overhanging foliage or falling branches don't harm roofs or other structures
  - so that termites and other destructive insects don't live in plants and mulch close to your house where they have easy access into your home

Planting

Before installing plants, prepare the soil or beds where they'll be placed. Find out what conditions each plant will need and make any corrections to soil pH and composition that you can. See the section on Soil. If you have information on bed preparation from advice in your Sources section, you should follow those instructions.

- wild-grown plants

Do not dig plants from the wild unless they are from your own property or you have permission from the landowner. Plants have a better chance of surviving transplant shock if they are dug carefully in winter months when they are dormant; you should try to keep most or all of their roots intact as well as some of the native soil they were growing in.

- planting times

Container plants can be planted any time of the year as long as they are kept watered and tended. Heat, early frosts, drought, the usual unforeseen disaster, however, can severely stress and kill newly installed plants.

Each state's Cooperative Extension service offers brochures, pamphlets, and other literature to inform gardeners of the best times to plant seeds and transplants. County Agent offices often keep useful publications in print form. A wider range of educational information is available online, from suggested planting calendars to beekeeping to diagnosing typical plant diseases. In some cases, nature-first gardeners will find alternative methods to solve issues that have not yet been adopted by traditional government agencies.

Most university agriculture departments and state agencies generally off the following as the best times to plant in southern states: keep your microclimate in mind, as well as recommendations of local nurseries which often have knowledgeable employees to office advice.

Trees and shrubs: winter: December to February
Annuals /Warm season marigolds, zinnia, coleus, others: April to May
Annuals/Cool season pansy, snapdragon, dianthus, flowering cabbage, others: October to November
Perennials such as phlox, coneflower, Coreopsis, asters: 3 to 6 months before expected bloom times

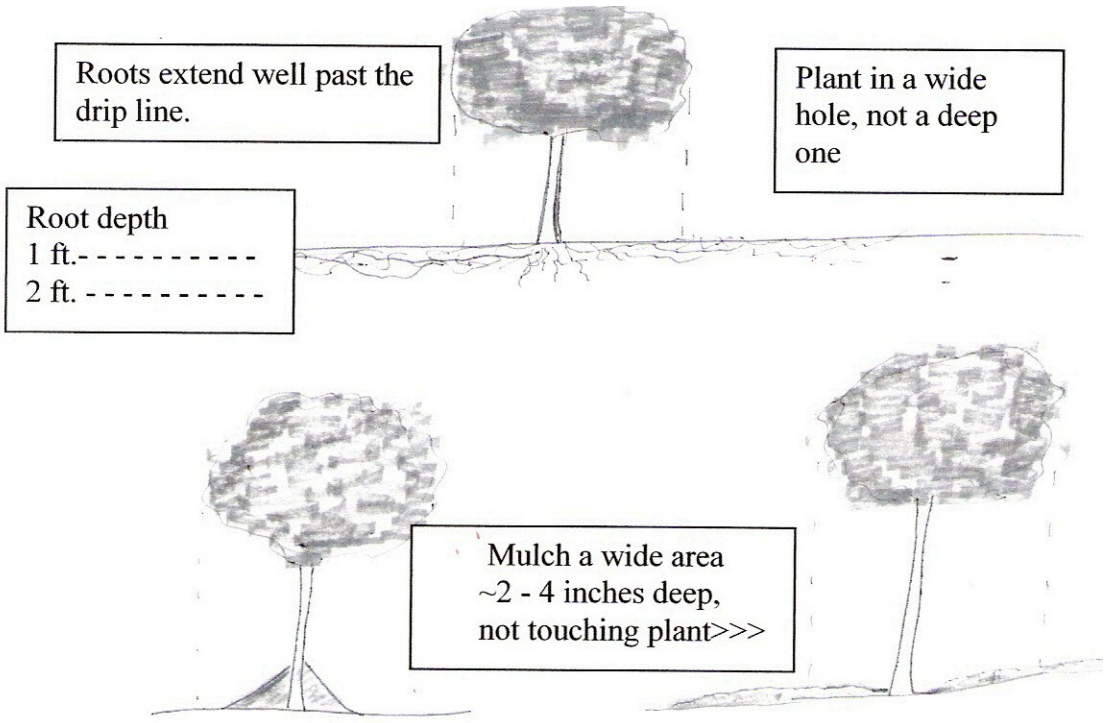
- plant size

Smaller plants are likely to grow new roots and leaves more quickly in their new location, compared to large ones. A 10-foot tree may look better at the time it's planted, but a 2-foot tree has a better chance of living after the first year and suffers less transplant shock than the large one. It can catch up in size to the larger one in a year or two and will be easier to prune and maintain in good health.

Flowering annuals and perennials also should be planted when young and not in full bloom. They need time to settle into their new home and send roots into the soil. Pinch off blooms at planting time for better flowering in the long run.

Planting basics, for container grown plants

- Dig a hole 2 to 3 times wider than the container but no deeper.
- Gently remove the plant from the pot and loosen its roots if they're compacted. Set the plant into the ground at the same depth it was in its container. Crumble the soil and return it gently around the roots of the plant. Firm the soil down to get roots into contact with the soil.
- You can amend the soil with composed organic material when you are planting ***above*** the surface in a raised bed. Do not add any compost to a hole dug into your soil, however; the partially decomposed organic material may hold too much moisture next to the roots and cause them to rot. Some plants prefer their roots right at or slightly higher than the surface. Others may need to be planted above the soil line in areas where water does not drain well; others, such as tomatoes and some vines can have their stems buried. With few exceptions, though, trees and other plants will die if excess soil, more than 2-3 inches, is added over the original soil surface. This extra layer will impede the ability of roots to receive air and water, effectively killing the whole plant.
- Water plants well to eliminate air pockets; keep them watered, fertilized, and staked according to recommendations.
- Mulch with a thin layer, one to 2 inches of pine straw, tree bark or other sustainable material, to preserve moisture and reduce competition from weeds. Keep mulch from touching the bark.



Fertilizers in general are defined in the Glossary.

Synthetic fertilizers are manufactured from minerals, natural gas, various acids, and air.
Chemical companies make granulated fertilizer composed of 3 main elements:

N - Nitrogen, in ammonium nitrate and other ammonia compounds
P - Phosphorus
K - Potash, Potassium

✔ Advantages: available everywhere, affordable; conveniently packaged; can be applied exactly to meet soil deficiencies; fast-acting; slow-release formulas decompose slowly to avoid fertilizer "burn"

✗ Disadvantages: manufacturing processes consume high levels of fossil fuel; can be overused, causing damage to crops; may raise levels of salts in soil, a potentially harmful condition for essential soil organisms; can damage soil structure and reduce soil's capacity to retain water, which may then lead to run-off after rainfall; high levels of nitrogen, which when combined with other elements in the soil, can form harmful nitrates that leach into drinking water, rivers, and oceans.

Organic Fertilizers combine numerous nutrients from natural compounds in farm animal manures, green manures (composted legumes such as peas and beans), compost from kitchen scraps and oak leaves and other vegetative matter, and rock powders (bone meal, blood meal, rock phosphate, potash-rich greensand, lime, other minerals.

✔ Advantages: decomposed organic matter improves soil tilth, ideally a loose, crumbly mixture; increases soil's ability to retain moisture and nutrition; contains micronutrients and improves nitrogen fixation; encourages growth of beneficial soil organisms; permits slow release of nutrients over longer time

✗ Disadvantages: unpredictable availability; more time-consuming to spread; lower nutrition content; not a "quick fix" except for foliar sprays

Timing of applications will depend on need. If a soil test obtains appropriate levels of nutrients, no fertilizers need to be added. Early spring and early fall may be sufficient; organic fertilizers are almost always safe to use in any month. Vegetables often need more frequent feeding in their growing season.

Detoxing soils may be necessary if contaminants are detected (arsenic, treated landscape timbers, creosote, herbicides and other pesticides, petroleum). Products, activated charcoal in particular, are available. Also investigate phytoremediation, which uses plants that absorb or otherwise remove toxins..

What are some health risks? Salmonella and e-coli may be present in animal manure, which can enter the roots and leaves of lettuce and other plants. Contamination can occur on any farm, organic or not, that irrigates with infected water. Our food inspection system cannot guarantee complete safety. Cleanliness depends on many factors—farming methods and ethics, government regulations, and the all-important water quality. Organically raised chickens and eggs reportedly have few diseases.

Veganic farming uses only compost and "green manure" to fertilize crops. It uses no synthetic fertilizers, pesticides, herbicides, animal manure, or animal byproducts such as blood meal and bone meal.

Compost: Grow Your Own Soil - Many parts of the world have lost their topsoil, with estimates in the billions of tons each year, because of farming techniques that have destroyed soil quality over the centuries. Vegetables almost always need better soil than native plants that often survive in depleted soils. Though any soil test is better than none, it is worth the small charge to pay for one from the Cooperative Extension Service.Sources:
Here are two books with the latest ideas about soil depletion, building soil, regenerative agriculture:
Dirt: The Erosion of Civilizations, by David R. Montgomery
Building Soil: A Down-to-Earth Approach: Natural Solutions for Better Gardens & Yards, by Elizabeth Murphy

Soil Building and Compost; the case against tilling

When soil is turned over, with hand tools or plows, it becomes looser, more aerated, and easier to work with. But after a few growing seasons, the organic matter in it will decompose, leaving a depleted environment for plant roots. Frequent tilling will also destroy beneficial microorganisms and insects which are important for the biological life of good soils. Organic gardeners and farmers with rich soil find ways to reduce or eliminate tilling that will harm the structure and moisture regime of the land. Instead of repeatedly tilling the life out of their soil, they build it up. With compost.

Ecogardeners cringe at the thought of throwing away organic material. Dumping coffee grounds in the trash bag to end up at the local landfill! Who would do such a thing? Not a nature-loving gardener or land steward.

While not exactly complicated, composting can present difficult issues that each land steward must learn how to deal with. Some people can easily fill up a pickup truck with free wood chips from a waste management facility or other facility which has clean recyclable organic material. Many other ecogardeners must search diligently for resources to use to make their own compost.

Composting is not an option; it is a vital component of nature-first land use. Aged compost is basically a natural slow-release fertilizer that has no chemicals that can burn plants, especially young plants whose roots will grow only in a rich environment. Good compost recycles nutrients into the soil, buffers pH imbalances, increases fertility, bolsters texture (tilth), improves air circulation, and helps retain moisture while allowing for internal drainage.

Which method of composting works best? The individual must decide. There are many ideas and products available to anyone who is willing to study the topic, which has evolved into innovative techniques that are worth exploring, especially in online searches for articles and videos.

Compost materials

Brown materials add carbon: dried leaves and pine straw, wood chips and bark, old hay, sawdust, newspaper, cardboard. Shredding materials into small pieces greatly improves the process and can be accomplished with lawnmowers, leaf blowers with chipping attachments, and chipper-shredder equipment.

Green materials add nitrogen: grass clippings, manure (chicken, rabbit, horse, others), kitchen scraps (coffee grounds, banana peels, eggshells, vegetable peels), freshly pruned leaves and weeds

Methods which make or use compost

The Compost Pile is the most familiar. Materials are initially layered and then mixed, with about 4 parts brown to one part green. Some compost gardeners make a hill 3 to 6 feet tall and never turn over the materials or water it. Serious compost gardeners will turn the material with a shovel or garden fork and keep the pile moist.
Their goal is to hasten the decomposition process that “cooks” the ingredients as a by-product when microbes heat up as they break down.

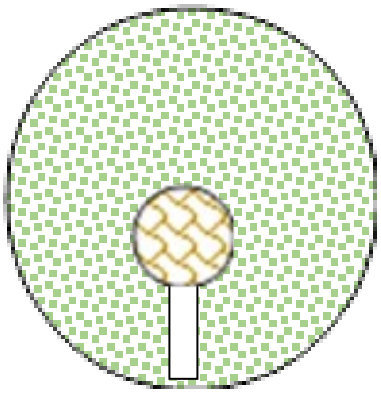
- **Compost bins** confine the materials to prevent the pile from falling apart and keeps out mice, dogs, and other critters. An array of two or more bins collects newly collected materials for multiple stages of composting projects.
- **Compost-in-place** returns garden clippings or kitchen scraps directly into the garden. Large pieces, like woody tomato stems, can be chopped before left to rot on top or covered with a top dressing of soil.

• **Sheet mulching** can be completed in a few hours. Once the existing vegetation is cut as low as possible, water the area, apply organic matter and cover, if desired, with sheets of newspaper or cardboard. A top dressing of chopped pine straw or other mulch material can be applied to make the area aesthetically pleasing. If a finished look is not necessary, black plastic sheeting will effectively kill and decompose living plants and other organic matter under it.
Opponents of plastic object to this practice, yet many organic and permaculture growers use it.

• **Worm bin (vermicomposting)** is a great way to turn kitchen scraps into black compost gold. Some environmentalists voice concerns that the commonly-purchased redworms (*Eisenia fetida/andrei*) are non-native and can negatively impact the environment.

• **Straw Bale** gardens are raised beds which become containers. Vegetables and herb plants or seeds are inserted into pockets of compost in the straw or hay.

• A **keyhole garden**, below, is usually circular, with a raised border or wall. A central wire basket holds compost to which the gardener adds kitchen scraps, livestock manure, wood ashes, and gray or fresh water daily. A keyhole-like path allows access to the basket. While it may not be necessary to provide drainage, bricks, wood chunks, branches – other materials may be placed at the bottom as filler and then topped with soil and planted with leafy greens, root plants, other vegetables, or wildflowers.



• ***Hügelkultur*** is an old world garden method that modern **e**cogardeners can utilize. It is a sensible way to recycle downed trees or large branches. Besides using such large pieces of wood to construct a woodland bench, or a rustic fence or garden border, gardeners can also take intact logs and transform them into mulch.

This German practice of "hill/mound culture," hugelkultur places tree stumps or limbs on the ground or in a ditch, which becomes the bottom of a raised bed. Organic matter, mulch, and soil are added to raise the bed several feet. The procedure can also be recreated with the wood used as filler in the bottom of a large pot with layers of natural soil and compost to fill to the top

The rotting process recreates the natural cycle in nature when trees fall and decompose and turn into a slow-release and long-term fertilizer. The decaying "nurse logs" retain moisture and break down into crumbly rich humus which nurtures fungi and other microorganisms, as well as earthworms and roots of young plants.
Best sources are online or included in books on organic growing and, of course, Permaculture.

Is Soil pH Important? Not in itself,

but it does show if trace elements are present or absent: calcium, magnesium, boron, potassium, soil fungi, microbes, more.
Tomatoes, for example, have a nutritional profile that includes
56 minerals and trace elements!

Not all soils are created equal. Old time farmers used to taste their soil to decide if it was "sweet" enough to grow crops. If the soil had a "sour" or acidic taste, they would add lime, calcium and/or magnesium compounds, to alter its chemistry to a more alkaline condition for better crop production. Many so-called acid-loving plants actually prefer magnesium. Calcium, which tomatoes need, is present in soils which are called neutral or alkaline. Caliche soils contain minerals of calcium carbonate similar to limestone. When a soil test indicates a calcium deficiency, the deficit should be addressed in order to avoid blossom end rot and a poor or non-existent harvest.
To determine your soil's pH, you can send in a sample to the local university agriculture laboratory or use a test kit or meter from a hardware store.

pH values range from 0 to 14. Neutral soil has a chemical analysis of 7
Acid soils range below 7, from 1 – 6.5 <--> Alkaline soils range above 7, from 6.5 – 10

<u>acid-loving plants</u> ——————> 4.5 to 5.5
azaleas, blueberries
rhododendrons, laurel

<u>vegetables, fruit</u> ——————> 5.0 to 6.0
blackberries, corn, cucumbers
potatoes, strawberries, watermelon

<u>many garden crops</u> ——————> 6.0 to 6.5
beans, cabbage, peas, lettuce, tomato

<u>crops for neutral soil</u> ——————> 6.5 to 7.0
asparagus, beets, broccoli, cauliflower,
melons, grapes, except Muscadine ~5.8-6.5

Gardeners can improve their soil's pH by adjusting nutrients, especially calcium and magnesium. Other possibilities:
* Well-rotted oak leaves and other fully decomposed mulch materials usually have a fairly neutral pH of around 6.5. Mixing decomposed organic matter into the soil will buffer some of the problems with soil minerals and acidity/alkalinity.
* Raised beds with "fresh" soil lift the plants up from ground with pH and drainage issues.
* Herbs and other plants can also be grown in containers where pH can be maintained more easily than in existing soil. Butterfly gardeners, for example, sometimes grow a desirable pollinator plant in a pot with better soil than the native ground.

Although adjusting soil pH is not an end unto itself, in certain cases we may not know which nutrients are essential to plant growth. Native plants, while adapted to southern soils, may need more nitrogen or phosphorus or other element lacking in soils which are leached by heavy rainfall.
While many gardeners are blessed with the proverbial ideal "rich, well-drained" soil, many others struggle with land that has low fertility, hard pan or other drainage issues, or mysterious conditions that make it difficult to grow perfect tomatoes, azaleas, or some other desirable plant.

If the land is productive and plants are vigorous, there may be no need to send a sample to the state's Cooperative Extension Service. For those who are curious about the quality of their soil, or to determine which nutrients may need boosting, the local County Agent or other representative can provide recommendations to amend deficiencies. Organic gardeners study nature-friendly products.

To acidify soil, these natural amendments lower pH:

- sulfur, elemental sulfur or iron sulfate. Gardeners who use organic methods do NOT use aluminum sulfate, since aluminum is toxic to plants
- organic matter: composted matter of vegetable kitchen scraps, pine needles, green manure, animal manure from cows, horses, chickens. Another popular soil amendment is peat, which is partially decomposed sphagnum moss from Canadian bogs; concerned environmentalists oppose overharvesting the natural resource; the peat industry claims that their "wise use" practices do not harm the wetlands. Alternatives to peat may be available locally: agricultural byproducts such as composted pine sawdust, cottonseed meal, rice hulls, ground corn cobs and coir, also known as coco peat. This sustainable product is composed is composed of coconut husk fibers which \ have been washed, composted, and often compressed into lightweight bricks.

To alkalify soil, these natural amendments raise pH:

- agricultural-ground limestone, especially the calcitic type, which provides calcium carbonate. Dolomitic lime, also derived from calcium carbonate, contains magnesium carbonate as well, which may add excess levels of magnesium, possibly leading to soil compaction or rampant growth of weeds. Other forms of lime are fast-acting and can burn plant roots if not used properly.
- hardwood ashes or biochar, a type of charcoal made from biomass, organic material,

Again, soil pH by itself is not important, since the nutrients in the soil determine the chemistry.
Sources*: Building Soils Naturally*, by Phil Nauta
The Rodale Book of Composting: Easy Methods for Every Gardener,
by Jerry Minnich, Deborah L. Martin, Grace Gershuny

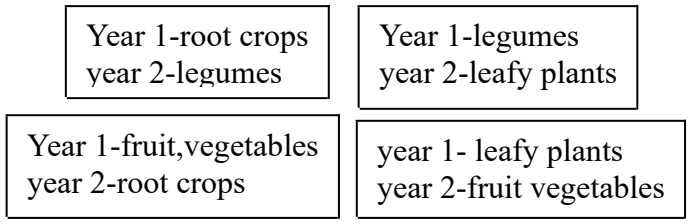
Container Gardens make it easier to control soil quality. Herbs, especially, can thrive in pots and elevated planting structures, even old wheelbarrows, galvanized horse troughs, and bathtubs. Best placement would be, of course, near the kitchen and water hose. Choose practical varieties that tolerate seasonal extremes. Or buy lightweight pots that can be carried indoors in winter. Herbs are great in pots: basil, thyme, lavender, oregano, chives, green onions, shallots, lemon balm, mints, parsley,
Sources: local herb societies;
also, websites and books such as
Southern Herb Growing,
by Madalene Hill & Gwen Barclay with Jean Hardy

Back porch pots grow garlic chives, green peppers, garden sage, heirloom tomato, and turmeric

Crop Rotation offers advantages worth applying in vegetable gardens.

Crop rotation yields better harvests than plantings that are unchanged; that is, when the same crop is raised year after year in the same ground, monoculture. The system works by disrupting life cycles of diseases and pests in the soil. Replanting tomatoes in the same place, year after year, invites trouble, including spotted wilt virus, fungal or mold problems, hornworms, and stinkbugs. Methods vary, but many gardeners group their crops by plant types. Each group moves to a new location for the following growing season. For example, groups of 4: 4 rows or 4 planting beds, might grow these plants together:

1. Leafy plants - broccoli, Brussels sprouts, cabbage, kale, lettuce, mustard
2. Fruit/tuber vegetables - corn, cucumber, eggplant, pepper, potato, squash, tomato
3. Root crops - beets, carrots, turnips, onions
4. Legumes - beans, peas



Planting by family groups allows more precise grouping, and some gardeners create 6 to 10 or more separate planting areas; rotating crops by plant family gives a gardener the means to fine-tune nutritional and moisture needs; it provides greater flexibility for prevention of diseases and pests.

HF = heavy feeder **LF** = light feeder

1. Composite, *Compositae*, HF - artichoke, dandelion, endive, Jerusalem artichoke, lettuce
2. Goosefoot, *Chenopodiaceae*, HF - beets, chard, spinach
3. Gourd, *Cucurbitaceae,* HF - cantaloupe, cucumber, pumpkin, squash, watermelon
4. Grass, *Gramineae*, HF - corn
5. Legume, *Leguminosae,* LF - bean, clover, pea, peanut, ; adds nitrogen and builds soil
6. Lily, Alliacae*,* LF **-** chives, garlic, leek, onion, shallot
7. Mallow, *Malvaceae,* LF - okra
8. Mustard, *Cruciferae/Brassicaceae*, HF - broccoli, Brussels sprouts, cabbage, cauliflower, collards, kale, kohlrabi, mustard, radish, turnip
9. Nightshade, *Solanaceae,* HF - many diseases & pests, eggplant, pepper, potato, tomato
10. Parsley, *Umbelliferae*, LF - carrot, celery, fennel, parsnip, parsley

Planning and Planting Suggestions

- Make written records to avoid planting members of a family in the same area within 3 or four years, particularly, keep track of where nightshades have grown, so that you won't put sweet peppers or eggplant into soil where tomatoes may have introduced infections.
- Follow deep-rooted plants, beets, carrots, turnips, onions, with shallow-rooted ones; plants with deep roots help break up the subsoil, thus improving soil structure
- Apply manure or other organic-rich mulch to ground before planting potatoes: follow potatoes with legumes that do not need the high fertility; excess nitrogen encourages growth of stems and leaves but produces fewer flowers and pods of beans and peas
- Avoid planting potatoes after legumes when soil has been limed
- After harvesting a crop, the residue can be pulled up and composted. Composting methods, such as solarizing the residue under plastic sheets, will kill weed seeds, plant diseases, and insect pests such as microscopic root nematodes.
- Growing cover crops suppresses weeds, adds fertility in fallow (unplanted) soil.

Fruits and Nuts

Growing an orchard can be a rewarding enterprise for gardeners who have an appetite for fresh fruit. The Cooperative Extension Service in each state can provide advice about planting, pruning, fertilizing, and properly caring for plants that produce fruit and nuts. Extension agents can also recommend the best varieties for each state. Dwarf and semi-dwarf varieties can be grown in containers or in small spaces.

Considerations

site: sunny, well-drained or elevated, allowing good air circulation, avoiding locations exposed to strong winds or frost-prone microclimates; may need irrigation in drought

size: large enough area to accommodate mature size plants with adequate spacing

soil: fertile, with appropriate pH levels and nutrients, plants usually perform best in native soil, with no organic or other loose filler added that might hold excess moisture next to the roots

pests: avoid diseases and pest insect from spreading in an orchard by diversifying plantings; instead of a row of plums, for example, intersperse with pear or apple.

Selection

Plants should be chosen to suit each state's climate/growing zone; for hardiness and fruit production, it's best to choose varieties, cultivars, evaluated by state experiment stations; small trees, 2-3-feet-tall, are often better choices to transplant than larger ones

Chilling Requirements

Most fruit plants require a specific number of hours below 45 degrees. This time of plant rest helps ensure that flowers and leaves will bloom after the threat of frost has passed; gardeners should select varieties that produce fruit for Southern growing zones.

Pollination

Fruit set requires pollination; some plants can pollinate themselves and bear fruit, self-fertile; nurseries should provide labels that indicate whether a plant is self-fertile or if it requires the presence of another variety to achieve cross-pollination; other factors affect fruit: wind, rain, bees, other pollinating insects.

Life span

Fruit trees may be relatively short-lived; peach and plum trees produce good fruit crops about 10 or 20 years; muscadine and other native vines are long-lived; pecan trees may live to 300 years.

Propagation To multiply plants, grow new ones from seeds or take cuttings of stems and roots. Not that difficult, once you learn a few simple steps. Planting in food grade biodegradable (compostable) containers avoids transplant shock since the roots and soil are kept intact.

Sources: Books are available which teach methods of propagating plants from stem cuttings, root cuttings, and other methods of making new plants from old ones; also look at free instructional sites online, as well as how-to videos.

Fruits and Nuts, Maintenance

Professional fruit plant growers breed and produce varieties that succeed in Southern climates; these plants will likely be superior to those grown in cooler or dryer areas of the country; information from county agents and plant labels should indicate which plants to select for best results:

- good resistance to diseases and insect pests
- ease of pruning, fertilizing, protection from deer and other animals

Contact your state Cooperative Extension Service for guidelines for orchard maintenance for growing zone

Low Maintenance – blackberry/raspberry, blueberry, fig, persimmon, loquat, pears
Medium Maintenance – citrus, southern areas, muscadine, some grapes
High Maintenance – apple, peach, nectarine, pecan, plum, strawberry, bunch grapes

Other plants sometimes grown in Southern states include these:

- banana
- black walnut
- elderberry
- kiwi
- kumquat
- mayhaw
- pawpaw
- pomegranate
- quince
- raspberry
- red mulberry

Record-keeping

An orchard is a fairly long-term investment in property use; to get best results, make a map of fruit trees and vines, collect publications for plant care, write down a schedule for upkeep:

Fruit/Variety—Spacing—Pollination—Fertilization/Timing—Pruning/Timing—Pests/Diseases

Storing fruit will require different techniques for canning preserves, jams, dehydrating, or freezing. Maypops, for example, are harvested when yellow and wrinkled, the pulp scooped out and frozen in a container, then made into a scrumptious jelly.

A recipe for fruit plants is the easy “dump cobbler” for blueberries, a combo of fruit, or hard pears like the Kieffer variety, pictured above:

Melt one stick of butter in a large casserole dish. 350 degrees.
Mix: 1 cup flour, 1 cup sugar, and 1 cup milk.
Add vanilla extract, cinnamon or other spices, if desired.
Pour mixture into melted butter. Gently drop 3 to 5 cups of fruit on top. Do not stir.
Top with a few tablespoons of brown sugar. Bake one hour.

Companion Plants / Insectary

Little Sparrow is an urban garden in New Orleans. The small city lot uses various organic methods, including close positioning of plants that "get along"with each other. Insecticides and herbicides are banned, since they kill beneficial insects.

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A brief introduction to companion plantings. A more detailed one follows.

Companion	Helps these:	Benefits
basil	asparagus, tomatoes, bell pepper	Improves flavor & growth, Repels mosquitoes, flies, thrips
marigold *Tagetes minuta, T. patula*	tomatoes, bell pepper	deters harmful nematodes, whiteflies, bean beetle, rabbits, bindweed and other weeds
borage	squash, strawberries, tomatoes	deters tomato hornworm, cabbage worm, improves flavor and yield, attracts pollinating bees and wasps
goldenrod	vegetables and ornamentals	attracts assassin bug and other beneficial insects which prey on aphids, caterpillars, other pests
tickseed *Coreopsis* species	vegetables and ornamentals	attracts lacewings, hoverflies, parasitic wasps and other predators of aphids, mealybugs, mites, scale

Native Plants are natural COMPANIONS for Beneficial Insects

Native Mints, Asters, Coneflowers, Coreopsis/Tickseed, Liatris/Blazing Star, Sunflower	←→	Attract Pollinators: bees, butterflies, wasps
Coreopsis, Goldenrod, Sunflower, many culinary herbs such as yarrow and dill	←→	Attrtact predatory insects, parastic wasps, lavewings, assassin bugs, others
Tea sprays make from foliage of Elderberry, Beautyberry, Wax Myrtle	←→	Repel pests: flieas, flies, beetles, mosquitoes

Herbs and Native Plants in Companion Plantings

Botanists define **herbs** as plants that die down at the end of a growing season, unlike woody plants like trees and shrubs which persist above the ground through one or more years. Herbaceous plants include wildflowers, grasses, and garden vegetables.

Many gardeners use the term **herbs** to refer to plants, herbaceous or woody, which people use various purposes:

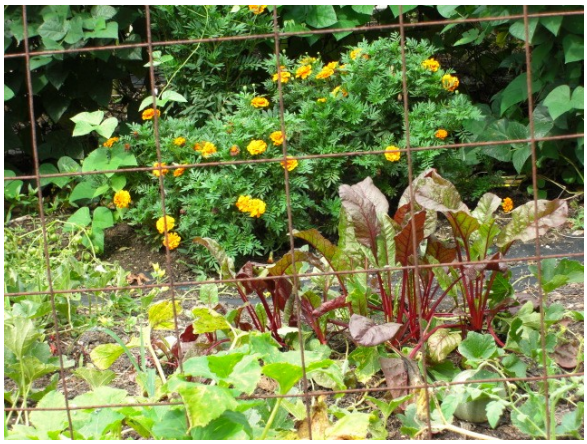
- culinary – basil, chives, parsley, thyme and other plants that season food
- medicinal – Purple Coneflower, Elderberry, and others mentioned in Medicinal Plants
- aromatic – lavender, mints, rosemary and some other plants that have pleasing fragrances

Organic gardens often include herbs as **companion plants** in their vegetable gardens and orchards. Herbs planted alongside edible crops can provide certain advantages, by deterring damaging pests, attracting harmful insects away from crops, enriching the soil, and improving growth and flavor of fruits and vegetables. Companion plants grow in similar conditions of sun, soil, and moisture. They also produce flowers or scent or root structures that chemically benefit a neighboring plant.
Taking advantage of such mutual benefits allows a gardener to have healthier, more productive crops, with the bonus of a prettier landscape. Many herbs also attract bees, butterflies, and beneficial insects which pollinate flowers or prey on harmful insects.

Location and Style
Companion plants can be scattered everywhere: throughout a vegetable garden, alongside a patio, snugged up next to ornamental shrubs and flowers, in a fruit orchard, or in pots next to the front door. Yes, they can be planted in straight rows in a conventional crop garden. They are more visually appealing in pockets here and there, in islands of companionable flowers and leaves.

The Three Sisters was a native American method which grew companion crops. The Iroquois were known to use this method:
1. Soak 6 corn seeds overnight and plant them the next day about 6 inches apart on a mound.
2. When the corn grows to about 4 inches tall, soak and plant 6 bean seeds about 6 inches from the corn seedlings. Use climbing beans instead of bush types.
3. Plant 3 squash or pumpkin seeds next to the mound. After all seeds have grown well enough, cull the seedlings and thin to 3 corn stalks, 3 bean plants, and one squash. As the bean vines grow, help them to climb the corn stalks. You can also make a stronger support with tall stakes, 8-10 feet) lashed together at the top.
A Three Sisters Salad consists of equal portions of the corn, chopped squash, and beans.

Good companions and Bad companions
pictured: French marigolds (*Tagetes patula*) brighten a vegetable garden and deter damaging nematodes, tomato hornworms, and maybe even rabbits. Cabbage and beans, however, don't like being around marigolds. For more information about companion planting, see the Sources listed at the end of this chapter.



Letting Nature Debug My Garden

Plants and animals co-exist in the same world we live on but understand only on a vague and simplistic level. Microscopic plants and animals live in the soil and water. Larger organisms feed on them and in turn become food for larger creatures, such as the birds and insects we see in our environment. When we interfere with the natural order by using pesticides, or by planting rows and rows of identical plants, we interrupt the checks and balances of biodiversity.

Pictured: a spider eliminates an infestation of stink bugs, then moves on to new territory where fresh spider food hasn't been contaminated by insecticides.

Gardeners appreciate the valuable work of bees that pollinate as much as a third of our food crops. Other beneficial insects and animals contribute in less charming ways. Predators of harmful insects include spiders, ladybugs, lacewings, some wasps, and other "good bugs." Moles and many other burrowing mammals can damage garden plants, but they also transport seeds of native plants to new locations. They also loosen and aerate the soil. Decomposers are those small agents that break down dead plant parts at the end of a growing season, in effect creating fertilizer for the next cycle of life. Chief among the recyclers are bacteria, fungi (mushrooms), mildew, worms.

By no means a perfect or complete list, the companion plantings in this table may generate some combinations that improve plant health and gardeners' rewards. Most are not American natives.

Herb	**Companions**	**Pests/Benef**
Allium (Onion, garlic, chives) Can be planted throughout the garden to repel pests	Vegetables (except peas and beans which lose nitrogen to *Allium*), fruit trees	Attracts bees Repels aphids, carrot flies, moles, snails, ticks, tree borers, beetles, and weevils; foliar sprays made with allium may repel deer, fungus gnats
Basil *Ocimum basilicum*	Tomatoes, asparagus, peppers	Repels aphids, flies, mites, mosquitoes, tomato hornworms, asparagus beetles, thrips; attracts beneficial insects and bees
Beautyberry *Callicarpa Americana* (native shrub)	Various plants and places	Repels fleas, ticks, mosquitoes, fire ants (crushed leaves can be rubbed on skin)
Beebalm, native *Monarda* mints	Tomatoes	Attracts beneficial insects, bees
Borage *Borago officianalis*	Tomatoes, strawberries, squash, fruit	Repels tomato hornworms; cabbage worms; attracts bees, wasps; adds trace minerals to soil
Catnip *Nepeta cataria*	Eggplant	Repels flea beetles, aphids, Japanese beetles, squash bugs, ants, weevils, mice
Lavender *Lavandula angustifolia*	Various	Repels fleas, moths, Japanese beetle

Herb	Companions	Pests/Benefit
Marigold *Tagetes minuta* and other species	Tomatoes, potatoes, strawberries, beans; squash and tomatoes	Repels harmful nematodes, aphids, beetles, tomato hornworm, cabbage maggot, rabbits; may attract spider mites and slugs
Mints ("true mints"), *Mentha* species have invasive roots; may be grown in pots near garden: peppermint, spearmint, pennyroyal	Tomatoes, cabbage, beets	Attract predatory wasps Mints deter ants, aphids; pennyroyal also deters fleas, flies, flea beetles, cabbage moths, mosquitoes, slugs, mice
Mistflower/Ageratum *Conoclinium coelestinum*	Various	Repels mosquitoes
Nasturtium *Tropaeolum majus* (annual grown in fall and winter in lower South)	Tomatoes, cabbage, radish, cucumber, squash, fruit trees	Repels aphids, cucumber beetles, squash bugs, white flies, fruit tree borers
Pepper, hot *Capsicum species*	Eggplant, basis, most herbs; plant's roots discourage fusarium root rot	Attracts spider mites; repels moles; crushed dried peppers mixed with water and soap make a tea spray to repel ants, spiders, caterpillars., hornworms
Radish *Raphanus sativus* (can be planted throughout a garden to repel or lure damaging insects from crops)	Beans, beets, broccoli, carrots, cucumber, lettuce, peas, spinach, squash family (avoid planting near cabbage, cauliflower, turnip)	Repels flea beetles, cucumber beetles, squash borers
Sage *Salvia officianalis*	Broccoli, cauliflower, cabbage, carrots (dislikes cucumber)	Repels cabbage moth, carrot fly, flea beetle, slugs, ticks
Thyme *Thymus species*	Cabbage	Cabbage worms/maggots, flea beetles, whitefly
Wildflowers (native): asters, coneflower, Liatris, coreopsis, sunflower, Black-eyed Susan	Various	Attract beneficial insects: bees and other pollinators, lacewings, hoverflies, assassin bugs, and other predatory species
Yarrow *Achillea millefolium*	Various	Attracts ladybug, hoverflies, and predatory wasps
Zinnia *Zinnia species*	Various	Attracts bees and other pollinators

Insectary / BIC's (Beneficial Insect Companions) should be protected and encouraged to live in a vegetable bed: Praying Mantis, Dragonflies, Damselflies, Lacewings, Assassin Bugs, and Ladybugs (which may be disappearing because of the introduction of Asian Lady beetles), others.

A separate area dedicated to beneficial insect companions will grow a useful population of tiny creatures that do good work in the garden as

- pollinators of many plants
- destroyers of damaging insects (some BIC predators eat bad bugs; others parasitize harmful insects by laying eggs in their bodies. Important predatory species include praying mantises, dragonflies, damselflies, assassin bugs, and others.
- composters that break down foliage and other plant parts
- food for birds and small mammals; caterpillars, crickets, beetles, etc. (see Ch. 4, Bird Habitats)

Choose a site and insect-attracting plants with these considerations

- a convenient or partly hidden area that will require little disturbance, especially during the growing season (and to shelter BIC adults and egg sacs in winter)
- careful selection of plants that attract as many BICs as possible
- a diverse mixture of plants of varying heights and colors, allowing some non-invasive weedy species that produce nectar and pollen
- a preference for plants with flat clusters of small flowers. These plants are members of the parsley family *(Umbelliferae* or *Apiaceae*, which also includes carrots, anise, dill, and fennel

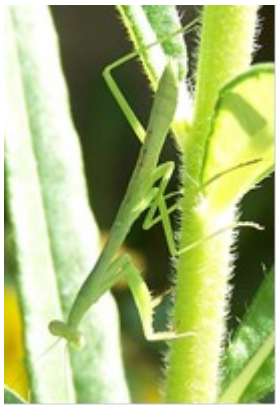
Plant Companion	**Beneficial Predator**	**Prey / Pest**
Dill *Anethum graveolens*	Ladybugs (Lady Beetles) Lacewings	Aphids, mites Aphids, mites, scale, softbodied insects
Fennel *Foeniculum vulgare*	Big-Eyed Bugs Damsel Bugs	Aphids, chinchbugs, spider mites, caterpillars, other soft-bodies insects Aphids, caterpillars, other soft-bodies insects, leafhoppers, potato beetle, moths (eggs)
Goldenrod *Solidago species*	Assassin bug	Aphids,
Lemon Balm *Melissa officinalis*	Parasitic wasps Tachinid flies	Beetles, moths, flies, whiteflies Beetles, caterpillars, sawflies, grasshoppers
Pigweed and other *Amaranthus species* (can be weedy)	Ground beetles	Grubs, slugs, some caterpillars
Sunflower *Helianthus annuus,* other species	Pirate bugs Beneficial mites	Aphids, mites, scale, thrips, whiteflies Fungus gnats, spider mites, thrips
Tickseed *Coreopsis species*	Hoverflies Lacewings Parasitic wasps	Aphids, mealybugs, others Aphids, mites, scale, soft-bodied insects Beetles (larvae), flies (larvae), moths, whiteflies
Yarrow *Achillea species*	Hoverflies Ladybugs Parasitic wasps	Aphids, mealybugs, others Aphids, mites Beetles, moths, flies, whiteflies

Plant Companions **Sources**

Before buying a book about composting or organic gardening, check out some titles at the local library. In some cases, information has changed significantly since these books were first written decades ago. Newest information is offered in great abundance on the internet.

- *Rodale's Successful Organic Gardening: Companion Planting,* Susan McClure and Sally Roth
- *Carrots Love Tomatoes: Secrets of Companion Planting for Successful Gardening,* Louise Riotte
- *Great Garden Companions (A Companion-Planting System for a Beautiful, Chemical-Free Vegetable Garden)*, Sally Jean Cunningham
- Also request catalogs from nurseries that sell online. Many companies present useful advice: Baker Creek Heirloom Seeds, Burpee, Johnny's Selected Seeds, Seed Savers Exchange, Territorial Seed Company, Southern Exposure Seed Exchange, and probably many more.

←Brightly colored assassin bugs clean aphids from a milkweed



←while a green praying mantis looks for a fly or cricket or other prey to eat.

↑ A brown walking stick is a native insect which feeds on vegetation.

← A bug that comes indoors is no lady. Native ladybugs stay outside all year long. Introduced Asian lady beetles are replacing native ladybugs, an unfortunate change.

The scarlet-bodied wasp moth, bottom right, is a beautiful native insect that feeds on weeds. Its larvae eat climbing hempvine (*Mikania scandens*). Adult males suck feed on dog fennel (*Eupatorium capillifolium*), which gives them a nasty test to predators. Adults take nectar from native mints and other flowering plants. To identify a bug or insect, try to take a picture, then count its pairs of legs and wings, colors, mouth and body parts, then uncover its identity in one of many book or online sites such as this one: https://www.insectidentification.org/

How's Your Native Habitat?

Good Soil should have

- ✓ ~5 % humus, which is organic matter from decomposed plant or animal life,
- ✓ beneficial microbes (microorganisms such as fungi and bacteria)
- ✓ a sweet smell, crumbly texture, vital minerals & trace elements
- ✓ native wildlife should be present: bees, bats, birds, butterflies, dragonflies, frogs, toads, ground beetles, green lizards (anoles), centipedes, garden spiders, lacewings

Organic Solutions - Weeds

Perhaps no other issue troubles gardeners and land stewards as unwanted vegetation. Is dandelion a weed? Or is it a nutritious and delicious edible? Some terrible weeds, like Chamber Bitter (left), can resemble a desirable plant such as the Partridge Pea (right), beloved by bees. That common, yet overabundant, aster you just pulled up may really be a lovely native pollinator plant. So, before you poison or rip out a "weed" make sure you ID it. Many desirable native plants have unfortunate names: milkweed, Joe-Pye Weed, ironweed, Jewelweed.
It seems that "weed" is any plant that a gardener doesn't like.
St. Augustine grass sends runners into many a planting bed and a pretty wildflower is cut before it is recognized as a beautiful native orchid or summer phlox.
Weed Plant Identification Resources:

- online: Southeastern Flora.com and wiki How to Identify Weeds
- Cooperative Extension service (offices are located online or phonebook)
- book: *Weeds of the South*, edited by Charles T. Bryson an Michael S. DeFelice

Nature First Weed Control

Herbicides such as Glyphosate are not acceptable to gardeners who consider such products unsafe to humans, wildlife, and groundwater.

- Natural herbicides are now, finally, on store shelves. Buyers should still read the label before applying any chemical to plants or soil. These eco-friendly products are safe for the soil and wildlife when applied correctly; they combine 10% to 20% vinegar, horticulture grade, with orange oil or d-limonene and liquid soap. These concentrations <u>will burn unprotected skin.</u>
- Do-it-yourself recipes are all over the internet and in books; some gardeners use the 5% concentration of sugar, which is available in grocery stores; though weak, the food grade vinegar may work to kill young weeds if used full strength in spray bottles in full sun; higher concentrations in cleaning vinegar and pickling vinegar are fairly easy to find; adding Epson salts and dish detergent helps bind the weak acid to plant leaves. Repeat applications are probably necessary.

- Physical mulches, often called sheet mulches, smother existing weeds and deprive weeds of sunlight needed for growth; newspaper, cardboard, compost, wood chips pine straw. Landscape fabric may work in the short term but weed roots will soon grow into it on both sides; best to avoid it completely. Cardboard and heavy brown packing paper are highly recommended.
- How much mulch? 1 to 2 inches is best. Mulch volcanoes look OOPS (Out of Place Stuff) and hold moisture next to a tree's bark, inviting diseases and insect pests
- Corn gluten meal forms a layer of mulch that inhibits germination of grass and other seeds; some studies show it has the opposite effect and works as a fertilizer by adding nitrogen to the soil

- **Under no circumstances should cypress mulch ever be used.** Except for rare cases when trees are recovered from storm damage, bagged and bulk material are taken from cypress swamps where logging is probably illegal. When cypress swamps are decimated by loggers, storm surges and winds wrack inland areas and lead to massive coastal erosion. Old growth cypress trees which were cut down in the 1800s near New Orleans have still not recovered.

Organic Solutions

Plant diseases may be controlled by one or more management techniques: quarantine of the ailing plant, avoiding disease-prone species in favor of resistant varieties, crop rotation to subdue soil-dwelling diseases, and "bulking up" a plant's stamina with necessary nutrients and growing conditions. Last, but hardly the least, is the resort to eco-friendly chemicals.

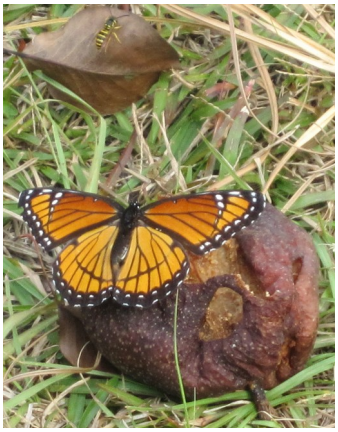
Conventional solutions call for artificially derived chemical sprays. Nature-first gardeners do not even consider these products.

Sustainable alternatives avoid most of the products on store shelves, those that have warning labels. Organic gardeners choose to make their own preparations to deal with plant diseases and pests. Or they buy and use products and foods that have the approval of one of these agencies:

- ✶ OMRI (Organic Materials Review Institute)
- ✶ USDA Organic (United States Department of Agriculture Organic Program)
- ✶ AATRA ((National Sustainable Agriculture Information Service)

Does a certificate or label guarantee authenticity? Can we verify that humanely-raised and slaughtered farm animals and free-range chicken eggs are as advertised? In a perfect world, maybe.

The remedies presented here were collected from various sources and should be examined fully before applying them. Much more information and much better advice is presented in books and websites devoted to organic controls of pests and other problems. This book intends to introduce such resources to gardeners who are just starting out on the road to sustainable land use.



The goal of land stewards who put nature first is this: do no harm to the environment. To grow food and butterfly habitat requires the determination to accept or deal responsibly with inevitable problems, including plant diseases, mosquitoes, moles, other issues.

← A viceroy butterfly defends its rotting pear against a wasp. No chemicals were ever applied to the pear tree.

Fungicide - to control powdery mildew, rust, root rot, blossom end rot on tomatoes, other fungal infections; search for natural products that are gentle to the environment; online searches obtain many recipes and advice about commercial and do-it-yourself treatments.

▪ hydrogen peroxide, 3% solution: 2 tablespoons in a quart of water for a soil drench or foliar spray. Caution: stronger concentrations, 10% and up, will kill plants and burn skin

▪ baking soda, sodium bicarbonate: 1 teaspoon plus 1/2 teaspoon of cooking oil in a quart of water caution: overuse of bicarbonates can damage leaves or accumulate in the soil; plants should be hydrated by watering at root level a day or two before spraying

▪ corn meal, to control a root rot fungus in the soil (Pythium, Rhizoctonia, Phytophthora, and Fusarium) - lightly work some corn meal into the soil, stimulates beneficial microorganisms

"Plant Vitamins" - boost plants' abilities to fight off disease; improve soil fertility

- cured compost worked into the soil or used as a mulch
- compost tea - sprays made with cured compost seeped in water; many recipes are offered in organic garden books and websites but are not recommended **for most fruit and vegetables because of dangers of bacterial infections. Once again, easy solutions are not always the best route to putting nature first.**

Organic Solutions – Insect Pests

Insect repellent and biological controls

Repellent - mix 2 tablespoons of ground red pepper and 6 drops of baby shampoo in 1 gallon of water. Let the mixture sit overnight and stir thoroughly. Spray the mixture weekly on affected plants. You may need to strain it to prevent the nozzle from clogging. Also investigate plants which repel insects; a few are mentioned in Chapter 2, Native Plants Which Repel Pests.

Biological controls - such as beneficial nematodes and diatomaceous earth are safe when used in contained areas; still, these products may have side effects and should be researched before applied where pollinators or beneficial soil microorganisms may be affected.

Insecticide

Insecticidal soaps sprayed directly on many soft-bodied insects (aphids, ants, termites, mosquito larvae, mealybugs) will kill the pests without leaving harmful residues; most recipes recommend 2 teaspoons of dish detergent in a gallon of water; some gardeners use up to 5 tablespoons of soap for greater strength and wash off the leaves within an hour after applying.

Horticultural oils are considered "safe" if they are applied directly to the pests.

It is important to follow instructions on the label of a commercial produce or source of information so that bees, predatory and other beneficial insects will not be harmed by the application. Products with pyrethrum are sometimes listed as eco-friendly. This chemical, which is derived from the Pyrethrum daisy, kills insects on contact. When beneficial insects are exposed to it, they also die.

Pyrethrum and compounds which include it may be have "low toxicity"; they are, nevertheless, toxic to fish and amphibians.

Fire Ants – OMRI-approved products with D-limonene, an extract of orange oil; do-it yourself mound drench recipes such as the Dirt Doctor's mix 1/4 cup orange oil with 1/2 cup dish detergent such as Dawn with one gallon of water. The author has used this over the years with good results.

Stinging insects like wasps in the house may allow you to capture them in an oven mitt to be released outdoors. Yellow jackets or other flying terrors are too fast to try such a move. Discretion is strongly advised.

Big Pests – rats, squirrels, snakes

Make your property pest-proof

Remove clutter that attracts varmints, especially snakes which pick up scents of rodents.

Keep firewood stacks far from the house, as well as piles of rocks, leaves, garden debris, and compost bins.

Keep trash bins tightly closed.

Be careful where you put your hands when you do yard work. Shrubs growing in foundation plantings close to the house usually provide good habitat for lizards and insects that snakes eat. These areas also provide shade and moisture that snakes enjoy.

Seal up cracks around pipes, windows, doors, vents, and other areas that leak air; tiny and narrow gaps allow mice and snakes to enter unnoticed. Silicone caulk may work well enough, but in some cases, you may need to use steel wool or metal strips that rodent teeth won't penetrate. Keep doors and windows shut or pest-proofed with tight-fitting screens. Use door sweeps to prevent roaches and many other insects from entering.

Store food in metal or glass jars; keep bird seed and livestock feed in containers with tight lids. Remove access to pet food and water sources that encourage rodent populations.

Remove pest animals humanely?

Glue strips hold small animals, even snakes, in place until they can be disposed of by blunt trauma to the head or by letting the trapped pest suffer a cruel death from dehydration or starvation. Pretty ghastly.

Poisons that kill rats and mice sometimes take days to work. In the meantime, pets, birds of prey, and other wild animals may eat the sickened rodents and die from secondary poisoning. If an animal dies in the walls of a house, the stench can linger for days or weeks. Snap traps usually kill quickly and efficiently, but sometimes they wound the pest and require a human to deliver the final blow.

A more humane method of pest riddance is available in farm supply and hardware stores. Many pest control businesses also use these trap-and-release devices. Baited cages capture offensive rodents, skunks, and other animals as large as wild hogs. The "trapper" can then transport the pest to a more appropriate location in the wild. The author has used traps several times to remove bothersome critters in good conscience. People who live in rural areas may want to invest in a good snake stick to "safely" transfer a nonvenomous species. The author also recommends a .38 special or other home protection firearm for situations when the situation is not safe, such as a rattlesnake or other venomous snake which cannot be taken with a device.

Deer are so darn charming. Until they eat your plants. The best defense against a hungry Bambi is tall fencing, 8-foot high or taller. Electronic scare devices may work, as well as electric fences which are powered with extension cords or solar batteries. Short fencing also deters **armadillos** from entering an area. Catch-and-release traps may also effectively remove unwanted visitors.

Deterring crows, raccoons, and other garden marauders

Scarecrows, plastic owls, and rubber snakes are often realistic enough to scare away birds and other pests that think they're seeing their deadly enemies. Hardware stores and garden centers also sell a variety of metal cutouts of cats, holographic ribbons, and other products that trick garden robbers. You can make your own scare tactics, like painting a piece of old garden hose to look like a snake.

Mothballs, stinky concoctions made with rancid milk, rotten eggs, and other ingredients may work, as may old shoes, dirty tee shirts, and coyote urine in an easy-to-apply bottle. Another temporary solution involves sprays and soil injections made with solutions of cayenne pepper and castor oil. Environmentally friendly products also deter burrowing moles, voles, gophers.

Guard animals, large breed dogs, in particular, are proven protectors. They can also become a major problem when they dig up a yard or garden to find a ground-dwelling animal. The king snake, a nonvenomous species, should be protected since these predators will chase and kill and devour a dangerous cottonmouth, as this picture demonstrates.

Two well-known sources of recipes, weed control, and other sustainable practices:

(online) The Dirt Doctor, Howard Garrett

(book*) Rodale's Basic Organic Gardening: A Beginner's Guide to Starting a Healthy Garden*

Chapter 4 - Attracting Wildlife - BIRDS

Several excellent field guides are available. Every home should have at least one of these books to identify birds, the ranges where they live, and their favorite foods. You can attract a varied population of songbirds and other entertaining wildlife to your yard by creating a hospitable habitat. Organic gardeners welcome birds for practical reasons: they eat caterpillars, beetles, plant lice, weed seeds, ants, and other pests.

The occasional theft of blueberries and other crops is paid for many times over by the enjoyment we get from their beauty, songs, and lively aspect. The following list suggests some of the many birds you may expect to see.

- **Permanent residents**
  Some birds live on your property almost year-round:
  American Cardinal, Blue Jay, Brown Thrasher, Carolina Chickadee, Carolina Wren, Northern Mockingbird, Red-tailed Hawk, Red-winged Blackbird (pictured right) Red-bellied Woodpecker (pictured below) and other woodpeckers, Tufted Titmouse, Wood Duck

- **Seasonal residents**
  Spring/Summer residents, which arrive in your yard in spring or summer summer to breed and raise their chicks before returning to tropical regions:
  Blue Grosbeak, Chimney Swift, Eastern Kingbird, Golden-crowned Kinglet, Indigo Bunting, Orchard Oriole, Purple Martin, Summer Tanager, Wood Thrush
  Winter residents, which come south for the winter from northern states and Canada:
  American Goldfinch, American Robin, Brown Creeper, Cedar Waxwing, Fox Sparrow, Hermit Thrush, Purple Finch, Song Sparrow, White-throated Sparrow, Winter Wren, Yellow-bellied Sapsucker

- **Migrants**
  Some pass through as they travel to and from breeding grounds, to the north in spring and to the south in fall: Chestnut-sided Warbler, Rose-breasted Grosbeak, Scarlet Tanager

Native Plants for Food and Habitat for American Birds

Trees: American Beech, Black Cherry, Black Gum, Devil's Walking Stick, Dogwood, Eastern Red Cedar, Elderberry, Elm, Red Mulberry, Hawthorn, Pine, Plum, Oak, Sassafras, Serviceberry, Sweet Gum, Sumac

Shrubs: French Mulberry/American Beautyberry, Blueberry/Huckleberry, Buttonbush, Red Chokeberry, Rose, Spicebush, Viburnum, Wax Myrtle

Vines: Bittersweet, Brambles, blackberry, dewberry, Carolina Snailseed, Greenbriar, Coral Honeysuckle, Peppervine, Poison Ivy, Virginia Creeper, Wild Grape/Muscadine

Perennials, Annuals: Asters, Beggar's Ticks, Coneflower/Black-eyed Susan, Partridge Pea (also a bee plant), Pokeweed, Sunflower, Thistle, Hummingbird Plants, Wild Strawberry, Grasses, Sedges, Rushes: Bulrush, Indian Grass, Love Grass, Oatgrass/Inland Sea Oats, Switchgrass/Panicgrass

Commercial bird feeds often include seeds of sunflower and other plants. Consider no-melt and waste-free products which avoid the messy nuisance as birds discard the shells. Suet cakes attract birds which cling to the wires in the feeders. Suet (rendered beef fat) also attracts squirrels, rodents, and other meat eaters. One strategy to outwit the bird feeder bandits is suet flavored with hot peppers. More information is readily available online, including this pdf from the Cornell Lab of Ornithology:
https://www.birds.cornell.edu/AllAboutBirds/notes/BirdNote01_WinterFeeding.pdf

Make Your Land a Bird-friendly Habitat by sketching your yard. Indicate viewing areas such as windows and outdoor seating where you can enjoy watching birds.

Add trees that match the size and soil of your yard. Oaks, elms, maples, pines, hackberry, mulberry, persimmon, other large trees provide acorns, nuts, fruit, and seeds for many species of birds: cardinal, blue jay, brown thrasher, titmouse, nuthatch, grosbeak, towhee, goldfinch, bluebird, catbird, others. Black cherry attracts many species.

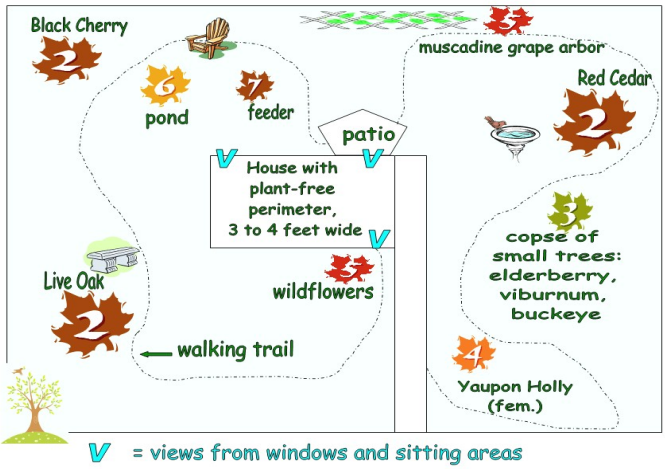
Add small trees and shrubs that provide fruit, berries, nutlets: plum, chokeberry, viburnum, serviceberry, devil's walking stick, hawthorn, wax myrtle, red buckeye, hummingbirds,
American beautyberry, blueberry/huckleberry, elderberry, strawberry bush, spicebush, sumac. Remember that some plants, such as hollies, produce fruit on females only.

Make sure that some of the trees and shrubs you choose are evergreen, so that birds have safe havens all year round where they can rest, build nests, and find shelter from harsh weather and predators. Good choices may include live oak, red cedar, pines, bay, various hollies, such as Yaupon, American holly, and inkberry, cherry laurel, tree huckleberry, wax myrtle, magnolia.

Create attractive groupings of plants where you can enjoy viewing them and the birds they will attract. Consider informal hedges, small thickets, woodlands, vine-covered arbors or fencing, perching spots such as dead tree snags or bottle trees, out-of-sight brush piles. Plant native wildflowers and grasses for their beauty and capacity to feed birds their natural diet.

Provide fresh water for birds to drink and bathe: birdbaths, ponds, moving streams, drippers. Water should be 1 to 3 inches in depth and placed in a fairly open place to protect birds from predator attacks. Nearby trees and shrubs will give them refuges to fly to.

Improve your yard's bird habitat by installing nest boxes and feeding stations. Keep feeders and birdbaths clean to prevent disease. Refrain from using pesticides (insecticides and herbicides) that may harm birds, wildlife, pets, children. soil and water. Learn how to control pest insects without depriving baby birds of protein provided by insects and worms. Ornithologists recommend 70% native plants as a goal to sustain insects which are crucial for baby birds: caterpillars, crickets, beetles, grasshoppers, cockroaches, cutworms, dragonflies, spiders. Sources: *Insects and Gardens*, by Eric Grissell and Bringing Nature Home by Douglas Tallamy,
as well as Audubon.com's web page, *Plants for Birds*



HUMMINGBIRDS

The Ruby-throated Hummingbird, *Archilochus colubris*, is the only hummingbird that nests east of the Mississippi River. It is abundant in the Southeast from about March to October. Other hummingbirds from Western states occasionally show up in winter; the most common is the Rufous Hummingbird; other Western visitors include the Black-chinned, Buff-bellies and Calliope.

Hummingbirds are attracted to red flowers and will investigate anything red-hued. They find nectar feeders quickly and may become very territorial, guarding them against other hummingbirds. Many people keep their feeders filled all year for those birds that linger through winter or are in migration. Feeders should be kept clean and filled with as much sugar water as the birds will take every 3 or 4 days. Do not add red food coloring. Completely dissolve one part sugar in 3 or 4 parts water. Feeders should be kept shaded so that the nectar will not turn rancid.

Besides nectar, hummers feed on tiny insects and spiders and even use spider webs to make their little nests. To provide protein and fat for adults, and especially for baby hummingbirds, it is essential that their habitat include native plants that feed insects; caterpillars, gnats, aphids, fruit flies, weevils, mites, mosquitoes. Avoid spraying insecticides near any plant that hummers may visit. You can also provide habitat for hummers. For places to nest and rest, hummers often use evergreens and large trees with dense foliage.

For nectar plants, consider the following natives:
Beebalm, *Mondara citriodora, M. fistulosa,*
Horsemint, Monarda *punctata*
Cardinal Flower, *Lobelia cardinalis*
Coral Bean/Mamou, *Erythrina herbacea*
Coral Honeysuckle, *Lonicera sempervirens*,
Crossvine, Bignonia *capreolata*, important early source of nectar
Indian Pink, Spigelia *marilandica*
Jewel Weed, *Impatiens capensis*
Penstemon/Beard-tongue
Phlox, *Phlox* species
Red Buckeye, *Aesculus pavia*, important early nectar source
Scarlet Sage/ Blood Sage, *Salvia coccinea*, annual
Silverbell, *Halesia diptera*
Thistles, *Cirsium horridulum*, annual or biennial; attractive to swallowtails and very pretty, but too thorny and invasive for many yards; large rosettes of very spiny leaves in winter, followed by upright stems 2-6' with flower heads 2-3" in diameter; colors pink, purple, red, white, or yellow; Mar.-Jun.
Trumpet Creeper/Trumpetvine, *Campsis radicans*
Turk's Cap Lily, *Lilium superbum*
Yellow Jessamine, Gelsemium *sempervirens*
Yucca/Adam's Needle/Gulf Coast, *Yucca filamentosa*

BUTTERFLIES

These beautiful creatures enchant us when they 'flutter by' into our yards in a blaze of colors and flight patterns. Butterflies and moths belong to the order *Lepidoptera* meaning scaly wings.
A nature-first garden will provide habitat for each life cycle: egg, caterpillar, pupa, adult.
Butterflies must also be protected from chemicals which disrupt or kill any stage of development. Most or all insecticides, fungicides, and other synthetic pesticides will harm butterflies and their caterpillars. Be especially careful o avoid plants that have, or should have, a warning label that says that neonicotinoids have been applied.

Most gardeners want to grow only nectar plants to attract adult butterflies. Nature first gardeners will bring many more butterflies closer to home by growing host plants to feed the larvae (caterpillars), so that they can form their pupal cocoons, chrysalises. These stages of development must be protected if butterflies are to survive. Overwintering butterflies and cocoons also need protection in winter. They like to wait out cold weather under unraked leaves and in clumps of dormant grass. You can mark these areas on your yard maps to leave untouched until spring. If you want to create a healthy habitat for butterflies, grow host plants to feed the larvae and some nectar plants to feed the adults. Each butterfly species needs specific host plants for its larvae to eat.

Larval Host Plants **Butterfly/Moth**

Ash trees.....Eastern Tiger Swallowtail, Io Moth
Asters……..…...Pearl Crescent
Bay trees…….……... Palamedes Swallowtail
Black Cherry, Plums….....Tiger Swallowtail, Red-spotted Purple
Butterflyweed/Milkweed....Monarch
Fogfruit……..... Phaon Crescent
Grasses.....Fiery Skipper
Hackberry……....Tawny Emperor, Hackberry Emperor, American Snout, Mourning Cloak
Hawthorns.....Striped Hairstreak
Hop-tree.....Giant Swallowtail
Ironweed…….....American Painted Lady,
Milkweeds…….....Monarch, Queen
Nettle.....Red Admiral, Questionmark
Partridge Pea……. Little Yellow, Orange Sulphur, Sleepy Orange
Pawpaw.....Zebra Swallowtail
Passionflower…….....Gulf Frittilary, Variegated Fritillary, Zebra Heliconian
Plantain.....Common Buckeye
Red Cedar…….....Juniper Hairstreak
Sassafras.....Spicebush Swallowtail
Spicebush ……....Spicebush Swallowtail
Senna..... Cloudless Sulphur, Sleepy Orange
Sumac.....Luna moth
Thistle…….....Painted Lady, Little Metalmark
Willow.....Red-spotted Purple, Viceroy, Mourning Cloak, Great Leopard Moth
Woolly Dutchman's Pipe...Pipevine Swallowtail
Yucca.....Yucca Giant-skipper

Save YOUR Bees. Grow Flowers. LOTS OF FLOWERS

About a third of the food humans eat comes from plants pollinated by bees. Nationwide, bee populations havedeclined drastically. Causes are many, including environmental degradation:

- insecticides applied to farm crops and home landscapes
- habitat loss as a result of overly managed properties: modern preferences call for manicured lawns and roadsides; monoculture farming, often consisting of square miles of crops of corn, pine trees, other crops; massive extermination of plants which produce pollen and nectar
- cultural bias as people have become more unfamiliar with nature; fear of bees and almost all insects
- disdain for "weed" plants like clover, dandelion, native wildflowers that bees rely on
- increase in diseases caused by viruses, bacteria, fungi, and parasites such as mites
- competition—European honeybees vs native bees. This is a sensitive issue for environmentalists who worry that non-native bees compete for nectar with indigenous bees. Honeybees are an introduced species which produce honey for human consumption; additionally, honeybees have lost genetic diversity due to excessive inbreeding and may harbor diseases and pests which infect native bees
- pollution of air, noise, and **electrosmog**, the microwave radiation emitted by smart electric meters on many homes, cell towers, and the omnipresent digital devices.

Protect the Bees on Your Land

- with clean water, soil, and mud! and chemical-free habitats; specifically, no pesticides; even "weed" killing herbicides and fungicides may harm young bees and ability of bees to reproduce
- provide safe havens for bees to nest and wait out the winter: sunny, dry places; small holes in untreated wood; bundles of twigs; clean, bare ground; patches of wildflowers and clumps of native grasses; bumble nest boxes; other undisturbed areas
- avoid mowing grass when bees are foraging for pollen & nectar; if possible, mow around white clover, a non-native but useful species, or spiderwort or other plants bees favor
- Bumblebee queens often nest in small tunnels underground; burning is a common practice used for land restoration and can possibly devastate insect populations; recommendations call for limited burns, no more than a third of an entire area and when adults can escape the fires.
- Learn about other vital pollinators, including many wasps, beetles, moths, flies, birds, bats.

Feed Bees

- with a variety of native plants, especially unmodified “straight” species that supply pollen, nectar, and flower structures to which bees are adapted
- bees see in ultraviolet, often preferring to land on flowers that are blue, purple,, yellow, purple
- a succession of food plants that sustain foraging bees through the year; underlined plants indicate special value to native bees

  * late winter/early spring – Butterweed (*Senecio* species), Black Cherry, Cherry Laurel, Cottonwood, Crabapple, Mayhaw, Red Maple, Serviceberry, Strawberry, Wild Plums
  * spring/early summer – Beebalm, Horsemints, Lemon Mint, Elderberry, Black Gum, Black Haw Viburnum, Blueberry, Dewberry/Blackberry, Gallberry, Golden Alexanders, Iris, Milkweeds, Partridge Pea, Penstemon, Purple Coneflower, Sage/Salvia, Sourwood, Thistle, Titi, Wild Hydrangea
  * summer/fall – Asters, Black-eyed Susan, Blazing Star/Liatris, Boneset, Clethra (pictured) Ironweed, Joe-Pye Weed, Goldenrod, Native Lobelia, Groundsel/Baccharis, Clovers, Sunflowers

Nectar Plants for Bees, Adult Butterflies, and other Pollinators

Home gardens, orchards, and farms which rely on insect pollination should grow a wide diversity of flowering plants. Permanent productive bee pastures provide a succession of blooms that sustain bees the entire year. This list suggests commonly available species and is by no means complete.

For much more information about bee forage plants and geographic distribution, visit these sources:
Xerces.com, BONAP North American Plant Atlas, USDA Plants Database

F-Forb (Wildflower) ST-Shrub/Small tree V-Vine

Late winter to Mid-spring

Golden Alexander, Zizia *aurea*, F – yellow flowers; host for black swallowtail; attracts numerous beneficial bees, wasps, flies

Wild Indigo, Baptisia *species*, F – legume; attracts bees; butterfly host

Tickseed, *Coreopsis lanceolata*, F - yellow/multicolored flowers with long bloom time; attracts several native bees and sulphur butterflies

Redbud, *Cercis canadensis*, ST - pink flowers; important early nectar sources for bees, butterflies

Blueberry/Huckleberry, *Vaccinium species*, ST – white to-pink flowers, edible fruit; supports the southeastern blueberry bee, butterflies, moths

Spiderwort, *Tradescantia species*, F – visited by bumblebees and other long-tongued bees; foliage eaten by deer, rabbit, box turtle

Spring to Summer

Buttonbush, *Cephalanthus occidentalis*, ST - white flowers attract many butterflies, moths

Black-eyed Susan, *Rudbeckia hirta*, F - golden flowers provide bees with nectar and seeds for many birds; host for several butterflies

Mountain Mint and other native Mints, *Monarda* and *Pycnanthemus species*, F – white/pink flowers, fragrant foliage; some are tea plants; used by bees, butterflies, moths, hummingbirds

Native Mallows, *Hibiscus moshuetos, H. coccineus*, *Malvaviscus,* etc. F - large showy flowers provide nectar for many insects,host for specialist hibiscus bee, gray hairstreak, Io and other moths

Maypop, *Passiflora incarnata*, V – purple flowers and edible fruit and superb jelly; pollen and nectar for bees; host for butterflies such as Gulf Fritillary, Plebeian Sphinx moth, zebra longwing

Milkweed, *Asclepias incarnata, A. perennis; A. incarnata* – F – white-pink-orange flowers, the Monarch host

Beautyberry, *Callicarpa americana*, ST – pink-white flowers feed bees and butterflies; purplish fruit eaten by over bird species

Late Summer to Fall

Joe-Pye Weed, *Eutrochium fistulosum*, F – pink flowers, nectar for bees, hummingbird moths, host for common pug and arctid moths

Blazing star, *Liatris spicata*, other species, F – upright pink-purple flowers → attract bees as well as butterflies

Ironweed, (pictured above) *Vernonia species,* F – Tall purple flowers attract many Monarch and other butterflies and bees

Fall Sunflowers, *Helianthus species*, F – support many longhorned bees; host for numerous butterflies and moths

Giant Hyssop, *Agastache foeniculum*, F – nectar from blue-pink flowers makes a sweet honey

Goldenrod, *Solidago rugosa*, others, F – special value for many bees, butterflies, moths, wasps, a vital resource for fall migrating Monarchs, dozens of other butterflies

Fall Asters, *Symphyotrichum patens,* many other species, F – essential nectar and pollen late in year

Roadside Maintenance that puts Nature First

Preserving nature often falls into the cracks of good intentions. Government agencies and landowners have best wishes for the environment. And then . . . it doesn't get done. Fragments of healthy ecosystems exist in widely spaced parks and conservation areas. How does a nature lover even find these fragments? which, unfortunately, are too small and far too widely spaced to sustain the falling populations of native bees and other pollinators and beneficial wildlife which the world needs.

Progress, apparently, often does not put nature first. Subdivisions replace pastures and woodlands. Paved roads and driveways and rooftops drain onto lands which flood where they used to stay high and dry. Wildflowers which used to bloom from spring to fall are mowed because "the public demands neatness" -- or so we are told. Before tractors and huge mowing equipment became commonplace, it was common for motorists to arrive at destinations with dozens of butterflies, dragonflies, bees, and other insects plastered on their car grilles. Messy car grilles are no longer a problem.

Human beings are highly imitative. What they see is what they accept.
If neighbors and local businesses see land that abounds with butterflies and flowers and vines with fruit trees and hummingbirds and butterflies, they will take notice. If they also see that the land requires little or no gas-powered machinery and chemical applications, that might also impress them. If, if, if. If the media and Hollywood celebrities and other style-setters present nature-friendly land use models, we may see results. Until then, nature-firsters will carry on and set the standard.

Is it too late to balance nature with human progress?
Are products approved by the Environmental Protection Agency completely safe? "Safe" being a relative term, humans and pets exposed to DEET have reported allergies and other physical issues. In addition, it is toxic to fish and aquatic invertebrates (worms, crayfish, clams, dragonflies, other insects. Pyrethrum compounds, another "low toxicity" product category, is another hazard to beneficial insects and invertebrates.
Better methods exist now. We have known about them for years or decades: Bt – *Bacillus thuringiensis,* plant oil pesticides, garlic sprays and granules, other nature-safe methods.

Yes, we can create islands of ecogardens on our own property. Outside those clean green spaces lies a vast territory which is hostile to native plants and wildlife. Despite official claims that agencies work to protect the environment, we see little progress, especially on the roadsides we travel every day. Is it possible to correct the imbalance, by contacting politicians and agencies to voice our concerns? *Putting Nature First* advocates for that outreach.

1. To request that roadside maintenance departments mow roadsides for safety, while leaving a narrow corridor for wildlife.
2. To request or suggest ecofriendly practices to control mosquitoes.

Sources: (books) *Bringing Nature Home: How You Can Sustain Wildlife with Native Plants,* by Douglas Tallamy
Attracting Native Pollinators: The Xerces Society Guide to Conserving North America's Bees and Butterflies, byThe Xerces Society
(online pdf) Technical Manual for Maintaining Roadsides for Pollinators,
NAPPC Pollinator Partnership, https://www.pollinator.org/roadsides

Wildlife Corridors and Pretty Ditches

Yikes! →

The things some people do for a perception of neatness! Or control. Or something.
Surely the untrained employee who sprayed herbicide here does not consider this area beautiful. or healthy.

Federal, state, and local agencies have policies which recommend schedules for mowing roadsides, cleaning ditches, and dealing with various issues of water drainage and safety. These policies are available to read online.

In some cases, botanists and biologists may be consulted for their recommendations, but do maintenance crews follow guidelines?
The average roadside is very often reduced to the appearance of a putting green or an ugly dead zone, as we see in the image above. Notice how some plants have developed resistance to the herbicides.

But not all southern roadsides are shaved. poisoned, and denatured to this execrable degree.
The roadside, below, in Washington Parish, Louisiana, shows us how it is possible to maintain roadsides while providing a pretty view for drivers to enjoy. Even there, notice the bare spots of ground where mowing too low (more than around 6 inches) has impacted roots of grasses, possibly leading to erosion on slopes.

An excellent resource that states and local agencies could use to preserve nature while achieving basic goals is this handbook from The Xerces Society:

Roadside Best Management Practices that Benefit Pollinators;
Handbook for Supporting Pollinators through Roadside Maintenance and Landscape Design

"Mowing of roadside vegetation beyond the shoulder during the growing season should be reduced, so wildflowers can be allowed to bloom. Consider mowing once a year in the dormant season or mowing once every few years to reduce impact of mowing on pollinators and other wildlife such as songbirds."

Chapter 5 - Native Plants for Wise Use of the Land

The following pages include native plants that can be used in a natural landscape. Although they are native to many counties and parishes of the Southeast, they may not be appropriate for your land, especially if the soil has been altered by farming or previous land use. Before adding any to your site or site map, consult sources below. It's also a good idea, not always easy to achieve, to find plants that come from naturally growing parents in your geographical area, roughly a 50-mile radius from your house. On the other hand, if the only source of a desired plant comes from Oregon or Holland, you may want to buy it because it's available. These web sites are extremely helpful to find locations where plants have been identified, as well as descriptions, photos, other information: **PLANTS Database - https://plants.sc.egov.usda.gov/java/**
BONAP North American Plant Atlas (NAPA) - http://bonap.net/Napa/Genus/Traditional/County
Lady Bird Johnson Wildflower Center - https://www.wildflower.org/plants-main

Putting Nature First consulted several books and web sites to come up with averages of tree heights, flower forms and colors, and other plant details. The plant lists in this book should not be taken as the last word on any subject. Individual specimens may vary widely from the average, especially in ideal growing conditions or in microclimates where temperatures and soil moisture differ from what your climate zone says are normal. designed to give complete plant information about characteristics and growing requirements. Before making final decisions about putting any plant in your design or landscape, you should investigate these important considerations in other literature

Though this book does not include growing zones, those recommendations are available elsewhere and are helpful when choosing plants. Some native species have been bred for hardiness in areas where they were not native. Many or most of the landscape plants commonly seen originated in Asia. Though non-native, crepe myrtles and Vitex Chaste Trees usually grow quite well throughout the entire southern states.

And while the plants you really want used to grow on your property, soil degradation may have rendered it unsuitable because of prior forces: agricultural practices, erosion, floods or run-off from neighboring sites, or other issues. In some cases, a mycorrhizal association may be crucial to root development. In which case, it's another path to explore, one that will benefit the entire ecosystem. That's our goal. It is the rare land steward who is ever satisfied with his or her current results. The destination is always in the future.

Abbreviations used in the plant lists:

- **Size** Heights and other descriptions are averages. Individual specimens may vary in size, characteristics, and growing requirements

- **Sunlight** **S** - Full Sun
  PS - Partial Sun
  Sh - Shade

- **Animal Attraction**
  A – Avians (birds)
  W – Wildlife, deer, squirrel, frog, tortoise, others
  H - Hummingbirds
  B - Butterflies and/or Bees

- **Ease of Culture** **C** - requires specific soil, drainage, condition

Native Plants for Southern Lands

LARGE TREES, average size: 40-100 feet,
Majestic oaks and pines dominate woodlands and beautifully connect a house to its landscape. Mature trees add value to home property and should be protected to maintain their health. They are planted by homeowners on barren suburban plots for their attractive leaves and bark, as well as for their graceful branches. Large trees lend dignity to home landscapes and give birds and other wildlife food and refuge. Homeowners should consider mature sizes of these stately plants for safety concerns. They should never be planted near power lines and structures that they may damage in high winds. Planting a large tree is an investment in the future as many are long-lived.

Evergreen

Atlantic White Cedar/White Cypress, *Chamaecyparis thyoides*, 40-75'; S-PS; attractive coniferous (not a cedar nor a cypress); feathery blue-green foliage; moist to wet soils

Eastern Hemlock, *Tsuga canadensis*, 40-70'; dark green feathery needles; slow-growing and long-lived, a desirable ornamental shade tree for mid and lower regions of the south with cool, moist areas where slopes provide good drainage

Live Oak, *Quercus virginiana***,** 40-80'; S; broad-spreading; massive horizontal limbs; leaves dark shiny green, 2-5 inches long; grand tree emblematic of the South, especially when draped with Spanish Moss

Pine– the *Pinus* genus; stately trees which allow sunlight to filter down to understory plants throughout the year; leaves are bundles of needles of varying lengths; pollen cones ~Feb.-Apr.; seed cones develop over 2 years; many birds and mammals find food and shelter in pines.

- Eastern White Pine, *Pinus strobus*, 75-100'; S-Sh; common pine in mid-south and northern states; tall straight trunk with graceful horizontal branches in tiers; dry to moist rich well-drained soils
- Loblolly, *Pinus taeda*, 60-170'; S; needles dark green, 5-10'; cones 3-6"; grown for lumber in pine plantations
- Longleaf, *P. palustris*, 50-125'; S; needles dark green, glossy, 8-18"; cones 6-12"; slow-growing, elegant prairie tree
- Shortleaf, *P. echinata,* 50-120'; S; needles dark bluish-green, 3-6"; cones 1-2 ½"; curving branches; dry areas; problem-free
- Slash, *P. elliottii,* 60-120'; S; needles dark green, glossy, 8-12"; cones 3-6"; fast-growing for timber and landscapes, shade
- Spruce, *P. glabra,* 50-120'; S; needles dark green, 5-10"; cones 1-2 ½"; smooth bark, compared to other pines,
- Virginia Pine*, Pinus virginiana*, 15-40'; S; a pioneer species for disturbed soils and dry, open sites; considered "unruly" or "gnarly" – a useful plant for wildlife and restoration ecogardens

Southern Magnolia, *Magnolia grandiflora,* 40-100'; S-PS; creates dense shade; thick and large glossy leaves; large fragrant flowers; often "limbed up: to create an unnatural umbrella shape

Large Trees, Deciduous

American Beech, *Fagus grandifolia,* 60-100'; P-S; A, C; smooth silver bark; leaves chartreuse in spring, dark green in summer, lingering through winter in light gold parchment hues;

Cypress - Trees with flat needlelike leaves; may grow "knees" in damp soils; need acid soil; adult trees tolerate flooding

- Bald Cypress, *Taxodium distichum*, 50-125'; S; feathery yellow-green foliage
- Pond Cypress, *T. ascendens,* 50-80'; S; smaller, narrower than Bald Cypress

Basswood, *Tilia americana,* 50-80' and up; S; B-bees; W; C; heart-shaped leaves

Catalpa/Southern Catalpa, *Catalpa bignoniodes*, 50-60'; S-PS; B, Sphinx moth, ; large trumpet-shaped white flowers

Cottonwood, *Populus deltoides,* 50-80'; S-PS; rounded, triangular leaves; A; W; females produce many cottony seeds

Deciduous Magnolias have very large leaves, large white flowers, and are rather picky about where will grow, moist rich soils with protection from drought, flooding, strong winds

- Bigleaf Magnolia/Cowcumber, *Magnolia macrophylla*, 20-40'+; PS; immense leaves, up to 1 foot wide and 3 feet long
- Cucumber Magnolia, *Magnolia acuminate/M. cordata*, S-Sh; 50-80'; attractive large tree with leaves 5-10"
- Mountain Magnolia, *Magnolia fraseri*, 30-50', cool moist mountain valleys
- Umbrella Magnolia, *Magnolia tripetala*, 15-45'; PS; leaves are 1-2-ft. long
- Pyramid Magnolia, *Magnolia pyramidata***,** 20-50'; PS
- Sweetbay/White Bay, *Magnolia virginiana***,** adaptable and widely-grown; 10-20'; PS-Sh; deciduous to semi-evergreen to evergreen in northern states; the variety *australis* is semi- tofully evergreen in the deep south, where it may grow to 60'; several cultivars are available; fragrant creamy-white lemony-scented flowers; needs acidic soil; moist to wet soils

Elm - Planted for shade and to provide food and shelter for birds

- American Elm, *Ulmus americana,* 80-120'; S-PS; A; graceful, noble tree; devastated by Dutch Elm Disease in Northeast
- Cedar Elm*, U. crassifolia*, 50-70'; S-PS; corky wings on branches; good shade tree for dry sites
- Slippery Elm, *U. rubra*, 50-80'; S-PS; A; common name refers to edible inner bark
- Winged Elm, *U. alata*, 50-80'; S-PS; A; often has prominent corky wings on branches; dry sites

Gum – common name for attractive trees with leaves that turn red in early autumn;

- Black Gum, *Nyssa sylvatica*, 80-100'; S-PS; A; W; C; good shade tree for dry to moist soils; red fall foliage; dark olive-like fruit on females
- also see Sweet Gum, Tupelo Gum

Hackberry/Sugar Hackberry, *Celtis laevigata,* 50-100'; S-PS; A; W; a bird magnet; colorful fruit

Hickory/Pecan – Grown for shade and large hard-shelled nuts favored by woodpeckers and songbirds. These members of the walnut family occur naturally in the wild but are not always available in retail plant nurseries:

- Bitter Pecan, *Carya aquatiaca*, 50-100'; S; A; W
- Mockernut Hickory, *Carya alba* 80-100'; S; A; W
- Pignut Hickory, *Carya glabra,* 50-100'; S; A; W
- Shagback Hickory, *Carya ovata,* 50-140'; S; A; W
- Sweet Pecan, *Carya illinoinensis,* 50-100; S; A; W; edible nuts, trees cultivated by commercial crop growers

Honey Locust, *Gleditsia triacanthos*, 30-75'; PS; B (butterflies); lovely tree with an attractive form; feathery leaves provide filtered shade; very sharp thorns, though thornless varieties are available; edible seed pods; several diseases and insects injure the tree, possibly a result of the problems with monocultures (planting groups of the same plant) when biodiversity should prevail

Kentucky Coffeetree, *Gymnocladus dioicus*, 75-100'; S-PS;B; planted well outside its native range in the central US; leaves appear late and shed early; hardy and resistant to diseases and pests and other negative conditions, dry to moist soils

Maple - Handsome shade trees, some with colorful fall foliage

- Silver Maple, *Acer saccharinum,* 80-120'; S-PS; A; W; popular; fast-growing but short-lived
- Southern Sugar Maple, *Acer floridanum/A. barbatum*, 80-100'; A; W; yellow-red fall foliage
- Also see Maples listed as medium trees

Oaks – The Quercus genus has 2 types: White Oaks and Red Oaks. While some oaks grow in almost any soil, some require acid conditions while others prefer alkaline. Leaf shapes vary in size and form. Oaks can produce massive crops of acorn mast (nutritious hard nuts) that feed deer, squirrels, turkeys, and other birds. Oaks should be selected carefully for mature size and growing requirements. Some of the more common of 50-plus species are these

- Blackjack Oak, *Quercus marilandica,* 40-60'; S; A; W; leaves wedge-shaped, 3-7"; dark, square or block-like bark
- Cherrybark Oak,, *Q. pagoda, Q. falcata,* 80-120'; S; A; W; 4-12" long lobes with sharp points
- Cow Oak/Swamp Chestnut Oak, *Q. michauxii,* 80-100'; S; A; *W; leaves oblong, wavy edges; shaggy bark
- Laurel Oak, *Q. laurifolia,* 50-100'; S; A; W; semi-evergreen leaves are thin, oblong, 3-6"
- Southern Red Oak,, *Q. falcata,* 70-100'; S: A: W; deeply lobed leaves, 5-9", with sharp points
- Water Oak, *Q. nigra,* 50-100'; S; A; *W; leaves vary, usually oval, 2-4"; falling branches cause problems and should be inspected by trained arborists when they grow near homes, power lines; an excellent source of mast (acorns) for wildlife
- White Oak,, *Q. alba,* 50-150'; S; A; W; leaves with rounded lobes, 4-10"; a majestic tree, highly-regarded
- Willow Oak,, *Q. phellos,* 60-130'; S; A; W; narrow willow-like oblong leaves 2-5 inches long, with smooth edges; popular shade tree for moist, well-drained soils
- Other oaks: Black Oak, *Q. velutina*; Bur Oak, *Q. macrocarpa*; Chinquapin Oak, *Q. muehlenbergii*; Northern Red Oak, *Q. rubra*; Nuttall Oak, *Q. texana*; Overcup Oak, *Q. lyrata*; Post Oak, *Q. stellata*; Runner Oak, *Q. margarettiae*; Sawtooth Oak, *Q. acutissima*; Sandjack Oak, *Q. incana,*; Shumard Red Oak, *Q. shumardii*; Turkey Oak, *Q. laevis*

Red Mulberry, *Morus rubra*, 50-70'; S-PS; A W; tasty edible fruit on females; nice shade tree

Sweet Gum, *Liquidambar styraciflua*, 40-100'; S-PS; W; leaves have pleasant fragrance; produces spiky "gum balls"

Sycamore, *Platanus occidentalis,* 70-170'; S; A; W; C; large leaves, 4-10"; smooth inner bark often white

Tulip Poplar, *Liriodendron tulipifera*, 50-80'; S; C; leaves and flowers tulip-shaped; impressive tree, tall and straight

Tupelo Gum, *Nyssa aquatica*, 80-100'; S-PS; edible red fruits, ~3/4"; tolerates flooding

Willow/Black Willow, *Salix nigra,* 50-120'; S-PS; B; W; wet or dry areas; may invade drains, pipes

Yellow Birch, *Betula alleghaniensis*, 50-100'; PS-Sh; B; cool woods of upper South; moist soils

MEDIUM TREES, Average size: 20-40 feet
Not as grand or as imposing as their large relatives, medium trees still give a lived-in look to a neighborhood or a single home site. These plants provide shade and screen to protect homes from heat and wind. Many have attractive flowers or berries that beckon birds and butterflies.

Evergreen
American Holly, *Ilex opaca,* 25-50'; S-PS; W; leathery dark green leaves, usually with spines; moist well-drained soils; cultivars may be best for some regions; red berries on females
Bay – the common term can apply to the European bay laurel or the White Bay Magnolia
- Red Bay, Persea *borbonia,* 20-40'; S-PS; A B; W; attractive ornamental; aromatic leaves; Charles Allen in his book, *Edible Plants of the Gulf South*, suggests that bay leaves may have been the real source of the *file* seasoning used by Cajuns in their gumbos and other dishes
- Swamp Red Bay *Persea palustrus*, 20-40'; S-PS; glossy, bright green leaves; similar to Red Bay; tolerates wet areas

Eastern Red Cedar, *Juniperus virginiana,* 30-70; S; A W; wood is close-grained and red, may be the source name of Baton Rouge, "red stick" in French; leaves are needlelike or scalelike in feathery sprays; long-lived; picturesque; a host for cedar-apple rust
Gordonia/Loblolly Bay, *Gordonia lasianthus*, 30-80'; S-PS; lovely specimen tree where soils are rich, moist, probably acidic; large white flowers are fragrant, blooming from mid-spring to frost; intolerant of drought

Deciduous
Ash - Shade trees of the genus *Fraxinus* are planted along streets and around homes; yellow foliage in fall
- Carolina Ash, *Fraxinus caroliniana,* 30-40'; S-PS; smallest of the ashes; good shade tree
- Green Ash, *F. pennsylvanica*, 40-60'; S-PS; A; W; beautiful; long-lived; fast-growing for shade; tolerates most soils
- Pumpkin Ash, *F. profunda*, 50-120'; similar to the more common Green Ash; wet sites; trunk is often buttressed
- White Ash, *F. americana,* 40-60'; S-PS; A; W; fast-growing; leaves yellow to purple in fall

Black Cherry, *Prunus serotina*, 35-60'; S-PS; A; I; W; small, dark edible cherries favored by birds, caterpillars
Black Locust, *Robinia pseudoacacia*, 25-50'; S-PS; B; attractive flowers and pods; fixes nitrogen in soil; thorny; may (probably) become invasive and difficult to eradicate;
Hop Hornbeam, *Ostrya virginiana*, 30-60'; S-PS; A; C; slow-growing, attractive; fruit resembles hops
Maples. Planted for fall color and shade. The red maples make red flowers in winter, winged fruit is also red
- Box Elder, *Acer negundo,* 30-60'; S-PS; A; tolerates most conditions; short-lived; host of box elder bug
- Chalk Maple, *Acer leucoderme*, 20-30', PS; 2-3 trunks with whitish bark; dry soils
- Drummond Red Maple/Swamp Red Maple, *A rubrum var. drummondii*, 40-60'; A; accepts wet and dry soils
- Red Maple/Scarlet Maple, *A. rubrum var. rubrum*, 30-60'+; S-PS; A; *I; W; pollen and nectar for bees in early spring
- Southern Sugar Maple, *Acer floridanum*/*Acer barbatum* 30-60'; PS; dry sites
- Trident Red Maple, *A rubrum var. trilobum,* similar to Red Maple; a popular landscape choice

Ohio Buckeye/American Horse Chestnut, *Aesculus glabra*, 50-75, S-Sh; showy yellow flower clusters; orange fall foliage; young foliage and large seeds are poisonous; moist, well-drained soil

Osage Orange/Bois-d'arc, *Maclura pomifera*, 30-50'; S-PS; thorny and tough; once planted in rows to make almost impenetrable fences; tolerates dry-wet soils, drought, cold, heat, wind; male trees pollinate female plants which make large (4-5-inch) but inedible fruit once called hedge apples

Persimmon, *Diospyros virginiana*, 30-50'; S; I, W; makes edible orange fruit in fall

River Birch, *Betula nigra*, 30-60'; S-PS; A; W; picturesque peeling outer bark; attractive ornamental tree

Sourwood, *Oxydendrum arboreum*, 40-70'; S-PS; B, native bees and honeybees; C; red fall foliage

SMALL TREES/LARGE SHRUBS, average: 10-30 feet,

These modest-sized plants grow tall enough to provide shade for smaller plants, but most often they are chosen for attractive visual effects in small spaces. Landscapers group them with other plants and use them as ornamental specimens to add texture and other design features to create interesting outdoor spaces. Homeowners have an outstanding selection from which to choose.

Evergreen

Buckwheat Tree/Black Titi, *Cliftonia monophylla*, 10-20; S-PS; B; W; C; pinkish flowers and fruit; moist, acidic soil

Cabbage Palm/Cabbage Palmetto, *Sabal palmetto*, 25-50'; S-Sh; A, C; rounded crown of long leaf blades atop a branchless trunk; buy only plants propagated in nurseries, not stolen from the wild;

Cherry Laurel, *Prunus caroliniana,* 15-20'; S-PS; A; W; C; white spring flowers; inedible small dark fruit; popular accent tree

Holly – plants in the *Ilex* genus have leathery leaves, attractive berries on female plants; need both sexes to set fruit

- Dahoon, *Ilex cassine*, 10-30'; S-PS; A; W; red or orange-red fruit; tolerates wet soils
- Large Gallberry, *Ilex coriacea*, 10-20'; S-PS; fast-growing; black fruit; tolerates wet soils
- Myrtle Holly, *Ilex myrtifolia*, 10-30'; S-PS; abundant red fruit; tolerates wet soils
- Yaupon Holly, *Ilex vomitoria*, 10-25'; S-Sh; A; W; tough and elegant; trouble free; attractive form; red fruit

Horse Sugar/Sweet Leaf, *Symplocos tinctoria*, 20-30'; S-PS; semi-evergreen dark green leaves; fragrant flowers

Virburnum, Walter's Viburnum, *Viburnum obovatum,* 6-20'; S-PS;A; small shiny leaves; white flower clusters in spring; a versitle plant, adaptable to damp to dry sites; blue-black fruit is eaten by birds

Wax Myrtle, *Myrica cerifera, Morella cerifera*, 15-20'; S-PS; A; W; dependable specimen plant; grayish waxy fruit used to make candles

Wild Olive/Devilwood, *Osmanthus americanus*, 15-30'; S-PS; glossy, leathery leaves; moist-wet

Deciduous

Acacia/Sweet Acacia, *Vachellia farnesiana*, 15-20'; S; restricted to the deep south, from Texas to Florida; dainty fernlike leaves; thorny; fragrant yellowish flowers which are sensitive to frost

American Smoketree, *Cotinus obovatus*, 15-30'; S-PS; picturesque branching; spring leaves turn from pink to blueish green to yellow-orange-purple in fall; flower parts and berries create a smoky appearance; average to dry soils; tolerant of drought and alkaline soil but not wet roots

Carolina Buckthorn, *Frangula caroliniana/Rhamnus caroliniana,* 15-30'; S-PS; A; handsome form and colorful foliage

Devil's Walking Stick, *Aralia spinosa*, 20-25'; S-PS; A; very spiny thin trunk with tropical-looking leaf canopy

Dogwood – Attractive trees for flower and refined form. They have specific growing needs.

- Flowering Dogwood, *Cornus florida,* 20-40'; PS; A; W; C; populations have declined drastically, may become extinct; a plant of rare beauty
- Rough Leaf Dogwood, *C. drummondii*, 20-40'; S-PS; more tolerant of poor growing conditions than Flowering Dogwood
- Swamp Dogwood, *C. racemosa/C. foemina*, 5-15'; PS; grows in ordinary soils; prefers moist conditions; blue fruit
- Other dogwoods: *Cornus alternifolia, C. amomum, C. asperifolia, C. obliqua*

Eastern Swamp Privet, *Forestiera acuminata,* 20-40'; S-PS; A; W; early spring flowers; desirable species for wet soils

Elderberry, *Sambucus canadensis*, 10-30'; S-PS; A; W; produces clusters of flowers and edible dark fruit

Fevertree/Poinsettia Tree, *Pinckneya bracteata*, 10-30; PS; pretty rose or pink sepals under the greenish petals resemble the Poinsettia; short-lived and not cold hardy; moist to wet soils

Franklin Tree, *Franklinia alatamaha*, 10-20'; S-PS; probably extinct in the wild; large white flowers in spring; red-orange fall foliage; a few nurseries are trying to propagate this tree for its delicate beauty; moist, well-drained acidic soils

Fringetree/Grancy Graybeard, *Chioanthus virginicus*, 20-30'; S-PS; W; very popular plant for its massive displays of white flowers

Hawthorn – Members of the *Crataegus* genus have white spring flowers, showy fruit, and thorns

- Blueberry Hawthorn, *Crataegus brachyacantha*, 10-20'; S-PS; A; W; short thorns; fruit is shiny blue to black
- Green Hawthorn, *C. viridis*, 25-35'; S-PS; A; W; red fruit for jelly, tea; fairly trouble-free
- Mayhaw, *C. opaca*, 20-30'; S-PS; A; very thorny; edible red fruit for jellies
- Parsley Hawthorn/Parsleyhaw, *C. marshallii*, 10-20'; S-Sh; A; W; delicate leaves resemble parsley

Holly – These members of the *Ilex* genus have bright red berries in fall and winter on female plants

- Carolina Holly, *Ilex ambigua,* 10-20'; S-PS; A; W; leaves can persist into late winter; almost evergreen
- Georgia Holly, *I. longipes*, 10-25'; S-PS; A; W; shiny red fruit resemble cherries
- Possumhaw Holly/Deciduous Holly, *Ilex decidua,* 12-30'; S-PS; A; W; showy multitudes of red, sometimes orange, fruit
- Winterberry, *Ilex verticillata*, 6-25'; S-PS; *A; W; shiny red fruit; tolerates wet soils

Hop Tree/Wafer Ash, *Ptelea trifoliata,* 15-25'; S-PS; B; attractive specimen tree; interesting round seeds in thin papery wings

Ironwood/Blue Beech, *Carpinus caroliniana*, 20-30'; S-PS; fine shade tree; smooth bark over "muscled" looking trunk

Large Snowbell, *Styrax grandifolius*, 15-25'; S-PS; A, ducks, ; C; clusters of fragrant white flowers; some shade best; moist soil

Plum – The *Prunus* genus is valued for its white spring flowers and reddish fruit; used in landscapes for accent, shade, edible fruit for jellies and preserves

- American Plum, *Prunus americana*, 20-35'; S-PS; A; W; edible fruit is red to blue or purple; edible in jellies, preserves
- Mexican Plum, *P. mexicana*, 15-20'; S-PS; A; W; rounded fruit up to 1 ½ inches; red to purple
- Sloe/Flatwoods Plum, *P. umbellata*, 10- 20'; A; W; can form thickets; red to purple fruit

Pawpaw/Custard Apple, *Asimina triloba*, 30-40'; S-Sh; W; large leaves; purplish-brown-green flowers; large edible fruit

Pawpaw, Dwarf, *Asimina parviflora*, 5-12'; S-Sh; will grow in dry soils; edible fruit; does well in shade; edible fruit

Buckeye – specimen plants with large showy flowers that attract butterflies and hummingbirds; leaves may drop in summer; 10 buckeye species grow the south; the most commonly grown:

- Bottlebrush Buckeye*, Aesculus parviflora*, 6-12; PS; upright spikes of white flowers
- Red Buckeye, *Aesculus pavia*, 10-20'; PS; B; W; bright red flowers and large seeds
- Ohio Buckeye, see Medium Trees

Redbud/Eastern Redbud, *Cercis canadensis*, 20-30'; S-PS; one of the earliest trees to bloom with showy pink flowers

Sassafras, *Sassafras albidum*, 30-60'; S-PS; B; W; interesting lobed leaves and brilliant fall color

Scentless Mock Orange, *Philadelphus inodorus*, 6-15'; B; large white flowers in spring; moist sites

Serviceberry, *Amelanchier arborea*, 10-25'; S-PS; A; W; lovely form, pinkish flowers; fruit resembles blueberries

Silverbell – Attractive large shrubs or small trees; prefer rich, acidic soils in part shade

- Carolina Silverbell*, Halesia carolina/Halesia tetraptera;* clusters of white flowers; raw seeds may be poisonous
- Two-winged Silverbell, *Halesia diptera*; 10-30'; S-PS; H; beautiful tree with white bell-shaped flowers in spring; the variety *magniflora* is claimed to produce more flowers and is more drought-tolerant than the species

Southern Crabapple, *Malus angustifolia*, 10-20'; S-PS; A; W; attractive white-pink flowers; small apples; susceptible to cedar-apple rust; see also *Malus coronaria* and *Malus ioensis*

Sumac - The *Rhus* genus is planted for yellow or red fall foliage and red fruits on females; may form thickets

- Smooth Sumac, *Rhus glabra*, 10-20'; S-PS; shiny, smooth leaves; showy fruit clusters may persist into winter
- Winged Sumac, *R. copallinium*, → 20-35'; S-PS; A; W; fruit turns black in winter; edible in jelly, lemonade
- Others: Staghorn Sumac, *Rhus typhina*,and Aromatic Sumac*, Rhus aromatica*

Toothache Tree/Prickly Ash, *Zanthoxylum clava-herculis*, 20-30'; S-PS; A; B; interesting thorny plant

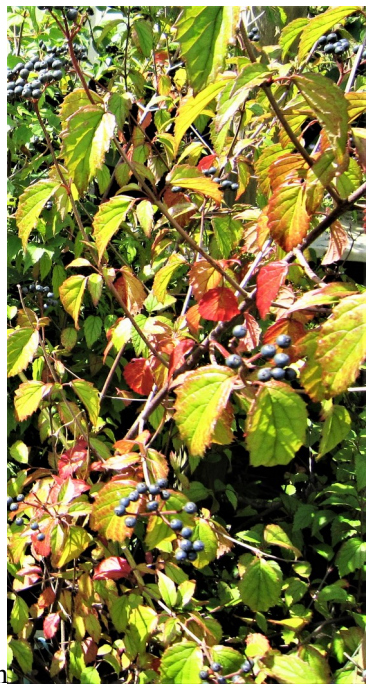
Tree Huckleberry/Farkleberry, *Vaccinium arboreum*, semi-evergreen; 10-20'; S-PS; W; handsome form, attractive white flowers, reddish fall foliage

Titi/Leatherwood, *Cyrilla racemiflora*, and Littleleaf Titi, *Cyrilla parviflora/Cyrilla arida* → semi-evergreen, 10-30'; S-PS; I; B; pretty specimen plants; white flowers in early summer

Viburnum - This large genus is used to enliven empty spaces; can be used for hedges or screens; attractive flowers in spring or summer, colorful fruit in fall and winter are drupes, hard seeds covered with fleshy layer, similar to cherries

- Arrowwood, *Viburnum dentatum*, pictured below, 6-15'; S-PS; moist, acid soil; A; W; long arching branches; white/cream flower clusters; blue-black fruit
- Mapleleaf Viburnum, *V. acerifolium*, 4-6'; S-Sh; A; W; 3-lobed leaves similar to maple foliage; blue-black or purple drupes
- Southern Black Haw/Rusty Black Haw, *V. rufidulum*, 8-40'; S-PS; A; W; may become small tree; colorful fall foliage; dark blue fruit
- Possumhaw/Withe Rod, *V. nudum*, 6-20'; S-PS; AW; fruit turns from pink to red or blue, then black; tolerates wet soils
- Smooth Black Haw, *V. prunifolium*, 10-40'; S-PS; AW; many creamy white flower clusters; edible blue-black fruit
- also see Walter's Viburnum in Shrubs, Evergreen

Witch Hazel, *Hamamelis virginiana*, 12-25'; PS; W; unusual form,yellow-orange spidery flowers boom in fall or winter; also see *Hamamelis vernalis*, flood tolerant



Arrowwood Viburnum

SHRUBS, 1-10 feet

Shrubs come in so many sizes and shapes that they fit just about anywhere. They are useful in perennial beds as individual specimens or as foundations around which flowering plants bloom and fade with the seasons. While they can be pruned for hedges and to keep them from growing too tall, species and varieties should be chosen to avoid frequent trimming.

Evergreen/Semi-evergreen

Blueberry/Huckleberry – grown as ornamentals and for colorful fall foliage and fruit which attracts birds; require acid soils

- Baygall Blueberry, *Vaccinium fuscatum*, 4-9'; S-PS; A W; dark pink flowers in late winter; dark berries in summer
- Dwarf Blueberry, *Vaccinium darrowii, Vaccinium myrsinites*--which is native to other Southeastern states, 1-2'; S-PS; A W,; small leaves, edible black berries
- Dwarf Huckleberry, *Gaylussacia dumosa,* ½-2'; S-PS; B; W; glossy leaves, large dark berries

Bush Honeysuckle, *Diervilla sessilifolia*, 3-5'; S-PS; B (special value to bumblebees); small yellow flowers in summer; best in dry sunny sites; also see *Diervilla lonicera* for upper South

Coastal Doghobble/Coast Leucothoe, *Leucothoe axillaris*, 3-6'; PS-Sh; leathery leaves; white arching flower clusters

Eastern Leatherwood, *Dirca palustris*, 3-6'; PS-Sh; yellow, drooping bell-shaped flowers in spring; rich, moist well-drained soils; contact with plant parts may cause blisters

Fetterbush, *Lyonia lucida*, 3-12'; S-PS; moist, rich soil; many small white-pink bell-shaped flowers drooping from arching branches; similar species have white flowers: *L. ferruginea, L. fruticosa, L. mariana*

Florida Anise/Star-bush/Star-anise, *Illicium floridanum*, 8-12'; PS-Sh; attractive understory plant with red, star-shaped flowers; also, Yellow Anisetree, *Illicium parviflorum*, 15-20; PS; small yellow-green flowers

Florida Hobblebush/Florida Leucothoe, *Agarista populifolia*, 8-12'; Sh; glossy leaves; fragrant white flowers in spring; moist sites

Groundsel Bush, *Baccharis halimifolia*, 8-12'; S-PS; W; tolerant of most soils; silvery-white fruit resembling flowers

Mountain Laurel, *Kalmia latifolia*, 10-20'; S-Sh; C; a very desirable plant for rich, acid soils; showy pink flowers →

Holly – smaller forms of the useful group of hardy evergreens; excellent substitutes for boxwood

- Dwarf Yaupon, *Ilex vomitoria* 'Nana', 2-4'; S-PS; red fruit; a cultivar, popular for its small leaves as well as its compact size and form
- Inkberry/Gallberry, *Ilex glabra*, 7-10'; S-PS; W; moist to wet soils; I; W; C; black fruit
- Needle Palm, *Rhapidophyllum hystrix*, 4-8'; S-PS; the most cold hardy palm in the world, with claims that plants have survived temperatures below freezing; leaves have spines resembling needles

Palmetto

- Dwarf Palmetto, *Sabal minor,* 2-8'; PS-Sh; very effective ornamental, especially in winter under tall trees; can be pruned to keep short; fan-shaped pointed leaves add bold patterns and texture to landscapes; long-lived; likes wet soils, swamps; well-drained sites
- Saw Palmetto, *Serenoa repens*, 2-7' average, may grow to 20'; PS-Sh; large fan-shaped leaf fronds up to 7 feet long; plants spread from horizontal stems

Shrubs, Evergreen/Semi-evergreen

Rhododendron (also see Azaleas in Deciduous Shrubs); broad leaves and large flower clusters in spring; flowers offer special value to bumblebees; in nature they occur in cool, moist, well-drained soils on woodland slopes. Consult this site for excellent summaries of these beautiful plants:
https://www.azaleachapter.com/index.php/plant-info/plants/southern-azalea-and-rhododendron-species

- Catawba Rhododendron, *Rhododendron catawbiense,* 6-20'; PS-Sh; pink-rose-lilac flowers
- Great Laurel/Rosebay, *R. maximum*, 6-10', up to 30'; PS; in native habitat; flowers are white with pink or purple splotches
- Piedmont Rhododendron/Dwarf Rhododendron/Carolina Laurel, *R. minus*, 6-10' up to 30'; PS; white to pink-rose flowers
- Chapman's Rhododendron, *R. chapmanii*, 4-6', PS; a variety of *R. minus*, white to pink flowers

Sand-heath/Sandhill-rosemary, *Ceratiola ericoides*, 6-8'; erect branches with needle-like leaves; specific to dry sandy soils which do not flood

St. John's Wort - ornamentals grown for golden flowers and evergreen foliage

- St. Peter's Wort, *Hypericum crux-andreae,* 2-3'; S-PS; lemon-yellow flowers on tips of branches; sandy soils
- Showy St. John's Wort, *H. frondosum*, 2-4'; S-PS; A; blue-green leaves; many showy gold flowers in summer
- Shrubby St. John's Wort, *H. densiflorum*, 3-7'; S-PS; numerous golden flower clusters
- St. Andrew's Cross *H. hypericoides*, 2-4'; S-PS; A; shredding reddish-brown bark; pale yellow flowers

Viburnum, Dwarf (Walter's Viburnum), see Small Trees/Large Shrubs, Evergreen

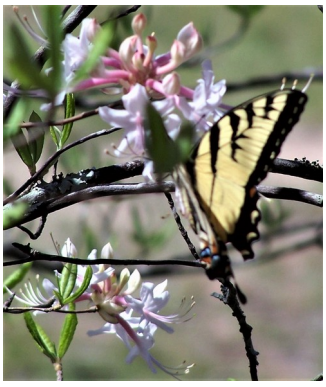
Yucca– long sword-shaped leaves with white flowers on erect stems; striking plants for hot, dry sites; all are armed and dangerous; Yucca Moth pollinates flowers; larvae of this moth and the Giant Skipper Butterfly feed on the plant

- Adam's Needle, *Yucca filamentosa*, 2-4'; S; B; forms a mound of gray-green leaves; little or no stem; yellow-white flower stalks 4-8'
- Gulf Coast Yucca, *Y. louisianensis*, 2-3'; S-PS; B; stiff narrow leaves; greenish-white flower spike up to 9'
- Spanish Bayonet, *Yucca aloifolia*, 5-20'; S-PS; B; single trunk or branched, may fall over and sprawl; flower spikes 1-2' tall

Shrubs, Deciduous

American Beautyberry/French Mulberry, *Callicarpa americana*, 3-8'; S-PS; A; B; W; nice understory plant; tolerant of most soils and conditions; small pink flowers; purple berries persist into winter or until taken by wildlife

Azaleas – Native azaleas are deciduous members of the *Rhododendron* genus, (also see in Evergreen Shrubs. The species are hybridized to produce showy blooms in a wide palette of colors. The plants need acid soil, adequate moisture, good drainage.



- Florida Azalea, *Rhododendron austrinum*, 6-12'; S-PS; B; W; yellow flowers
- Honeysuckle Azalea, *R. canescens*, 8-16'; S-PS; B; W; pink
- Oconee Azalea, *R. flammeum*, 6-8'; S-PS; B; W; orange-red
- Swamp Azalea, *R. viscosum*, 5-7'; S-PS; B; W; white
- White Azalea, *R. oblongifolium*, 2-5'; S-PS; B; W; white to pink
- Others: *R. alabamense, R. atlanticum, calendulaceum, carolinianum, colemanii, cumberlandense, periclymenoides, prinophyllum, prunifolium*

Blackberry/Dewberry – a type of shrub called a bramble, with erect, arching, or sprawling barbed stems; thornless varieties are popular for edible landscaping; primocanes are first-year stems, while floricanes are second-year growth; specific varieties must be chosen for repeat fruiting; trellising and pruning may be required for fruit production and healthy plant growth; important wildlife food for bees, butterflies, birds, mammals; tasty black fruit make growing these plants worthwhile, moist to dry

- Sawtooth Blackberry, *Rubus argutus*, 4-8'; S-PS
- Southern Dewberry, Rubus trivialis, 2-4'; S-PS

Blueberry/Huckleberry – grown as ornamentals, for colorful fall foliage and, of course, edible fruit which attracts birds and other wildlife; a so-called acid-living plant (see Chapter 3, Is Soil pH Important?)

- Blueberry/Huckleberry– The *Vaccinium* genus consists of shrubs and small trees with attractive flowers and foliage; fruits are berry-like
- Deerberry, *Vaccinium stamineum*, 3-6'; S-PS; A; W; white bell-shaped flowers; yellow-green fruit
- Highbush Blueberry, *V. corymbosum*, 4-12'; S-PS; A; W; pretty pinkish-white flower clusters; cultivars of this species are grown for the familiar sweet blueberry; acid soils
- Large Cluster Blueberry, *V. virgatum*, 1-3'; S-PS; A; W; deep pink flower clusters; black fruit
- Summer Huckleberry, *Vaccinium elliottii*, 8-12'; S-PS; A; white or pink flowers; small black edible fruit

Buttonbush, *Cephalanthus occidentalis*, → 10-20'; S-PS; B; I; W; large glossy leaves; white rounded flowers; average to wet soils; the author gave up trying to denote those native plants that support wildlife; if we put nature first, we may assume that every living thing has a function in the natural order; the complexity may be more profound than we can ever appreciate. But we try.

Buttonbush is one of countless plants whose mission is to sustain bees, butterflies, birds, and beauty in the eyes of nature lovers. It has "**Special Value to Native Bees (Recognized by pollination ecologists as attracting large numbers of native bees.) Special Value to Bumble Bees Special Value to Honey Bees This information was provided by the Pollinator Program at The Xerces Society for Invertebrate Conservation.**"

Coral Bean/Mamou, *Erythrina herbacea*, 3-8'; S-PS; H; triangular leaves; tall red flower spikes; red seed pods

Coralberry, Indian Currant, *Symphoricarpos orbiculatus*, 2-6'; PS-Sh; A; B; W; coral pink or purple berries which persist on branches in winter; a nice addition to a woodland or wildlife garden to support native bees, birds, mammals; may colonize; average soils, moist to dry

False Indigo Bush/Lead Plant, *Amorpha fruticosa*, 4-18'; S-PS; A; tougher than its delicate appearance; purple flower spikes

Gooseberry-Granite Gooseberry, *Ribes curvatum*, 2-4' spreading; PS; a species of currant; white spidery flowers; spiny stem; tart green to reddish fruit for preserves and eaten by birds and small mammals; rare but becoming available commercially; typically found in rocky acidic soils

Honeycup/Dusty Zenobia, *Zenobia pulverulenta*, 3-6’; PS; mounding shape; leaves are tardily deciduous or semi-evergreen, coloring yellow-red-purple in fall; white bell-shaped flower clusters in spring; bogs, wet soils

Hydrangea - specimen plants with large leaves and attractive flowers

- Oakleaf Hydrangea, *Hydrangea quercifolia*, 4-8'; PS-Sh; dry to moist soils; deeply lobed oaklike leaves and long-lasting whitish flower clusters on upright stalks, a popular ornamental
- Smooth Hydrangea, *Hydrangea arborescens*, 2-6'; PS-Sh; B; W; fast-growing; large clusters of white flowers

New Jersey Tea, *Ceanothus americanus*, 2-3’; S-PS; B; showy white flowers in summer; well-drained sites; leaves make a tea

Ninebark, *Physocarpus opulifolius*, 3-10’; S-Sh; round clusters of spiraea-like white-to-pink flowers; attractive reddish fruit pods; exfoliating bark; average soils; may suffer in heat, humidity

Red Chokeberry, *Aronia arbutifolia/Photinia pyrifolia*, 8-12’; S-PS; A; tolerant of most soils; red berries persist into winter

Rose – native roses are fairly carefree; may need judicious pruning and some watering in extreme drought; bloom best in full sun; other white or pink flowering roses are the Multiflora Rose, *Rosa multiflora*, and high-climbing Cherokee Rose, *Rosa laveigata*, both of which were introduced from Asia and grow wild in rural areas and are often considered noxious weeds

- Carolina Rose, *Rosa carolina*, 1-3'; S-PS; A; B; I; W; pink flowers in summer; edible red hips
- Prairie Rose, *Rosa setigera*, climbing to ~15’; S-PS; A; B; I; W; various shades of pink flowers; small green to red hips
- Swamp Rose, *Rosa palustris*, 3-6’; S-PS; A; B; I; W; pink flowers on arching canes; likes damp soil, not wet

Silky Camellia/Virginia Stewartia, *Stewartia malacodendron,* 10-20’; PS; C; a rare plant with large showy white flowers; rich organic soil

Small Snowbell, *Styrax americanus*, 6-10’; S-PS; moist to wet soils; I; A, wood ducks; pleasant understory tree; fragrant bell-shaped flowers

Smooth Alder, *Alnus serrulata*, 10-20’; S-Sh; multi-trunked and suckering to form thickets; attractive form and catkins, which are drooping or upright clusters of flowers; moist to wet sites

Spicebush, *Lindera benzoin*, 3-10'; S-Sh; A; B; W; sweetly aromatic leaves; greenish-yellow fragrant flowers; red fruit; moist to wet well-drained caliche soils (rich in calcium)

Steeplebush, *Spiraea tomentosa*, 3-6’; S-PS; A;B; shrubs form thickets with erect spikes of pink to purple flowers in summer; moist to wet soils

Strawberrybush/Wahoo/Hearts-a-burstin’, *Euonymus americanus*, 4-8'; PS-Sh; A; W; unusual strawberry-like fruit; also see Burningbush, *Euonymus atropurpureus*

Sweet Pepperbush, *Clethra alnifolia*, 6-10'; PS; B; long-lasting displays of fragrant white or pinkish flower spikes in summer, followed by long-lasting brown seed capsules; prefers moist, acid soil; also, Mountain Pepperbush, *Clethra acuminata*, 12-20; PS; well-drained soils on wooded hillsides, ravines; Clethra has special value to bumblebees

Sweetshrub/Carolina Allspice, *Calycanthus floridus*, 4-12'; PS-Sh; moist soil; sweetly aromatic leaves; fragrant dark red/maroon flowers

Swamp Doghobble/Sweetbells, *Leucothoe recemosa*, 4-12’; PS-Sh; white flowers in 3-inch long clusters; rich soils

Turk’s Cap Mallow, *Malvaviscus arboreus, var. drummondii,* 3-10’; →
very adaptable to sun/shade, moist/dry soils; long bloom time of upright reddish flowers which attract butterflies and hummingbirds; cut back to 6” in winter

Virginia Willow/Sweetspire, *Itea virginica*, 3-4'; PS-Sh; B; W; fragrant white flowers in spring; red-purple fall foliage
Witch Alder, *Fothergilla major*, 8-10'; S-PS; W; sweet-scented white flowers; autumn leaves turn to yellow, orange, or red; Dwarf Witch Alder, *Fothergilla gardenia*, to 3'
Yellowwood/Kentucky Yellowwood, *Cladrastis kentukea*, 30-50'; fragrant white spring flowers; average soils; drought tolerant

GROUND COVERS - These plants, usually low-growing, cover bare ground and add interest to mulched beds between flowers or shrubs; they may even be nestled between surface-growing roots of shade trees where grass won't grow. They take a while to become established, after which they require little attention to weeding and watering. In perennial beds they add interesting texture and contrast to taller plants that grow in their midst. They make exceptional specimens for rock gardens and shady nooks.

Evergreen/Semi-evergreen
Allegheny Spurge, *Pachysandra procumbens,* 4-9" PS-Sh; can be evergreen if protected; white-pink flowers, Mar.-May; rich, moist soils
Alumroot, *Heuchera americana*, *Heuchera villosa*, 1-3'; PS-Sh; large heart-shaped leaves turn red, yellow, or purple in fall; tolerates drought, does well in containers which protect foliage from slugs
Butterweed/Golden Ragwort, *Senecio aureus*, 2-4"; S-Sh; B; heart-shaped green leaves, purple below; yellow flowers
Dwarf Smilax, *Smilax pumila*, 6-12"; PS; W; a small vine; few thorns; large glossy leaves, fuzzy undersides; dry soils
Ferns
- Christmas Fern, *Polystichum acrostichoides* →
- 1-3'; PS-Sh; clump-forming with tall upright dark green fronds
- Marginal Fern, *Dryopteris marginalis,* 2-3'; PS-Sh; leathery evergreen leaves; moist rich soils; prefers cool sites, slopes

Fogfruit/Frogfruit, *Phyla nodiflora,* 3-6"; S-PS; B; though considered evergreen, cold winters may cause plants to go dormant; spreading in moist to wet soils; purplish-white flowers bloom around May-Oct.; average to dry soils but not drought-tolerant
Green-and-Gold, *Chrysogonum virginianum*, 2-12": PS; rounded furry leaves; spreads by runners; yellow flowers

Ground Covers, Evergreen/Semi-evergreen

Little Brown Jug/Evergreen Wild Ginger/Heartleaf

- Heartleaf*, Hexastylis arifolia*, 2-4"; PS-Sh; C; large triangular leaves which are light green with dark green veins and markings; unusual jug-shaped flowers bloom around Mar.-May
- Largeflower Heartleaf, *Hexastylis shuttleworthii*, dark green leaves have whiteish green veins; flowers Apr.-Aug.

Lyreleaf Sage, *Salvia lyrata*, 2-4"; S-Sh; B; H; fiddle-shaped leaves → are edible, turn purple or bronze in fall; blue flower spikes in spring

Partridgeberry, *Mitchella repens*, 1-2"; S-Sh; AW; small round glossy leaves on trailing stems; red fruit; rich, moist soils; often used in terrariums and containers

Pussytoes, *Antennaria parlini/A. plantaginifolia*, 4-6"; PS; B; spoon-shaped leaves, woolly and grayish; forms mats; dry soils

Trailing Arbutus/Mayflower, *Epigaea repens*, 4-6"; PS-Sh; B; very short shrub which may be tricky to establish in less-than-perfect soil; does well in containers for the author; oval leathery leaves are evergreen and fragrant, as are the white to pink spring flowers;

White Sage/Louisiana Wormwood, *Artemisia ludoviciana* semi-evergreen, 1-3'; S; B; silver-white leaves are aromatic; taproot makes for a drought-tolerant xeriscaping plant; may form mats in dry soils; yellow flowers in late summer or fall; can become aggressive

Ground Covers, Deciduous

Ferns – ancient plants that produce tightly curled leaves called fiddleheads, which develop into graceful fronds; no flowers; reproduction by spores on backs of fertile leaves or in spore cases on stalks; most need rich, moist, well-drained soil

- Bracken Fern, *Pteridium aquilinum*, 1-6'; PS-Sh; triangular sprays growing horizontally; dry sites; very aggressive
- Broad Beech Fern, *Thelypteris hexagonoptera*, 18-24"; PS-Sh; dark green; moist, well-drained
- Cinnamon Fern, *Osmunda cinnamomea*, 2-6'"; S-Sh; tall specimen plant; cinnamon-colored spore stalks; moist sites
- Ebony Spleenwort, *Asplenium platyneuron,* 1-2'; PS-Sh; small specimen plant; average-dry soil
- Maidenhair/Northern Maidenhair Fern, *Adiantum pedatum*, PS-Sh; 1-2'; fine, lacy fronds, black wiry stems
- Resurrection Fern, *Polypodium polypodioides*, 3-6'; PS-Sh; unusual fern that grows on living trees, similar to Spanish Moss, an epiphyte which grows on but does not harm another plant; also an air plant; appears dead when dry, then greens up, resurrects when it receives rain
- Netted Chain Fern, *Woodwardia areolata*, 1-2'; PS-Sh; wide triangular fronds; damp or wet soil
- Royal Fern, *Osmunda regalis*, 3-5'; PS-Sh; popular tall plant for damp places; light green leaves turn yellow in fall
- Sensitive Fern, *Onoclea sensibilis*, 1-2'; S-Sh; lobed leaflets on light green fronds; attractive spore stems; average to damp sites
- Southern Lady Fern, *Athyrium filix-femina*, 1-3'; PS-Sh; light green; delicate lacy texture; spreads quickly; moist soil

Mosses: Feather Moss, Hair-cap, Plume Moss, others; various methods will transport lovely mosses to shady, moist sites;

Wild Ginger, *Asarum canadense*, 2-6"; PS-Sh; large heart-shaped leaves; ginger-scented rhizomes

Yellowroot, *Xanthorhiza simplicissima*; 1-3';Sh; small shrub with celery-like leaves which turn yellow or purple in fall; foliage often turn tan and persists into winter; purple-brown flowers in spring; may tolerate full sun if soil remains moist or wet; spreads by root suckers

VINES climb or spread in various interesting ways, especially when they grow on a structure that shows them to best advantage, on a trellis, pergola, porch door frame, tree trunk, mailbox post, lawn sculpture**.** They create shade on arbors and decorative arches, conceal unwanted views, add color and texture along a fence, and sprawl as ground cover; their trailing stems can be trained to grow around posts, through lattice-work, and just about any direction you lead them; vines are often used to make wreaths and other craft projects. Many vines are too vigorous for some gardeners. Plant these useful but possibly troublesome plants where they can be trained to behave.

Evergreen

Crossvine, *Bignonia capreolata*, to 50'; S-PS; H; W; red and orange flowers, trumpet-shaped with fluted openings →

Greenbriar – Smilax species are woody vines used year-round on trellises and arbors and for evergreen Christmas wreaths; they have few to many prickles

- Bamboo Vine, *Smilax laurifolia*, 10-25'; S-PS; W; thorny attractive dark green leathery leaves
- Dwarf Smilax, see Ground Covers,
- Jackson Vine, *S. smallii*, 10-30'; S-PS; W; few or no prickles; dark glossy leaves; black berries

Yellow Jessamine/Carolina Jessamine, *Gelsemium sempervirens*, to 20'; S-PS; B; H; yellow funnel-shaped flowers

Vines, Deciduous – These vines are grown for attractive flowers or fruit

American Bittersweet, *Celastrus scandens*, 40-90'; A; W; showy reddish-orange fruit; strong stems can harm or kill trees

American Wisteria, *Wisteria frutescens, W. macrostachya*, 20-30'; S-Sh; W; violet flower; not invasive like Chinese wisteria

Butterfly Pea/Atlantic pigeonwings, *Clitoria mariana/Centrosema virginianum*, 2-6'; S-PS; delicate rounded flowers ranging in color from violet to pink or blue

Carolina Snailseed, *Cocculus carolinus,* 10-30'; S-PS; shiny foliage can be semi-evergreen; bright red fruit; can be very difficult to control

Climbing Aster, *Ampelaster carolinianus*, 6-12; S; B; abundant light pink to purple flowers in fall; tough, tolerant of dry to wet soils and will flower even after frosts; will ramble on ground but best on a trellis or fence

Climbing Hydrangea, *Decumaria barbara*, to 30'; S-Sh; fragrant white flowers which bloom only when they climb; otherwise used as groundcover

Coral Honeysuckle, *Lonicera sempervirens*, 15-20'; S-PS; B; H; W; → red-orange and yellow trumpet-shaped flowers; evergreen in mild winters; may have some flowers every month; probably the best vine for hummingbirds

Clematis – delicate-looking vines for small spaces; some are very well-behaved

- Curly Clematis/Swamp Leatherflower, *Clematis crispa*, 4-10'; S-PS; blue bell-shaped flowers
- Native Virgin's Bower, *Clematis virginiana*, 10-20'; S-PS; white flower clusters; aggressive
- Others, with vase-shaped flowers: Clematis *reticulata (purple and green-yellow), C. catesbyana (white), C. glaucophylla* (pink-red-purple), *C. versicolor* (pale purple), *C. viorna* (rose-pink)

Ladies Eardrops, *Brunnichia ovata*, 20-40'; S-PS; green drooping flowers; pink fruit; invasive

Morning Glory – The Ipomoea genus has over a dozen species native to the U.S. and to Central and South America; their colorful flowers are often large, 2-6 inches, funnel-shaped; many of these delightful plants can escape from captivity and become invasive

- Common Morning Glory/Whitestar, *Ipomoea lacunosa*, fast-growing annual; 10-20'; S-PS; flowers white, occasionally pink or purple
- Saltmarsh Morning Glory, *I. sagittata*, 5-8'; S-PS; arrowhead-shaped leaves; pink, violet, or purple flowers; wet areas
- Wild-potato, Man of Earth, *I. pandurata*, perennial, 10-30'; S-PS; large white flowers with purple throats; forms a large potato-like tuber underground

Passionflower/Maypop

- Purple Passionflower, *Passiflora incarnata*, 15-25'; S-PS; B (several butterflies); delicate, large flower with violet to purple parts around a white center; edible green/yellow 2-3-inch maypop fruit
- Yellow Passionflower, *Passiflora lutea*, 12-36'; PS; B; yellow flower; May-Sept.; moist soils

Peppervine, *Nekemias arborea/Ampelopsis arborea, A. cordata*, 10-20'; S-PS; A; vigorous, needs frequent pruning or complete removal; attractive berries that turn from white to pink or red, then to blue or black

Rattan Vine, *Berchemia scandens*, 50-100'; S-PS; blue-black fruit; strong stems; attractive but can strangle and kill trees

Spanish Moss, *Tillandsia usneoides*, S-Sh; 2-3" curling gray scaly leaf structures that grow in beard-like masses up to 6 feet long; not actually a vine or a moss; it is a flowering plant but is included here because of its vineline habit of drooping from trees; it is an air plant (epiphyte), which grows on but does not usually harm live oaks and other trees; is sometimes draped on structures for decoration; used in crafts and mulch in flower beds; sensitive to air pollution

←Trumpet Creeper/Cow Itch/ Devil's Shoestrings, *Campsis radicans*, 20-30'; S-Sh; H; trumpet-shaped orange-scarlet flowers; very tough and aggressive; grows on sides of buildings oncountry sheds and old homes; can be an outstanding colorful feature on tree stumps and structures where pruning is not required; Trumpet Creeper leaps over any structure in its path; when southern lands typically receive much rain and unlight, nature will use those assets in an exuberant plan to feed wildlife. Nectar is taken by butterflies, bees, and hummingbirds. Vines provide heavy leaf growth in which birds will nest and take shelter. Insects, spiders, ants, grasshoppers, caterpillars and other invertebrates also live in the foliage. Insectivorous birds devour these small animals and all birds feed them to their babies. Nature-first gardeners want to preserve this natural world knowing that they will have to deal with such complexities

Virginia Creeper, *Parthenocissus quinquefolia*, to 25'+; S-Sh; AW; birds attracted to black seeds; vigorous, fast-climbing for ground covers, arbors, trellises; rose-red to burgundy fall foliage; a useful and attractive landscape feature

Wild Grape/Muscadine, *Vitis rotundifolia*, 30-40'; S-PS; AW; large edible grapes from yellow-green to black; several other species occur in the south and are often spread by birds and mammals which eat the fruit and expel the seeds elsewhere in their droppings (built-in fertilizer)

Woolly Dutchman's Pipe/Pipevine, *Aristolochia tomentosa*, 20-30'; S-PS; B; large-leaved unusual vine used to screen sunny porches; greenish-yellow pipe-shaped flowers with purple throats

ORNAMENTAL GRASSES & GRASSLIKE PLANTS (GRAMINOIDS)

Native grasses are usually clump-forming and have much to offer:
in perennial beds they bestow year-round presence; long lasting and attractive in containers and dried floral arrangements; dried leaves usually remain standing in winter until time to cut them down when new growth appears; green foliage turns to subtle shades of yellow to orange to tan; provide food, cover, nest material for many butterflies, birds, and other animals; almost all bloom in fall with tiny flowers grouped in clusters on spikes or tassels; grass fruit is called grain, corn, rice, wheat, barley, millet, rye, oats. Periodic burning, prohibited almost everywhere, rejuvenates many native grasses. The Xerces Society cautions that burns be conducted with practices that do the least damage to bees and pollinators.

Native grasses are very useful in problem areas, wet or dry, and as vertical sculptures to call attention to areas you want to highlight, entrances to front doors, patios with night illumination, ponds and other water features. Heights are averages. Plants may grow taller in rich or moist soils. In nature they appear in full sun to light shade. Approximate bloom time is indicated in parentheses. Seeds form after flowering and persist until spring or eaten by wildlife.

Sugarcane Plumegrass and Broomsedge Bluestem
Native grasses make long-term displays after becoming dormant in autumn. Their straw color turns to gold or silver as cooler temps and lower sunlight touch them. Their upright stems and seed heads persist through winter.

Bluestem – Clumps of upright grasses associated with native prairies; blades (thin leaves) are often blue-tinged

- Big Bluestem, *Andropogon gerardii*, 3-7’; Jul.-Nov.; flower spikes resemble toes of a turkey’s foot
- Broomsedge Bluestem, Andropogon virginicus, 1-3’; Sep.-Nov.; can turn vibrant golden-orange in fall (pictured above, top right)
- Brushy Bluestem, *Andropogon glomeratus*, 2-4’; Sep.-Nov.; large “bushes” of silky flowers and fruit, silvery-white,
- Splitbeard Bluestem, Andropogon *ternarius*, 2-4’; Aug.-Nov.; white blooms and fruit on v-shaped flower stems
- Little Bluestem, *Schizachyrium scoparius*, 1-4’; Aug.-Nov.; wet or dry soils; tawny or reddish fall foliage

Cordgrass/Saltmeadow Cordgrass, *Spartina patens*, 1-4’; May-Nov.; S; forms thick mats of silvery foliage; coastal marshes

Giant Cane, *Arundinaria gigantea*, 10-30’; Feb.-May, infrequently; our only native bamboo, can form thickets, canebreaks, for screening

Oatgrass – Tufted grasses with arching flower stems and drooping clusters of flattened seeds that resemble oats

- Inland Sea Oats/River Oats, *Chasmanthium latifolium*, 2-4’; S-Sh, some shade is best; Jun.-Oct.; showy seeds
- Seaoats of the Coast, *Uniola paniculata*, 2-3’; Jun.-Nov.; adapted to sandy soils; a protected plant in coastal areas

Ornamental Grasses & Grasslike Plants (Graminoids)

Indian Grass, *Sorghastrum nutans*, 4-6'; Aug.-Nov.; attractive gold and brown flower spikes
Pink Muhly/Gulf Muhly, Muhlenbergia *capillaris*, 1-4'; Jun.-Nov.; showy pink to purple plumes
Purple Love Grass, *Eragrostis spectabilis*, 1-4'; Aug.-Nov.; silky tufts, soft misty drifts of purple flowers
Sedge – usually wetland plants, but some are adaptable to dry, sunny sites; some make fluffy tufts while others are upright spiky bunches; interesting architectural forms and interesting seed heads

- Whitetop Sedge, *Dichromena colorata/Rhynchospora colorata*, 1/2 - 2'; Mar.-Nov.; white bracts (leaf structures) resemble star-shaped flowers rising above glasslike leaves
- Yellow Nutsedge/Umbrella Sedge, *Cyperus esculentus*, ½ -3'; Aug.-Oct. clusters on grasslike leaves; wet areas

Sugarcane Plumegrass, *Erianthus giganteus*, 5-10'; Sep.-Nov.; flower spikes fade from purple to silver
Switchgrass, *Panicum virgatum*, 3-8'; May-Nov.; pink-purple flower clusters; foliage and flowers turn yellow and beige and remain upright all winter
Wildrice, *Zizania aquatica*, 2-10'; Jun.-Sep.; green and yellow flower clusters; produces edible seeds resembling rice
Wiregrass/Arrowfeather Threeawn, Aristida *purpurascens*, 1-3'; Aug.-Nov.; tufts of long, thin leaves
Woolgrass/Marsh Bulrush, Scirpus *cyperinus*, 4-8'; Aug.-Oct.; drooping reddish-brown flower clusters; wet areas

← Whitetop Sedge and Pitcher Plant in a bog

How to identify a graminoid growing in your ground?
Recite the botanists' rhyme while you feel the stem of an unknown plant:

"Sedges have edges;
rushes are round;
grasses have knees that bend to the ground."

WATER PLANTS

Aquatic plants have become easy to find in nurseries and can solve problems such as wet soils and uninteresting views. Used judiciously, they can liven up shallow bogs, ponds, and even water-tight containers on a balcony or patio. In the wild, ducks and other animals use water plants for food and cover.

American Lotus, *Nelumbo lutea*, 1-3'; Apr.-Jul.; S-PS; large yellow flowers and disc-shaped leaves stand above water; center of flower resembles an inverted cone with large seed cavities
Arrow-arum, *Peltandra virginica*, 1-2'; Apr.-Jun.; S-PS; W; tubular yellow-green flowers; large triangular leaves
Arrowhead/Bull-tongue, *Sagittaria latifolia,* 1-4'; Apr.-Nov.; S-PS; whorls of large waxy white flowers; arrowhead-shaped leaves
Blue Waterleaf, *Hydrolea ovata*, 1-4'; Aug.-Oct.; S-PS; blue to purple flowers in clusters

Camass, *Zigadenus glaberrimus*, 2-5'; Aug.-Sep.; S-PS; yellowish-white flowers on stalks; boggy soil or moist sandy sites

Cattail, *Typha latifolia*, 2-10'; May-Jul.; large brown flower spikes (female flowers) topped with yellowish spike (male flowers)

Fragrant Ladies' Tresses, *Spiranthes odorata*, 2-3'; S-PS; Aug.-frost; white bell-shaped flowers on stalk

Goldenclub, *Orontium aquaticum*, ½ -2'; Mar.-Nov.; PS-Sh; golden flower spikes →

Iris, see Flowers, Spring, Early Summer

Lizard's Tail, *Saururus cernuus*, ; 1-3'; Apr.-Jul.; PS-Sh; slender clusters of arching white flowers with drooping tips

Pickerelweed *Pontederia cordata*; 2-4'; Apr.-Nov.; S-PS; B; W; blue to purple flower spikes

Pitcher Plant - Unusual bog plants which attract and consume some insects while allowing others to live in their leaves

- Yellow Pitcher Plant, *Sarracenia alata*, 1-2'; Mar.-Apr.; S-PS; large yellow blooms; erect hollow leaves
- Parrot Pitcher Plant, *S. psittacina*, 1-2'; May-Jun.; S-PS; red drooping petals
- Purple Trumpet Pitcher Plant, *S. drummondii*, 2-3'; Apr.-May; purple flowers; erect trumpet-shaped leaves

Spatterdock/Yellow Pond Lily, *Nuphur advena*, 4-12"; Mar.-Oct.; S-PS; W; yellow flower amid large floating leaves

Spider Lily, Hymenocallis *liriosme*, 2-4'; Mar.-May; S-PS; H; white cup and long thin white "petals" have a spidery look

Rush

- Soft Rush, Juncus effusus, 1-6'; S-PS; clusters of straw-to-brown flowers; erect round stems
- Scouring Rush/Horsetail, *Equisetum hyemale,* 2-4'; S-PS; planted as an evergreen in containers or confined spaces; no real flowers; bright green stems, jointed with dark rings; very aggressive yet very impressive when used where they can be confined
- Spike-rush, *Eleocharis obtusa, E. montevidensis*, 6-12"; S; small pink to red cones flowers, ; spreading spiky seeds

Sweetflag, Acorus *americanus* 1-4'; May-Aug.; S-PS; yellow floral spike; glossy sword- like leaves

Water Lily - Native water lilies are hardier than the tropical types; become dormant in fall

- White Water Lily, *Nymphaea odorata*, 1-6"; Apr.-Jul.; S-PS; W; large fragrant white flowers with yellow centers; large rounded leaves with deep notches; leaves floating or erect above water surface
- Yellow Water Lily, *Nymphaea mexicana*, 1-6"; S-PS; Apr.-Jul.; W; yellow flowers, floating or erect on stems above water; leaves blotched with brown

Pictured to the right: a bog with Giant Blue Iris and an Abbeville Iris in the author's upland yard, a far stretch from its natural swamp habitat; while "wetland" plants may grow in soils which dry out periodically, "upland" plants may not tolerate wet feet.

Chapter 6 – Flowers and Seasonal Interest

FLOWERS AND SEASONAL INTEREST

Flowering Trees, Shrubs, Perennials. Annuals are noted specifically.

Late Winter/Early Spring

This time of year can be dreary while the danger of frost persists, until mid-March or early April. The landscape can still look inviting with the subdues hues and picturesque features of various plants that are evergreen or prettily dormant.

- Dried stands of tall native grasses in shades of pale yellow tawny light brown, and orange
- Curling outer layers of river birch that peel off to expose smooth pink or silver inner bark
- Graceful tree branches, dramatically silhouetted against the morning or evening sky,
- Evergreens for background and ground cover, and as shelter for birds: Eastern Red Cedar,
- Live Oak, and Hollies, which have shiny red fruit from November to March:
    - American Holly, see Medium Tree,
    - Possumhaw Holly, see Small Trees
    - Yaupon, see Small Trees

Anemone/Carolina Anemone /Wind-flower, Anemone *caroliniana*, 4-14”; S-PS; Feb.-Apr.; flowers solitary, blue to violet to rose; drought-resistant; a perennial growing from rhizomes or tubers

Black Cherry, see Medium Trees, Feb.-Apr.; white drooping flower clusters, 2 – 3 inches long

Bluets, Hedyotis *caerulea*; also *H. procumbens*, *H. pusila* (annual), others; Feb.-Apr.; 4 – 6”; S-PS; tiny single flowers, usually blue, white, or magenta

Butterweed/Yellowtop, Senecio *glabellus*, annual; 1 - 3’ S-PS; Dec.-May; yellow-gold flowers; abundant in ditches and damp areas; grown from dried seeds collected after bloom, volunteers readily, as in the author’s twirly bird yard → also: *S. aureus* in Spring/Early Summer,

Daisy Fleabane, Erigeron *philadelphicus*, 10-30”; S-PS; Dec.-May; daisy-like flowers with white-pink petals surrounding a yellow center; invasive in flower beds but useful in naturalistic plantings, meadows, prairies

Drummond Red Maple, see Medium Trees, Feb.-Mar.; clusters of red flowers followed by reddish winged fruit, red fall foliage

Mayhaw, see Small Trees-Hawthorns, Feb.-Mar.; white flowers resembling strawberry blossom

Eastern Swamp Privet, see Small Trees, Feb-Mar.; yellow flower clusters on leafless twigs

Silverbell, see Small Trees, Feb.-Mar.; small drooping white flowers

Redbud, see Small Trees, Feb.-Mar.; clusters of bright pink flowers bloom before leaves appear

Spring Beauty, *Claytonia virginica*, 3-12”; PS-Sh; Feb.-May; loose clusters of light pink or white flowers with dark pink stripes on petals

Seasonal Interest, Late Winter/Early Spring

Wild Plum, see Small Trees, Feb.-Mar.; masses of fuzzy white blossoms, often turning to pink

Wild Violets, especially Birds-foot Violet, *Viola pedata*, and others:, *Viola langloisii*, *V. primulifolia, V. rosacea*; Feb.-May; 4-8"; S-PS; pansy-like flowers in shades of blue, purple, and white

Witch Hazel, see Small Trees, Nov.-Jan.; threadlike yellow petals growing on twigs before leaves appear

Yellow Jessamine/Carolina Jessamine, see Vines, Jan.-Apr., some have flowers every month; yellow, trumpet-shaped flowers

Silverbell's bright white flowers are a pretty sight in early spring, almost as charming as the disappearing Flowering Dogwood.

Seasonal Interest, Spring/Early Summer

Perhaps our best season, with a myriad of plants to awaken our appreciation of nature before the heat of summer dampens our enthusiasm for working outdoors.

Alabama Snow-wreath, *Neviusia alabamensis*, shrub, 3-6'; PS; May; clumps of white fuzzy flowers; moist soils

Atamasco Lily, *Zephryantes atamasco*, 8-15"; PS-Sh; Mar.-Apr.; white star-shaped flower

Alumroot, Heuchera *americana, H. villosa*, 1-2'; PS; Apr.-Jun.; light pink or green or white flowers in tall spikes; grown more for evergreen leaves with purple markings, see Ground Covers, Evergreen

Beard-tongue – Of the dozen or more Penstemon species of the South, the two most common are

- Eastern Smooth Beard-tongue, *Penstemon laevigatus*, 1-2'; S-PS; Apr.-Jun.; violet flowers;
- Smooth Beard-tongue, *P. digitalis*, 2-4'; S-PS; Apr.-Jun.; white tubular flowers;

Barbara's Buttons, *Marshallia caespitosa*, 10-18"; S-PS; Apr.-Jun.; white to pink ball-shaped flowers; similar species include *M. graminifolia, M. obovata, M. ramosa, M. trinervia*

Beebalm - dense flower clusters atop or on sides of erect stems

- Lemon Mint, *Monarda citriodora*, annual; 2-3'; S-PS; May-Jul.; tall pink-white flower spikes
- Scarlet Beebalm/Oswego Tea/Red Bergamot, *M. didyma*, 2-4'; B, H; red flowers; May-Oct.; moist soils
- Wild Bergamot, *M. fistulosa*, 3-6'; S; May-Aug.; pink or lavender flowers

Beetleweed/Coltsfoot/Wand Flower, *Galax urceolata*, 3-6”; PS-Sh, May-Jun.; white flower spikes up to 2’; rich, well-drained soil like that of their native habitat along southern mountains

Bellwort/Merrybells, *Uvularia perfoliata, U. grandiflora*, 6-18”; PS-Sh; Mar.-May; white or light yellow drooping bells

Bloodroot, *Sanguinaria canadensis*, 5-10” PS-Sh; Mar.-May; delicate white woodland flower

Blueberry/Huckleberry, see Shrubs, Evergreen and Deciduous, Mar.-May; numerous small white bell-shaped flowers ornamental fruit in fall; some varieties are edible

Blue-eyed Grass, Sisyrinchium *capillare, S. atlanticum*, 8-12”; S-Sh; Mar.-May; blue flowers in narrow grass-like leaves

Bluestar, *Amsonia tabernaemontana*, 2-3’; S-PS; May-Jun.; clumps of blue, star-shaped flowers; foliage turns bright yellow and gold; other species include *A. ciliatea, A. hubrichtii, A.ludoviciana, A. rigida*

Bowman's Root/Indian Physic, *Gillenia trifoliata*, 2-3’; Apr.-Jun.; B; white flowers; prefers slopes, dry to moist soils; also see Indian Ipecac, *Gillenia stipulata*, S-PS; red-yellow-orange fall foliage

Buckwheat Tree, see Small Trees, Mar.-Apr.; fragrant white to pink flower clusters

Butterflyweed, see Milkweed,

Butterweed/Golden Ragwort, *Senecio aureus*, 1-2’; S-Sh; Mar.-May; golden daisy-shaped flowers, evergreen leaves; moist sites

Candy Root, genus *Polygala* contains several species of interesting flowers, annuals or biennials, including Drumhead Candy Root, *Polygala cruciata*, 6-12”; S-PS; Apr.-Jun.; pink or white cylindrical flower cluster

Celandine Poppy/Yellow Wood Poppy, *Stylophorum diphyllum*, 1-2’; PS-Sh; yellow-orange flowers; moist, rich soils; may become dormant in summer or drought

Clematis/Curl Flower, see Vines, Mar.-Jun.-Oct.; curling light blue and white petals

Columbine/Eastern Columbine, *Aquilegia canadensis*, 1-4’; Mar.-May; S-PS; H; delicate red and yellow nodding flowers

Coral Bean/Mamou/Cherokee Bean →
see Shrubs, Deciduous, Apr.-Jun.; red flower spikes 4- 5’ tall; attractive red seeds in summer are toxic and should be kept from children

Coral Honeysuckle, see Vines, Mar.-Nov.; coral-red trumpet-shaped flowers; red fruit; often bloom year-round; a must-have plant for hummingbirds

Coreopsis/Tickseed - abundant flowering and a long bloom period brighten sunny sites; easily grown from seed; neglected lots were once filled with tickseed; now, for some modern preference, they are mowed down just when they could be flowering and providing nectar for pollinators; the author's favorite plant genus; nurseries and online stores offer different species, some which are shade tolerant or prefer dry or wet sites; two dozen species grow in southern states; attract butterflies and birds; the most common are probably these:

- Lance-leaved Tickseed, Coreopsis *lanceolata*, 6-24"; S; Apr.-Jun.; yellow daisy-like flowers
- Golden Tickseed, *C. tinctoria*, annual; 2-5'; S; May-Jun.; yellow petals surround red centers
- Other similar yellow-flowered species include *Coreopsis auriculate, C. basalis, delphiniifolia, falcata, floridana, gladiata, grandiflora, integrifolia, pulchra, tripteris, verticillata*, others
- Pink-flowered tickseeds are *Coreopsis nudata* and *C. rosea*

Crossvine, Bignonia *capreolata*, see Vines; S-PS; H; W; Apr.-Jun.; red and yellow tubular flowers

Dogwood, see Small Trees, Mar.-Apr.; tiny yellow flowers surrounded by 4 notched leaves resembling silky white petals

Delphinium/Blue Delphinium, *Delphinium carolinianum*, 2-3'; S-PS; Apr.-Jun.; blue-violet flower spikes; dry soil

Dutchman's Breeches, *Dicentra cucullaria,* 6-10"; S-Sh; Apr.-May; fernlike leaves and charming white flowers resembling Old World pantaloons; prefers cool, moist, well-drained soils; similar lively spring ephemerals are Turkey Corn (*Dicentra canadensis*) and Squirrel Corn/Wild Bleedinghearts (*Dicentra eximia*), which has pink flowers

Eastern False Rue, *Enemion biternatumIsopyrum biternatum,* 8-16"; B (bees); PS-Sh; Mar.- May; white flowers resemble anemone; moist soils

Evening Primrose – see Primrose

Fairy Wand/Devil's Bit*, Chamaelirium luteum*, 1-4'; PS-Sh; Mar.-May; erect narrow clusters of white flowers

False Rosemary/Wild Rosemary, *Conradina canescens*, 3-6'; S; A, B, H; Feb.-Apr.; fine evergreen needles are fragrant; violet to lavender flowers; suitable to xeriscaping as it tolerates heat and humidity and is drought-tolerant; roots are allelopathetic, inhibiting growth of vegetation near it

False Solomon's Seal, *Smilacina racemosa*, 1-3'; PS-Sh; Apr.-Jun.; white flower clusters on arching stems

Fire Pink/Catchfly, *Silene virginica*, 12-24"; PS; H; Apr.-May; bright red star-shaped flowers in clusters

Fly Poison, *Amianthium muscitoxicum*, 1-2'; PS; Apr.-Jun.; tall erect leaves and white flower spikes; its name is accurate as all parts are toxic; moist soils

Fringeleaf Phacelila, *Phacelia bipinnatifida*, 1-2' biennial; PS-Sh; B; Mar.-Jul.; blue-violet flowers; cool, moist sites; seeds readily once established

Fringetree, see Small Trees, Apr.-May; clouds of fragrant white flowers

Florida Anise, see Shrubs, Mar.-May; dark red star-shaped flowers

Gaura/Beeblossom, *Oenothera lindheimeri /Gaura lindheimeri,* 2-6'; S; Apr.-Jun.; white flower clusters turning to pink; if cut back in summer, may regrow and rebloom in fall

Golden Alexanders*, Zizia aurea*, 1-3'; S-PS; B; Apr.-Aug.; yellow flowers; moist soils

Green-and-Gold, *Chrysogonum virginianum,* See Ground Covers, evergreen; 2-12"; PS; good drainage; Mar.-Aug.; golden disk-shaped flowers

Green Dragon, *Arisaema dracontium*, 1-3'; PS; Mar.-May; form similar to Jack-in-the-Pulpit

Heartleaf Foamflower, *Tiarella cordifolia;* 6-12"; Sh; Apr.-Jun.; white flowers on tall stalks; will spread by runners in soil which is rich in humus; well-drained

Hydrangea, see Shrubs, Apr.-Jun.; large white flower clusters

Illinois Bundleflower/Prairie Mimosa, *Desmanthus illinoensis,* 1-4'; May-Sep.; S-PS; A; fine- textured leaves and white ball-like flower clusters; rounded fruit pod; food plant for quail and other ground-feeding birds

Indian Pink, *Spigelia marilandica*, 1-2'; PS; Mar.-May; red-yellow trumpet-shaped flowers; prefers moist soils

Iris - upright swordlike leaves with brightly colored flowers. Iris was the Greek goddess of the rainbow, which hints at the wide array of colored flowers; they flower best with 6 or more hours of sunlight a day in soil that does not dry out.

Louisiana Iris refers to a group of 5 species:

- Abbeville Iris*, I. ×nelsonii (×brevicaulis × fulva × hexagona*), 4-6'; S-PS; a rare breed found only in one swamp in south Louisiana, the red to reddish-brown flowers have dna of three different species
- Copper Iris/Red Iris, *Iris fulva*, 2-5'; S-PS; Mar.-May; B, H; red or orange-red flowers; moist/wet soils
- Dixie Iris, *Iris hexagona*, 3-4'; S-PS; Apr.-May; blue, violet flowers, moist to wet
- Giant Blue Iris*, I. giganticaerulea*, 5-6'; S-PS; Mar.-Apr.; blue, occasionally white, lavender flowers; wet soils
- Zigzag Iris, I. *brevicaulis*, 1-2'; S-PS; Mar.-Apr.; blue or white flowers with yellow markings

Other native irises:

- Southern Blue Flag, *Iris virginica*, 2-3'; S-PS; Mar.-May; lavender blooms with gold blotches; moist soil
- Dwarf Crested Iris, *Iris cristata*, 6-16"; PS; blue to purple or white flowers; average to moist, well-drained soil
- Dwarf Violet Iris*, I. verna*, 6-10"; PS-Sh; semi-evergreen in cool regions; fragrant blue or violet flowers; acidic dry to moist soils which are well-drained

See also: *Iris X flexicaulis, I. prismatica, I. savannaru, I. tridentata*

Jack-in-the-Pulpit, *Arisaema triphyllum*, 12-18"; PS-Sh; Mar.-May; upright white flower (Jack) sits under a down-curving green and purple leaf structure (pulpit); needs moist rich

False Indigo Bush/Lead Plant, see Shrubs, Apr.-Jun.; purple flower spikes

Lily/ Spider Lily, *Hymenocallis occidentalis/H.caroliniana*, 1-2'; PS; Mar.-May; white disk flower surrounded by thin long white petals; other lilies, such as the similar Southern Swamp Lily, flower in summer

Little Brown Jug, see Ground Covers, Apr.-May.; greenish-yellow jug-shaped flowers

Lizard's Tail, see Water Plants, 2-3', S-PS; Apr.-Jun.; white upright flower clusters; moist soil

Lyreleaf Sage, see Ground Covers, 1-2'; S-PS; Mar.-Jun.; violet to blue flowers on erect spikes

Mayapple/Mandrake, *Podophyllum pelatum*, 12-18"; PS-Sh; Apr.-May; white drooping flowers under large upright leaves

Meadow Beauty – a dozen species of these delicate-looking pink or yellow flowers; fruits are small urn-shaped structures; most bloom for a long time, May-Sep.; part sun to full sun if soil remains moist

- Pink Meadow Beauty/Handsome Harry → *Rhexia mariana, R. alifanus*, *R. virginica*, 1-3'; S-PS; Apr.-Sep.; dainty pink or rosy flowers; long bloom time
- Yellow Meadow Beauty, Rhexia *lutea*, 1-2'; S-PS; May-Jun.; yellow flowers;

Meadow Rue/Rue Anemone, *Thalictrum thalictroides,* 6-9"; PS; delicate white-pink flowers; Apr.-Jun.

Milkweed ~20 species of Asclepias exist in the Southeast; excellent nectar plants for many butterflies and other insects; numerous projects promote growing milkweeds as host plants for the Monarch butterfly

- Aquatic Milkweed, *Asclepias perenni*s, 3-6'; purplish stems and evergreen leaves; S-PS; pink-white; May-Sept.; moist to wet soils
- Antelope-horn, *A. viridis*, 1-3'; S; Mar.-Sept.
- Butterflyweed, *Asclepias tuberosa*, 1-2'; S; May-Jul.; bright orange, red, yellow flat flower heads, well-drained soils
- Common Milkweed, *A. syriaca,* 3-6'; S (full sun); Jun.-Aug.; white-purple
- Blunt-leaved Milkweed, *A. amplexicaulis*, 2-3'; S; May-Jul., pink
- Green-flowered Milkweed, *A. viridiflora*, 1-3'; S; Apr.-Aug., green
- Red Milkweed, *A.rubra, A. lanceolata*, 2-3'; S; May-Sept., red
- Swamp Milkweed, *A. incarnata*, 3-6'; S-PS; pink-purple-white; Jun.-Oct.; moist to wet soils
- White-flowered Milkweed, *A. variegata*, 1-3'; S; May-Jun., white

Native Azalea: *Rhododendron canescens, R. austrinum*, others, see Shrubs, deciduous; Mar.-Apr.; showy displays in many colors: pink, white, yellow, orange; red

New Jersey Tea, see Shrubs, Apr.-Aug.; showy white flower clusters

Penstemon, see Beard-tongue,

Phlox - lovely flowers, popular for their long bloom time and vibrant colors

- Blue Phlox, *Phlox divaricata*, 1-2'; PS; Mar.-May; fragrant blue flower clusters
- Drummond Phlox, *P. drummondii*, annual; 6-18"; S-PS; Mar.-Jun.; pink to red flower clusters
- Prairie Phlox/ Downy Phlox, *P. pilosa*, 1-2'; S-PS; April-May; pink clusters
- Summer Phlox, *P. paniculata*, 1-4'; S-PS; summer-blooming from Aug.-Oct.; large flower clusters usually dark pink, sometimes white
- Moss Pink, *P. subulata*, 2-12"; S; Mar.-May; pink, magenta, or white flowers, fine evergreen leaves
- Similar species: Smooth Phlox (*P. glaberrima*), Meadow Phlox/Wild Sweetewilliam (*P. maculata*)

Pigeonberry/Rougeplant , *Rivina humilis*, 1-2'; PS-Sh; May-Oct.; A; pinkish-white flowers;

Prickly Pear Cactus, *Opuntia humifusa*, 2-4'; S-PS; May-Jun.; A; W; large yellow flowers

Primrose - cup-like blooms with 4 petals

- Common Evening Primrose, *Oenothera biennis*, biennial; 4-6'; S-PS; May-Oct.; B; yellow fragrant flowers open at evening to attract the Sphinx Moth
- Evening Primrose, *O. speciosa*, 1-2'; S-PS; Mar.-Aug.; A; B; pink "buttercups"
- Sundrops, *O. fruticosa*, 1-2'; S-PS; Apr.-Aug.; yellow flowers

Purple Coneflower →
popular with butterflies and people;,long-lasting in beds and floral arrangements;
see also Yellow Coneflowers in **Summer/Fall**

- Pale Coneflower *Echinacea pallida*, 2-3'; S; May-Jun.; lavender-white petals
- Purple Coneflower, *E. purpurea*, 1-4'; S-PS; Jun.-Aug.
- Others: *E. angustifolia*, *atrorubens, laevigata, sanguinea, simulata, tennesseensis*, and *Echinacea paradoxa*, a "purple coneflower" with yellow petals and brown central cone

Pussytoes, *Antennaria plantaginifolia /A. parlinii*, PS; pinkish-white flowers look like a kitten's paws, See Ground Covers, Evergreen,

Red Buckeye, see Small Trees, Deciduous; Mar.-May; H; W; tall red flower clusters; large brown seeds in fall

Rosinweed - tall erect plants with daisy-like flowers

- Wholeleaf Rosinweed, *Silphium integrifolium*, 2-5'; S-PS; Jun-Sep.; yellow flowers; dry sites
- Slender Rosinweed, *S. gracile*, 1-3'; S-PS; Apr.-Jul.; large yellow blooms resemble sunflowers

Shooting Star/Eastern Shooting Star, *Dodecatheon meadia,* 6-20"; PS; May-June; white-pink flowers resemble artist depictions of downward-pointing shooting stars; special value to bumblebees

Skullcap - trumpet-shaped flowers, usually bluish with white throats

- Helmet Flower, *Scutellaria integrifolia*, 1-2'; S-PS; Mar.-May; blue-violet tubular flowers on upright stems
- Hoary Skullcap, *S. incana*, 2-3', S-Sh; Mar.-May; bluish flowers; takes dry sites

Snowbell, see Small Trees and Shrubs, Mar.-Apr.; white bell-shaped flowers

Solomon's Seal, *Polygonatum biflorum*, 2-3'; PS; Apr.-Jun. white bell-shaped flowers drooping from stems

Sourwood, see Medium Trees, May-Jun.; small white flowers in drooping racemes; bees make fine light-colored honey from the pollen

Spicebush, see Shrubs, Mar.-Apr.; yellow flower clusters

Spiderwort, *Tradescantia virginiana*, 1-2'; S-Sh; Apr.-Jul. Individual blue- purple flowers last a single day; long flowering period

Standing Cypress/Scarlet Gilia, *Ipomopsis rubra*, 4-8'; Apr.-Jun.; red tubular flowers on long erect stems

Stokes Aster, *Stokesia laevis* →
1-2'; S-PS; May-Sep.; daisy-like, with ray flowers that resemble fringed or pinked petals; usually blue, occasionally violet; evergreen leaves

Sweet Pepperbush, see Shrubs, Jun-Aug.; sweet-smelling white flower spikes

Sweetshrub, see Shrubs, Apr.-Jun.; fragrant maroon flowers

Thimbleweed, *Anemone virginiana*, 2-3'; May-Jul.; S-Sh; small greenish-white flowers; thimble-shaped fruit;
other Anemones have blue flowers: *Anemone berlandieri, Anemone caroliniana*

Toothwort/Bittercress, *Cardamine concatenata/Dentaria laciniata*, 8-16"; PS-Sh; B; Mar.-May; pink to white tubular flowers; a woodland plant which needs rich moist soil; similar species: *Cardamine angustata, C. clematitis, diphylla, douglassii, parviflora, pensylvanica,*

Titi, see Small Trees, Apr.-Jun.; white flowers in elongated clusters; picturesque strands of seeds, Oct.-Jan.

Trumpet Creeper, see Vines, May-Sep.; orange and red trumpet-shaped flowers

Verbena/Mock Vervain - usually sprawling plants with abundant flower clusters

- Prairie Verbena, *Glandularia bipinnatifida*, 1-2'; S-PS; Apr.-Oct.; violet or lavender flower clusters
- Rose Verbena, *Glandularia canadensis*, 1-2'; S-PS; Mar.-Jun.; pink to violet clusters, sometimes white

Viburnum, see Shrubs, May-Jun.; large white flower clusters followed by attractive berries

Virginia Willow, see Shrubs, Apr.-Jun.; white drooping flower clusters

Violet Wood Sorrel, *Oxalis violacea*, Mar.-Jun.; pink to violet flowers standing above clover-shaped leaves

Wake Robin/Red Trillium, *Trillium sessile*, 6-18"; PS, light shade; Apr.-Jul.; maroon; about 20 southern species with purple-green petals surrounded by three large dark green leaves; flower parts are also in 3's: 3 petals, 3 sepals; colors can be white to pink to purple; trilliums are welcome signs of spring as they emerge from leaf litter in woodlands with rich, moist soil; another delightful plant that is available at nurseries, should never be taken from the wild

White Indigo, *Baptisia alba*, 2-3'; Apr.-Jun.; S-PS; showy white flower clusters on erect stems; several Baptisia species and hybrids exist in other colors: cream, yellow, blue; *B. albescens, B. australis, B. X bicolor, B. bracteate, B. sphaerocarpa, B. tinctoria*, more at **wildflower.org/plants**, a useful site which presents information and photos

Wild Geranium/Cranesbill, *Geranium maculatum*, 1-2', PS; Apr.-Jun.; pink flowers; leaves reddish in fall, not to be confused with the so-called weedy *Geranium carolinianum*, also known as Wild Geranium

Wild Petunia, *Ruellia humilis, R. caroliniensis,* 1-3'; S-PS; Apr.-Jun.; lavender to blue trumpet-shaped flowers

Wild Hyacinth, *Camassia scilloides*, 1-2'; Apr.-May; violet to blue star-shaped flowers on upright stems

Wisteria/American Wisteria, See Vines →
Mar.-May; blue to violet flower clusters 4 - 6 inches long

Seasonal Interest, Summer/Fall - Anyone who thinks that nothing will bloom in blazing sun and smothering humidity has never seen native plants in the wild. Yards designed with a strategic mix of shade and sun will let in enough light for plants to flower, while providing relief from glaring sun on homes and back yards. Ground covers and mulched planting beds reduce time spent on lawn care.

American Bellflower, *Campanulastum americanum*, 2-6'; Jun.-Sep.; I; light blue to violet flowers, upright stems

Asters (*Symphyotrichum* genus) - Dozens of asters grow throughout North America, often on well-drained sites. Aster blooms generally have disc-shaped centers from which narrow petals radiate in shades of white to blue; important pollen source for bees in fall

- Blue Wood Aster, *Symphyotrichum cordifolium,*2-4'; Jun.-Nov. S; light blue-lavender-white
- Eastern Silver Aster, *S. concolor,* 1-3'; evergreen basal rosette; S-PS; Aug.-Oct.; purple, lavender flowers on yellow disks
- Smooth Aster, *S. laeve* 1-4'; S; Jul.-Oct.; blue or violet flowers on purple disks
- White Baygall Aster, *S. umbellatus,* 4-5'; S-PS; Jun.-Aug.; large white flower clusters

Beggar's Ticks - Common names refer to the barbed seeds that stick to clothing; mostly annuals

- Nodding Sticktight/Nodding Bur Marigold, *Bidens cernua*, 2-5'; S-PS; Sep.-frost; yellow flowers; moist soil
- Shepherd's Needle, *B. pilosa*, 2-6'; S-PS; Apr.-Oct.; yellow central disk; ray flowers white; average soils
- Smooth Beggar's Ticks, *B. laevis*, 2-3'; S-PS; Sep.-frost; yellow rays and reddish disk; perennial; moist soil
- Tickseed Sunflower, *B. aristosa*, 2-5'; S-PS; Oct.-frost; yellow flower disks and yellow rays

Black Cohosh/Black Bugbane**,** *Actaea racemosa var. racemosa*, 3-8'; PS-Sh; B; shrub-like growth; flowers are erect tall candles of fuzzy white flowers (with a bad odor); moist, rich soils

Blanketflower/Indian Blanket, (right) *Gaillardia aestivalis* (perennial) and *Gaillardia pulchella*(annual), 1-2'; S-PS; B; Apr.-Oct. yellow-orange-red, sometimes pink and white; open dry sunny areas; special value for bees

Blue Mistflower/Wild Ageratum/Blue Boneset, *Conoclinium coelestinum/ Eupatorium coelestinum,* 2-3'; B; S-PS; July-Nov.; flat-topped clusters of fuzzy blue to purple flowers

Blue Sage, see Salvia

Boneset. Large plants with large flower clusters that attract butterflies; related to Joe-Pye Weed and Mistflower; over two dozen Eupatorium and related plants are common in the South; considered pests, by farmers, they provide nectar for bees and other pollinators in the fall

- Common Boneset, *Eupatorium perfoliatum*, 3-6'; S-PS; Aug.-Oct.; many flat-topped white flower clusters
- Roundleaf Thoroughwort/False Hoarhound, *E. rotundifolium*, 3-4'; S-PS; Jun.-Oct.; white flower clusters; dry sites
- Dog Fennel, *E. capillifolium*, 3-6'; S-PS; Aug.-Oct.; fern-like lacy leaves, tiny white flowers
- Yankee Weed/Cypress Weed, *E. compositifolium*, 2-4''; S-PS; white flowers

Bottle Gentian, *Gentiana saponaria*, 1-3'; PS; Oct.-Nov.; clusters of tubular blue flowers; moist sites

Butterfly Pea, see Vines, Jun.-Oct.; delicate pink, blue, violet pea flowers; delicate, showy; dry sites

Calamint – small evergreen or semi-evergreen shrubs for xeriscaping; 1-3'; S-PS; drought-tolerant once established in well-drained sandy soil

- Georgia Calamint, *Clinopodium georgianum*, lavender to white flowers
- Scarlet Calamint, *Clinopodium coccineum*, red flowers in summer and possibly all year; attracts butterflies and hummingbirds

Cardinal Flower, see *Lobelia*

Clematis/Native Virgin's Bower, see Vines, Jul.-Sep.; feathery white flower clusters

Compass Plant, Silphium *laciniatum*, 5-6'; S; Jul.-Sep.; yellow, sunflower-like; leaves face the sun

Culver's Root, *Veronicastrum virginicum,* 3-6': S-PS; white candelabra-like flower spikes; Jul.-Sept.; moist soils

False Aloe/Virginia Agave, *Manfreda virginica,* 1-3'; S-PS; Jun.-Aug.; thick, heavy upright leaves give a sculptural appearance; greenish- white flowers on stalks 4-7' tall; well-drained to dry soils; pollinated by sphinx moths

False Foxglove, *Agalinis fasciculata*, annual; 1-2'; S-PS; B; Aug.-frost; pink bell- like flowers

Featherbells, *Stenanthium gramineum*, 3-5'; S-PS; Jun.-Sept.; narrow clusters of white flowers on vertical stems

Flame Acanthus/Hummingbird Plant, *Anisacanthus quadrifidus var. wrightii*, 3-5'; B; H; S-PS; Jun.-Oct.; good candidate for xeriscaping; tolerant of drought and poor well-drained moist to dry soils; some cold tolerance, which may be dealt with by potting in containers to bring inside during hard freezes; red-orange tubular flowers attract hummingbirds and butterflies; larval host for the Texan Crescent

Flowering Spurge, Euphorbia corollata, 1-3'; S-PS; Jun.-Jul.; small white flowers; can be grown from seed

Fringed Loosestrife-, *Lysimachia ciliata,* 1-2', PS-Sh; Jun.-Sept.; B; bright yellow flowers; moist to wet sites

Pictured, right: Rabbit tobacco/Pearly Everlasting, *Pseudognaphalium obtusifolium*, is a favorite plant of the author; it is not included in the Index to Plants; one of many annuals with ornamental and wildlife uses (butterflies), it reminds readers that other fine native plants wait for discovery by dedicated ecogardeners.

Goldenrod - Excellent plants for landscaping and cut flowers. They do not cause hay fever. Ragweed does. Ranging from yellow to gold, *Solidago* species add important color in fall when other plants fade away. They are especially useful for dry soils and withstand drought and neglect.

- Wreath Goldenrod/Blue Goldenrod, *Solidago caesia*, 1-4'; S-Sh; Aug.-Oct.; yellow flowers, aching stems
- Gray Goldenrod, S. *nemoralis*, 1-3'; S-PS; Aug.-Nov.; pale yellow flower spikes, gray-green foliage
- Rough-leaf Goldenrod, *S. rugosa*, 2-6; S-PS; Aug.-frost; numerous small flowers on arching stems
- Sweet Goldenrod, *S. odora*, 2-8'; S-PS; Sep.-Oct.; abundant yellow flower clusters
- Zigzag Goldenrod, *S. flexicaulis*, 1-4'; S-Sh; Jul.-Oct.; stems are slightly zigzagged
- Another dozen species exist in the South and are worth collecting local seed to plant for beauty, pollinators

Hogwort/Woolly Croton, *Croton capitatus*, annual, 6" -3'; S-PS; B, A; Jul.-Sept.; fuzzy white hairs on leaves and white flowers; its presence indicates poor or disturbed soils; seeds are consumed by quail, doves, and other birds; Croton species are unavailable in nurseries, are often considered weeds but may be available in groups of naturalists who collect wild seeds

Horsemint, *Monarda punctata,* 2-3'; S-PS; B; W; Jun.-Oct.; →
showy yellow flowers with purple spots on top of pinkish bracts

Indian Plantain, *Arnoglossum plantagineum*/*Cacalia paniculata,*3-4'; S; Apr.-Jun., possible second bloom in fall; green-white flower heads; glossy basal leaves; all 7 species in this genus are native to southern states; a nature-first enthusiast would probably have to collect seeds to grow in a restoration ecogarden; once commonly found on prairies and pinelands; rich, open areas
The Xerces Society lists it in their Pollination Program:
"Supports Conservation Biological Control" as "a plant that attracts predatory or parasitoid insects that prey upon pest insects."

Ironweed, *Vernonia altissima*, 4-8'; S-PS; B (butterfly magnet) Aug.-Oct.; vivid purple flower clusters

Jerusalem Artichoke, see Sunflowers

Jewel Weed/Spotted Touch-Me-Not/Kicking Colt, *Impatiens capensis*, 2-5'; S-Sh; H; Jun.-frost; horn-shaped speckled orange flowers; average to moist soils; supposedly relieves poison ivy itch and athlete's foot

Joe-Pye Weed, *Eutrochium fistulosum*, 5-7'+; S-PS; B; Jul.-Sep.; tall purple flower clusters; average to wet soils; others include E. *dubium, maculatum, purpureum, steelei*

Liatris/Blazing Star - once abundant on American prairies; upright stems with many thistle-like flowerheads; some species resemble long bristle brushes; very colorful

- Gayfeather, *Liatris spicata*, 2-4'; S; Jun.-Aug.; rose pink to purple flower spikes
- Blazing Star, *L. pycnostachya*, 4-6'; S; Aug.-Sep.; tall purple flowers
- Button Blazing Star, *L. squarrosa*, 2-3'; S; Jun.-Sep.; numerous pink flower bunches;
- similar species include *L. aspera, L. acidota, A. elegans, A. tenuifolia*

Lily - True lilies belong to the *Lilium* genus. They have long, strap-like leaves growing from bulbs and producing showy flowers; other plants which are called lilies belong to other classifications and may be mentioned in other parts of the book; they are arranged here for easy reference; some are spring bloomers, also lumped here for simpler grouping.

- Atamasco Lily, Zephryantes *atamasco*, 8-15"; PS-Sh; Mar.-Apr.; white star-shaped flower
- Carolina Lily, Lilium *michauxii*, 1-4'; PS; Jul.-Aug.; curving yellow and orange flowers with reddish spots; rare and endangered; purchase ONLY nursery-propagated plants
- Southern Swamp Lily, *Crinum americanum* 2-3'; S-PS; May-Nov.; white spidery flowers; sometimes confused with the spring-blooming Spider Lily
- Spider Lily, *Hymenocallis liriosme*, 2-4'; Mar.-May; S-PS; H; white cup and long thin white "petals" have a spidery look
- Turk's Cap Lily, *Lilium superbum*, 3-8'; S-PS; Jul.-Sep. showy curving petals - orange, red, yellow
- Yellow Trout-lily/Yellow Dogtooth Violet, *Erythronium americanum*; 6"; PS (needs sun in early spring, otherwise part shade); Mar.-May; yellow flowers; similar species include *E. rostratum,E. albidum, E. umbilicatum*

Water Lily - Native water lilies are hardier than the tropical types and become dormant in fall;

- White Water Lily, Nymphaea *odorata,* 1-6"; Apr.-Jul.; S-PS; W; large fragrant white flowers with yellow centers; large rounded leaves with deep notches; leaves floating or erect above water surface
- Yellow Water Lily, *Nymphea mexicana*, 1-6"; S-PS; Apr.-Jul.; W; yellow flowers, floating or erect on stems above water; leaves blotched with brown
- Spatterdock/Yellow Pond Lily, Nuphur advena, 4-12"; Mar.-Oct.; S-PS; W; yellow flower amid large floating leaves

Lobelia – over a dozen pretty southern species which need moist to wet soils

- Cardinal Flower, *Lobelia cardinalis*, 2-4'; S-PS; A; B; W Jul.-frost; red flower spike; even moisture
- Great Blue Lobelia, *L. siphilitica*, 1-4'; S-PS; A; B; W; Aug.-Oct.; bright blue flower spikes
- Others, white or blue flowers: *L. amoena, L. inflata, L. puberula, L. spicata*, more

Mallow/Hibiscus- tall plants with large showy flowers; *Hibiscus* species and cultivars are often available in nurseries; often seen in abundance in undisturbed ditches and other moist to wet sites; *Callirhoe* species are just the opposite, sprawling sun lovers with pink or white flowers, suited for xeriscaping

- Poppy Mallow, *Callirhoe papave*r, 5-10'; S-PS; Mar.-Jul.; red, dark 1-2-inch pink flowers; dry sites; *Calllirhoe alcaeoides, C. bushii, C. involucrata,* others
- Swamp Rose Mallow, *Hibiscus moscheutos*, 3-6; S-PS; May-Sep.; pink, white, or red flowers up to 7" in diameter
- Halberd-leaved Mallow, *Hibiscus laevis/ H. militaris*, 3-6'; S-PS; May-Oct.; large light pink/white flowers
- Scarlet Rosemallow/Texas Star; *Hibiscus coccineus,* 4-7'; Jul.-Sept.; large red flowers attract hummingbirds
- Turk's Cap Mallow, *Malvaviscus arboreus*, see Shrubs, deciduous

Monkey Flower, *Mimulus alatus, M. ringens*, 1-2'; PS-Sh; Jun.-Sep.; blue or violet flowers with 2 flared petals

Morning Glory, see Vines, Apr.-Nov.; A; B; H; white, purplish, pink funnel-shaped flowers

Mountain Mint - About a dozen *Pycnanthemum* species reside in southern states. They attract native bees and their fragrant leaves can be used to make mint tea; two commonly available species ones: *Pycnanthemum tenuifolium*, *P. albescens,* 2-4'; May-Aug.; S-PS; silvery-white flower clusters

Obedient Plant, *Physostegia virginiana,* 3-4'; S-Sh; B, H; upright flowers are white to pink to purple; Aug.-Nov.; easy to grow and may become aggressive but easy to control; moist soils

Pagoda-plant

- Downy Pagoda-plant/Woodmint, *Blephilia ciliata*, 1-2'; PS-Sh; May-Aug.; B; clusters of fragrant white-blue-purple flowers; special value to bumblebees
- Hairy Woodmint, *Blephilia hirsuta*, 12-20"; PS-Sh; May-Sept.; blue-purple flowers

Passionflower/Maypop, *Passiflora incarnata,* see Vines; May-Sep.; intricate flower, light purple petals topped with white curling tendrils; maypop is the greenish yellow edible fruit; A; B, larval food of several butterflies,

Phlox/Summer Phlox, P. *paniculata*, 1-4'; S-PS; Aug.-Oct.; large flower clusters from dark pink to white; other phlox species bloom in spring,

Pokeweed/Poke Salad, Phytolacca *americana*, 6-12'; A; W; May-Sep.; white flower spikes; dark purple berries; unusual plant, edible if leaves are boiled and rinsed several times

Rattlesnake Master/Button Snakeroot, *Eryngium yuccifolium,* 3-6'; S; B (native bees; June to August; upright spiny foliage resembles grass or yucca leaves; greenish-white spiky globe flowers

Rose, see Shrubs, Jun.-Aug.; pink clusters

Rose-pink, *Sabatia angularis;* annual; 1-2'; PS; Jul.-Sept.; moist soils; other species include annuals, biennials, and perennials such as Marsh Rose Gentian, *Sabatia dodecandra*

Salvia/Sage - tubular flowers of these plants are designed to attract bees for pollen dispersal

- Blue Sage, *Salvia azurea*, 2-6'; S-PS; May-Oct.; deep blue or white flowers on tall spikes
- Mealy Blue Sage, *Salvia farinacea*, 2-3'; S; B; H; upright blue flowers, fragrant; moist soils
- Scarlet Sage, *Salvia coccinea*, annual; 1-2'; S-PS; H; Jun.-frost; tubular red to pink flowers, not to be confused with *Salvia splendens*, introduced from Brazil
- Nettleleaf Sage, *Salvia urticifolia,* 1-3'; PS-Sh; Apr. to Jun. flowers are blue-purple-white; dry soil; alkaline rather than acidic

Senna/Cassia - tall plants common to prairies and roadsides; bright yellow flowers attract bumblebees; very easy to grow from seed that was purchased or collected locally

- Partridge Pea, *Chamaecrista fasciculata/Cassia fasciculata*, 3-5'; S-PS; Jul.-Oct. flowers on erect stems; flat seedpods; A; B; seeds eaten by quail and songbirds
- Sicklepod, Sicklepod/Java-bean, *Senna obtusifolia*, annual; 2-5'; S; can be invasive
- Wild Senna: *Senna marilandica 4-6*': S-PS; Jul.-Aug.; B, H; *Senna herbecarpa* (Upper South)

Silk Grass/Golden Aster, Pityopsis *graminifolia*, 2-3'; S-PS; Jul.-Nov.; yellow daisy-like flowers and semi-evergreen grasslike leaves

Sneezeweed , *Helenium autumnale*, 1-3'; S; Sep.-frost; golden yellow flowers for sunny sites; similar to Bitterweed: others include *H. amarum*, a "weedy" annual 1-3'; S; Jun.-frost, numerous small yellow flowers, and *H. flexuosum,* with a purple-brown central cone; special value to bees

St. John's Wort, see Shrubs, Jun.-Sep.; yellow or golden flower clusters

Sunflowers – Over 3 dozen perennials and a few annuals with showy yellow ray flowers surrounding central disks which are either red-purple or dark yellow; sunflowers have large to huge flower heads which provide nectar for insects and seeds for many birds, wildlife, humans.

- Ashy Sunflower/Downy Sunflower, *Helianthus mollis*, perennial; 3-8'; Jun.-Sep.; dark yellow disk flowers
- Common Sunflower, *Helianthus annuus*, annual; 4-10'; May-frost; large dark flower head
- Jerusalem Artichoke, *Helianthus tuberosus,* 3-10'; Aug.-Oct.; golden flower heads 2-4" wide; edible nutritious tubers used in Permaculture gardens
- Narrow-leaved Sunflower/Swamp Sunflower, *Helianthus angustifolius*; 4-6'; Sep.-Nov.; reddish disks
- Tall Narrow-leaved Sunflower, *Helianthus simulans*, 4-8'; S; abundant bright yellow flowers
- Ox-eye Sunflower/Sunflower Everlasting/False Sunflower, *Heliopsis helianthoides*; not a true sunflower; 3-4'; S-PS; Jun.-Sep.; flowers last longer than Helianthus, which lose their petals

Swamp Milkweed, *Asclepias incarnata*, 2-6'; S-PS; Jul.-Oct.; pink flower clusters; other milkweeds bloom in spring

Turtlehead, *Chelone glabra*, 1-4; S-Sh; B, H; Jul.-Sept.; white-pink flowers remind us of a turtle's beak; other Chelone species may be white, pink, purple, or red; one cultivar is named 'Hot Lips'; needs consistent moisture, growing in full sun in damp soil but prefers a shady site; consider cold hardiness when selecting a species: *Chelone cuthbertii, C. lyonia, C. obliqua*

White Doll's Daisy, *Boltonia asteroides, B. diffusa*, 2-4'; S; Jul.-Oct.; small daisy-like white flowers with yellow centers; moist to dry soils

White Snakeroot, *Ageratina altissima,* formerly *Eupatorium rugosum*; 2-5' S-PS; Jul.-Oct.; white flower clusters

Wild Plum, see Plum, Small Trees, fruit, dark purple to black, ripening Jun.-Oct.

Yarrow, *Achillea millefolium*, 2-3'; S-PS; B; Apr. to Jul. or longer; botanists call this a "species complex" for its mixed parentage in the US – combining native species with introduced ones and their hybrids; leaves are fernlike and lacy, with a pleasant fragrance; white to pink clustered flower heads; easy to grow from seeds; dry sites; used medicinally; special value to native bees

Yellow Coneflower: upright stems topped with flowerheads that have conical centers surrounded yellow ray flowers; often quite drought-tolerant; A (birds eat seeds); B (native bees) see other Coneflowers in **Spring/Early Summer**

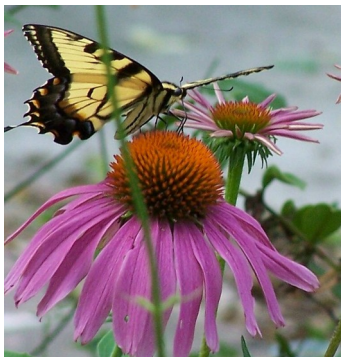
- Black-Eyed Susan, *Rudbeckia hirta,* 1-3'; S-PS; Apr.-Jul.; purplish-brown cones and dark yellow ray flowers
- Brown-eyed Susan, *Rudbeckia triloba*, 2-5'; Jun.-Oct.; similar to *R. hirta* (more coneflowers on next page)

(Yellow Coneflowers, continued from previous page)

- Giant Coneflower, *Rudbeckia maxima*, 2-6'; S-PS; Jun.-Sep.; yellow with dark central cones
- Greenheaded Coneflower, *Rudbeckia laciniata,* 3-12'; S-Sh; Jul.-Oct.; centers are greenish-yellow; moist soils
- Orange Coneflower, *Rudbeckia fulgida*, 3-4'; S-PS; May-Jul.; darker yellow petals, actually ray flowers,
- Prairie Coneflower, *Ratibida pinnata*, 3-5'; S; Jun.-Aug.; yellow daisy-like flowers
- Mexican Hat, *Ratibida columnaris*, 1-3'; S; Jun.-Sep.; drooping yellow, red petals with tall central "hat

Chapter 7
Monthly Calendar

Some gardeners choose to keep garden journals or other records to keep track of plant history, bloom & visual interest, and garden activities. This one was designed for the author's location in the deep South.



	Garden Interest	Gardener Chores
JANUARY	Witch Hazel flowers Butterweed (into April) Tree bark and silhouettes Birds which are easier to see on leafless limbs	Remove problem plants like privet Clean and sharpen tools Order seeds and plants from catalogs Prune pecans, roses, fall-blooming shrubs Observe and protect beneficial insects which appear in early spring; refrain from mowing/ pruning/burning until pollen and nectar are available
FEBRUARY	Redbud Yellow Jessamine Drummond Red Maple Spring Beauty	Fertilize fruit trees, other plants after bloom Sow or seeds of annuals, vegetables according to growing zone recommendations Prepare gardens and orchard areas
MARCH	Black Cherry, Wild Plums Mayhaw, Silver-bell Wild Violets	Sow seeds of annuals and vegetables Prune azaleas and other shrubs after bloom Set out warm season plants/watch for frost
APRIL	Fringetree, Red Buckeye American Wisteria, Irises Blue Phlox, Spiderwort	Identify and remove weeds (preserve insectary plants) Sow and transplant warm season plants Apply fresh mulch, but not too much
MAY	Oakleaf Hydrangea Virginia Willow, Phlox, Coreopsis	Deadhead spent flowers; clean flower beds, Set out summer vegetables Thin vegetable plants to avoid overcrowding

JUNE	Clethra, Coreopsis Evening Primrose Purple Coneflower Coral Honeysuckle	Watch for insect pests, and control with eco-friendly methods that do not harm beneficial bugs and birds Set out tender plants for summer Prune in June: continue to pinch back ironweed, other tall wildflowers
JULY	Native Mallows Beebalm/Wild Bergamot Black-eyed Susan Butterflyweed	Order plants for fall/winter planting Take field trip to see wildflowers in bloom Cut back daylilies, exhausted annuals Weed, water, mulch through autumn
AUGUST	Cardinal Flower Yellow Coneflowers Jewel Weed, Sunflower Butterfly Pea	Protect plants against sun scald, drought Divide perennial clumps of Louisiana Iris and other crowded plants Sow fall garden vegetables
SEPTEMBER	American Beautyberry Blazing-star/Liatris Milkweed/Butterflyweed Trumpet Creeper, Ironweed	Collect seeds of flowering annuals other plants for propagation Set out cool season flowering plants Plant seeds and vegetables for fall garden
OCTOBER	Sunflowers, Wild Asters Sugarcane Plumegrass Pink Muhly, colorful foliage on Sweet Gum, Sourwood, Virginia Creeper	Set out vegetable plants Select trees and shrubs for winter planting Remove spend flowering plants and replace with cool season plants
NOVEMBER	Boltonia, Silk-grass Misflfower, Goldenrods Colorful foliage: huckleberry, Sumac, Sweet Gum, Sourwood	Prepare for frost; protect tender plants Plant cool season bedding plants, bulbs Collect leaves and other materials for compost Collect seed catalogs
DECEMBER	Red berries on female hollies: American Holly Yaupon, Possumhaw holly Evergreens: Bay, Yucca	Plant trees and shrubs Set out winter crops Mulch beds to protect roots from cold damage Plan for spring garden; order seeds, plants

January – December

Take photographs of flowers, bugs, birds, trees with interesting forms and leaves, scenes of the entire front yard, back yard, field trips, wherever natural beauty is found

Glossary - of Important Terms, Facts, & Other Useful Information

Acidity – see Soil pH

Alkalinity - see Soil pH

allelopathic – chemicals that a plant produces that retard the growth of another plant near it; black walnut trees, for example, create a toxic substance, juglone, which prevents many plants from growing under its canopy

annual – a plant that grows from a seed, makes flowers, sets seeds, and dies completely, all in one season; some plants that die in winter in one region may be considered perennials in another area; flowering annuals are popular bedding plants because they often make colorful flowers or have attractive foliage

arboretum – a place where trees, shrubs, and other plants are grown for public display and scientific study

beneficial insects - small animals of the biological class *Insecta* that perform important functions:

- pollinators: native bees, including the Orchard Mason bee and the bumblebee
- predators of harmful insects:
  - native lady beetle/ladybug, which eats aphids
  - lacewing, which devours caterpillars, aphids, praying mantis,
  - ground beetle, damselfly, and other useful creatures, including spiders, wasps, and even flies and other insects which have some part in the natural order we don't completely understand
- parasites, which lay eggs that burrow into the pest insect's body or its eggs: tachinid flies, braconid wasps, various beneficial nematodes, others

botanical nomenclature – the system of naming each plant so that it can be recognized worldwide; names are binomial, meaning "two word": the first name is the scientific group called **genus** and the second name is the sub-group called **species**; for example, the American Plum is *Prunus mericana; Prunus* comes from the Latin name for a European plum; *americana* specifies its origin, or some other identifying description. Varieties of species are often different types of plants within a species; their names are added after the species following the abbreviation *var.*

chilling hours – period of cold weather, under 45 degrees, needed by tulips, fruit trees, and many other trees and perennials; chilling hours regulate plants' times for growing leaves and flowers; only those fruit trees with low chilling hours can be grown successfully in the South

companion plants – the practice of growing plants together for various purposes

- ornamental plantings - taller plants make shade for low-growing annuals; late-in-season flowering plants that conceal unsightly perennials which have finished blooming; certain non-aggressive vines trained to climb into trees where their summer flowers can be enjoyed;
- practical plantings - legumes, beans, peas, clover, that enrich the soil with their ability to take nitrogen from the air to fix into their roots; plants that attract beneficial insects; plants with pest-repellent properties; trap crops which attract pests away from desirable vegetables and other plant

cool season plants – those that grow best in late fall into spring:
- vegetables: broccoli, cabbage, carrot, collards, lettuce, mustard greens, parsley, spinach, turnip
- ornamentals, usually annuals: dianthus, flowering cabbage, pansy, viola, Johnny Jump-Up,

compost – decayed organic material, leaves, grass clippings, manure from farm animals, other products derived from biological organisms,

Cooperative Extension Service – a federally-funded national program that provides information about agriculture, home economics, natural resources, and other areas; each state has its main office at its land-grant university as well as local or regional offices; County Agents, college professors, and other personnel are on staff to provide expert advice to homeowners who have questions about farming, gardening, pest control, food safety, and other concerns

County Agent – a representative of the **Cooperative Extension Service** who works with farmers, homeowners, youth groups, other organizations, and individuals

cultivar – a *cult**i**vated var*iety, a particular form or variety of a plant that was created, by artificial methods such as controlled pollination, or chosen from natural hybrids; cultivars are maintained by cuttings, vegetative propagation, or from seeds pollinated by the same cultivar; a cultivar is, more or less, a natural plant that was re-designed by humans

cultivate – tending the soil; breaking up the soil to loosen and aerate it, remove weeds, or turn under cover crops and work in organic material, farm animal manure, compost, etc.; some organic gardeners and farmers with rich soil find ways to reduce or eliminate deep tilling that may harm the structure and moisture regime of the land; home gardeners often need very shallow cultivation to keep plant beds in good condition; **cultivate** also refers to the effort of raising and growing plants

culture – the methods and materials of growing plants, especially under artificial conditions; indoor plants, cultivating plants in a prepared medium such as shredded bark; see **soil-less media**

dormancy – a plant's rest period when it stops aboveground growth to save its energy in its roots or stems; deciduous trees often drop their leaves before winter; other plants stop growing in the heat or dryness of summer; dormancy is triggered by temperature change, increase or decrease in hours of daylight, or differences in rainfall; some plants require cold weather to set fruit; see **chilling hours**

drainage – describes the movement of water through soil around a plant's roots, not just from the surface of the soil; soils that do not have good drainage become waterlogged; soils that drain very quickly become too dry; both extremes cause problems with plant roots; see **soil moisture**

dynamic accumulators – a permaculture concept which claims that some plants, like comfrey, send deep roots to mine for minerals; when the top parts dies, the nutrients return to the topsoil

evergreen – a plant that appears to have leaves all year; pines, live oaks, Southern Magnolias hold leaves all winter; evergreens do lose leaves, either briefly, or gradually, over years, as new leaves replace old ones; evergreens are never leafless as are deciduous plants that have become dormant

exotic – a plant that has been brought into a different region from the one it grew in naturally; a foreign plant; exotic plants from South America, Europe, and China are still being introduced into the US; exotic plants can naturalize and adjust to the new environment, the most vigorous can reproduce and become invasive; some naturalized exotics replace wild native plants and adversely affect natural habitats, especially fragile woodlands and wetlands

fertility – the amount and quality of nutrients in soil; fertilizers are added to the soil or applied to plant leaves in foliar sprays; fertilizers are applied only when plant growth requires supplemental quantities of nitrogen and other elements or compounds; fertility also refers to plant's reproduction through the transfer of pollen

fertilizer – materials added to supply nutrients for plant growth; they are usually added to the soil but can be sprayed on plant foliage. See Chapter 3: Practical Matters.

- **inorganic** fertilizers are manufactured in chemical processes; these synthetic formulas are cheaper than animal manure and are very easy to obtain and use; commercial fertilizers contain the **macronutrients** often needed by plants; the three main ingredients are indicated by numbers that express the percentages of each nutrient; for example, 8-8-8 on a fertilizer label means that the material is 8% nitrogen, N, See 8% phosphorus, P, See and 8% potash, K, which is a form of potassium. Fertilizers are usually *incomplete,* since they do not contain all the nutrients your plants may need. A Soil Analysis will recommend which concentrations of fertilizer nutrients are needed to correct deficiencies in your soil
- **organic** fertilizers have become commercially available in the last decade; proponents of organic growing think that traditional salt-based fertilizers pose too many environmental hazards and can seriously degrade soil quality; organic growing concentrates on building healthy soils with rich **tilth** and beneficial microbes such as nitrogen-fixing bacteria; organic soil amendments include compost, compost tea, and other products derived from natural sources

forb – a herbaceous plant other than grass: flowers, vegetables, herbs

germinate – the beginning of growth of a seed, when it makes its first root and begins its development into a plant; **viability** refers to its potential to survive—some seeds are viable for years, while others must be planted shortly after they become mature; seeds require certain conditions of light, moisture, heat, and air; seeds are sown at various depths--tiny seeds on the surface of the soil, large seeds buried at 2 to 3 times their width

hardiness – the ability of a plant to survive freezing weather and other conditions; consider these dates when deciding times to plant. Check the USDA Plant Hardiness Zone Map for your area.
The Farmers' Almanac periodical and website also provide information about planting "with the moon" and other garden lore, best times to plant, prune, harvest, go fishing, etc.

area	zone	last frost date	first frost date
Kentucky	6	March 30 to April 30	Sept. 30 to Oct. 30
Southern Georgia	8	February 28 to March 30	October 30 to November 30
Southern Florida	10	January 30 or earlier	November 30 to December 30

herb/herbaceous – a plant with no persistent woody stem above ground; dies back to the ground at the end of the growing season

herbicides – chemicals that kill weeds, grass, unwanted vegetation
- pre-emergent herbicides – stop plant seeds from germinating
- post-emergent herbicides – kill plants that have germinated and have started to grow
- nature-first herbicides are touched on briefly in Chapter 3: Practical Matters.

humus - decomposed plant and animal material; the dark, fine-textured end product of composting; healthy productive soil is at least 5% humus

hybrid – a plant resulting from a cross between two or more species or varieties; cross-fertilization can improve plants' qualities, crops, or disease resistance; hybrids may not breed true and their offspring may revert to original types; hybridized grains, vegetables, and fruits are often researched by plant scientists to increase food production for the growing human population; controversy exists over genetically-modified food crops

hydric – see **soil moisture**

inorganic – matter that is non-living; mineral, as opposed to plant or animal; see **fertilizer**

insecticide – toxic agent to kill insect pests; conventional farm operations use these poisons to kill insects that threaten their crops; homeowners use more insecticides per acre than farmers, sometimes in "weed-and-feed" chemicals and other products that are applied inappropriately; potential hazards of exposure to pesticides include cancer, birth defects, damage to human hormones, nerve damage, reproduction problems; risks to environment include pollution of drinking water, destruction of beneficial organisms and wildlife; best practices to control insects involve biological controls and other aspects of **Integrated Pest Management, IPM, which still, unfortunately, advocates products that can harm pollinators and other wildlife.**

introduced – a plant that was brought from one country or region into another, either intentionally or accidentally; also referred to as **exotic**; introduced plants can become **invasive**

invasive – a plant that spreads aggressively outside its native range; invasives can be bothersome weeds in a garden; on large properties and wild habitats invasives can spread out of control and severely reduce populations of native plants; exotic plants can also introduce diseases and pests to which native plants and animals are very susceptible

loam - see **soil**

mesic – see **soil moisture**

microclimate – conditions of temperature and humidity in a small area that differ from the surrounding climate; a shady back yard may be cooler in the summer than other property in an entire neighborhood; microclimates are influenced by such factors as bodies of water, windbreaks, deforestation followed by building construction and paved areas

microelement – see **soil nutrients**

microorganism – microscopic-sized organisms, life forms, that increase soil quality; also called microbes, they improve soil structure and nutrients by decomposing plant and animal matter; microflora, microscopic plants, and microfauna, microscopic animals, include beneficial and harmful forms: algae, bacteria, fungi, nematodes, protozoa, yeasts

minerals – see **Soil Nutrients**

mulch - a protective layer, usually of organic material, that regulates soil moisture and temperature. Mulches also discourage weed growth. In nature, mulch consists of fallen oak leaves, pine straw, other composted materials

mycorrhiza – beneficial organisms which are present in healthy soils and which attach to or enter roots of plants; mycorrhiza fungi, plural of fungus, exist in a symbiotic relationship with infected plants: the fungus increases the plant's roots ability to take up nutrients; mycorrhiza may die in soils that are heavily fertilized or over-cultivated

native plant – one that originated in an area naturally before humans introduced plants from other regions; *Putting Nature First* recommends that natives be chosen over non-natives for landscaping purposes and for lessening the risks involved with importing plants from other countries or regions; Sudden Oak Death, or SOD, *Phytophthora ramorum*, has destroyed thousands of oak and other plants in the West; SOD has been discovered in nursery stock shipped from Oregon and California to the South

nitrogen – one of the nutrients needed for plants to grow; nitrogen is abundant in the air but not in the soil where plant roots need it to make chlorophyll; rainfall carries nitrogen from the air into the soil, which explains partly why plants respond better to rain than to irrigation; plants with adequate supplies of nitrogen are dark green; nitrogen enables plants to make protein and increases yields of fruit, seeds, cereals; plants indicate nitrogen deficiency when their leaves appear stunted, yellowish or light green; gardeners can increase nitrogen with organic matter or with chemical fertilizers, urea, ammonium nitrate, and others,

nutrients – see **soil nutrients**

organic – term describing living organisms or products derived from them; materials containing carbon compounds associated with the natural environment; different from inorganic materials, minerals, rocks; in agriculture, the term refers to the use of natural ingredients and methods while avoiding chemicals, natural or synthetic, and systems that may harm the ecological balance; organic gardeners, for example, use compost and employ practices that are called environmentally-friendly; organic materials are not inherently safe, as many naturally-occurring compounds are poisons, pyrethrin, for example,

peat moss – partially decomposed plant matter from a peat bog; used as a soil conditioner and in soilless potting mixtures; Sphagnum peat moss is the most popular type; holds water but can dry out and blow away when used by itself as a mulch; environmentalists and harvesters are working to restore peatlands that have been depleted for horticulture peat moss; see **soilless media**

perlite – soil additive made from volcanic rock; resembles tiny white balls; retains moisture in soilless potting mixes, allows air circulation; used to start seeds and cuttings for propagation, but is too lightweight to anchor roots of larger plants; see **soilless media**

perennial - a plant that lives for two or more years; the term technically applies to trees, shrubs, and vines, but gardeners generally use the word to describe herbaceous plants whose top growth dies back in the winter, then regrows in spring; perennials are more permanent than annuals but have a fairly short bloom time; most plants in Flowers and Seasonal Interest are perennials

pesticide – a chemical agent used to kill pests: insects (insecticide), mold and fungus (fungicide) weeds (herbicide); other organisms such as mammals are killed with deadly poisons such as rodenticides; nature-first gardeners avoid these measures and use methods that don't harm the environment.

phosphorus – one of the primary nutrients; enables overall plant health, strong roots, disease resistance, and good production of flowers and fruit; a symptom of phosphorus deficiency is a red or purple discoloration of leaves or stems; see Soil Analysis

photosynthesis is the process by which plants use energy from sunlight to convert carbon dioxide and water into sugars and starches, which are the plant's food,

pollination – the process of transferring pollen from the male part of a plant, anther, to the female part, stigma, ; fertilization occurs if the plant is successful in setting fruit and seed; cross-pollination involves pollen exchange between two different varieties; a number of plants produce better crops, are fruitful, when they are cross-pollinated, squash, apples, blueberries, ; some plants are self-fertile if they make good crops with their own pollen; pollination can take place by the action of bees and other insects, butterflies, and wind. Growers of some hybridized plants such as fruit trees hand-pollinate to ensure desirable qualities

potassium - one of the three major plant nutrients; potash (potassium oxide) is the compound found in livestock manure, plant residues, and natural mineral sources, though some chemical potash contains unwanted levels of salt and chlorine; potash allows plants to produce sugars and starches and helps them resist diseases and pests; wood ash may be used as an organic fertilizer as long as its alkalinity does not disrupt soil pH; potash deficiency is indicated by yellow discolorations on leaves, poorly developed crops, weak, sickly stems

propagation - reproducing plants by several methods; consult garden books for details and instructions:

- asexual, or vegetative cloning by several methods: cuttings of stems or leaves, division (of overgrown clumps or bulbs), grafting (attaching pieces of a plant onto a different plant, often with fruit trees, separation (of running stems of strawberries, vines), layering (causing roots to grow from stems exposed to soil)
- sexual reproduction from seeds

provenance – refers to a plant's place of origin; it applies generally to native plants and the climate and geography where they grew in the wild before humans introduced species from other regions; locally-grown trees and other plants often have better survival rates than ones imported from sources hundreds of miles away in a different climate zone

pruning - pinching, cutting, or trimming to control plant growth; requires sharpened pruning tools, loppers, or saws to make clean cuts; refer to Cooperative Extension Service advice or garden book instructions and techniques; important reasons include

- removal of dead, diseased, or injured stems, as well as branches that rub against one another or which touch a structure
- control of the size or shape of plants
- encouraging healthy growth of foliage, trees, shrubs, perennials, flowers, roses, fruit, grapes, fruit trees,
- thinning out branches to open up the interior for better light and air penetration
- reinvigorating old or poorly growing shrubs

resistance – the ability of plants to withstand disease or insect damage, such as tomato varieties that resist a number of viruses; native plants often resist pests and diseases more readily than non-natives; also a reference to plants and animals that survive exposure to poisons, weeds that become resistant to herbicides, insects that acquire pesticide tolerance; overuse of chemicals can lead to agricultural problems that are increasingly difficult to manage

soil - the top layer of the earth's surface, composed of particles of minerals, organic material, water, and air, oxygen, carbon dioxide, and other gases,

soil nutrients are the chemical elements plants need to grow; they are divided into 2 types:

- non-mineral nutrients – hydrogen (H), oxygen (O), and carbon (C); these 3 elements enable photosynthesis
- mineral nutrients – these elements in the soil are dissolved in water and are taken up in plant roots; plants need varying amounts of these minerals to survive fertilizers are added to soils to correct nutrient deficiencies; see **fertilizer**; major nutrients are called
  - --**macroelements/macronutrients** – necessary in fairly large amounts
    primary macronutrients are nitrogen (N), phosphorus (P), and Potassium (K); the main components of fertilizers; growing plants use these up quickly;
    secondary macronutrients are calcium (Ca), magnesium (Mg), and Sulfur (S); these elements are more likely to be present in the soil and don't usually require fertilizers to increase their presence in the soil; soil testing is strongly recommended
  - --**microelements/ micronutrients** – also called trace elements because very small amounts of these are needed for plants to grow; boron (B), copper (Cu), iron (Fe), chlorine (Cl), manganese (Mn), molybdenum (Mo), and zinc (Zn); organic matter often contains sufficient quantities of microelements

soil pH is a measure of potential hydrogen in the chemical reaction when soil chemicals dissolve in water; on a scale from 0 to 14, a low potential is considered acidic and a high potential is considered alkaline; acid soils usually run from 4.5 to 6.5; alkaline soils run from about 7.5 to 8.5; 7 is neutral; soils lower than 5 are called sour; soils over 7.8 are called sweet; most plants prefer a pH near or just neutral; a few, such as blueberries and azaleas, prefer very acid soil, which has more magnesium than it does calcium.
Caliche soils are rich in calcium, which creates a whitish layer of concreted hardpan which prevents water from draining properly. Gardeners will need to cope with this condition by building raised beds or choosing native plants which tolerate poor drainage, caliche or clay soils, salty or rocky soils, other soil problems.
These difficult conditions are more prevalent in the western states.
Refer to the internet map at Soil pH@BONAP

soil friability is its ability to crumble or be broken up to be planted; see **soil tilth**

soil moisture describes the ability of the soil to hold water:
H - hydric, wet
M - mesic, moist
X, - xeric, dry
SX - sub-xeric, seasonally moist, periodically dry
H - hydric soils are wet to the extent that they become anaerobic, not allowing air flow; suitable for water plants or plants that tolerate considerable flooding
M - mesic soils are moist, retain enough water for most plants to survive all year
X - xeric soils are dry, unable to retain water
SX- sub-xeric soils are seasonally moist and periodically dry

soil structure – the ability of soil particles to group together into larger pieces, called granules or crumbs; good soils are crumbly, made of soil crumbs and porous enough to allow water and air tocirculate; organic matter is another component of structure; see **soil texture** for descriptions of soil particles

soil texture refers to the size of mineral particles, no organic matter:
- sand is the largest particle; has a gritty feel; holds nutrients poorly; drains well; does not hold roots well; erodes
- clay is the smallest particle; has a smooth feel; fair to good nutrients; drains poorly; compacts easily; heavy and slippery when wet and hard when dry
- silt is a medium-sized particle; has a smooth, powdery feel; good nutrient capacity
- loam is soil that has fairly equal amounts of sand, clay, and silt; has a loose, crumbly structure; retains water but drains well if the site allows; retains nutrients and holds organic material

soil tilth is its quality and suitability for gardening; it is loose-structured, has good texture, is dark with **humus**, allows air and water to penetrate to depths where plant roots grow; see **soil friability**

soilless media – material used to grow plants in containers; nurseries makes their own mixtures almost entirely of ground bark, usually pine bark; home gardeners can buy potting soil that does not actually contain soil because of its heavy weight; soilless mixes are mostly ground bark, **peat moss**, **vermiculite**, **perlite,** and coarse sand; some gardeners remove soilless mixtures from container-grown plants they put into the ground so that roots will have to grow into native soil

species – see **botanical nomenclature**

tilth – see **soil tilth**

trace elements- see **soil nutrients/microelements**

transpiration – the movement of fluids through plant surfaces; trees take up water through their roots and their leaves release it as water vapor into the atmosphere; environmentalists worry that worldwide destruction of forests (deforestation) disturbs this water recycling process that is vital to cloud formation and rainfall

variety – see **botanical nomenclature**

vermiculite – a mineral processed from mica; added to soilless potting mixes to hold moisture, permit air circulation; resembles gold or silver metallic flakes; sterile, lightweight, used to prevent damping off of seedlings, should be dampened before using to avoid breathing its dust; see **soilless media**

xeric – see **soil moisture**

xeriscape – dry landscape; xeriscaping is a landscape practice using drought-tolerant plants and minimal irrigation to conserve water

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Additional Resources

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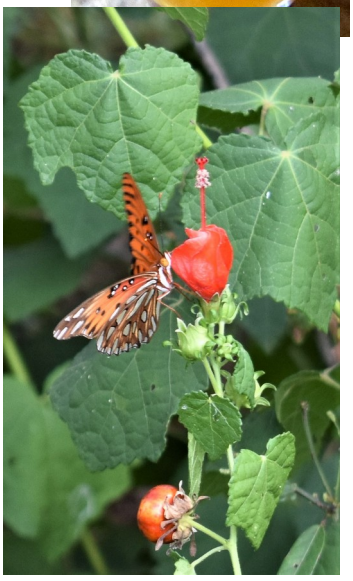
Gardening with Native Plants of the South Paperback, by Sally Wasowski (Author), Andy Wasowski (Contributor)

A leaf well spent→

A purple *Passiflower incarnata* blossom becomes a
maypop fruit which songbirds and mammals eat.
And which cooks save to make the best jelly.
Caterpillars eat the leaves raw,
while human foragers prefer theirs in a jar.
The orange-and-black "cat" looks scary but doesn't sting.
It transforms into a cocoon
which transforms into a Gulf Fritillary butterfly,
which visits many flowers for nectar
and then lays eggs on passionflower leaves.
And the circle of life goes around and about.



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